BREWERY CREEK PROJECT

1998 GEOLOGICAL, GEOCHEMICAL, TRENCHING and DRILLING ASSESSMENT REPORT ON THE BDM, EEL, FLEE, ELE and LEE CLAIMS

093962

January 20, 1999

Dawson Mining District
N.T.S. 115'/16 and 116 B/1

Latitude: 64°02' North
Longitude: 138°15' West

Owner: Viceroy Minerals Corporation

Author: Vivian Park

Date of work: May to November 1998

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DAWSON, Y.T.

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 69,200.

M. B.

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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EXECUTIVE SUMMARY

The 1998 Brewery Creek exploration program included 6,009 meters of RC drilling and 15,396 meters of trenching for a total expenditure of $1.8 million. The work was conducted within the Reserve Trend outside of the currently defined pit limits and in the outboard exploration zones. The purpose of this work was to increase the oxide resource within a feasible haul from the leach pad and to develop higher-grade structural targets across the property. The program was successful in increasing the Bohemian resource to 59,427 ounces. However, work conducted adjacent to the currently defined pit limits in the Reserve Trend failed to add ounces to the resource.

In the Bohemian Zone, a gold resource of 1.31 million tonnes of 1.42 gpt was defined. Ninety-five percent of the resource is classified as measured; eighty-five percent of the resource is classified as oxide. Drill hole intercepts of oxide material include 1.2 gpt / 40.0 meters, 1.45 gpt / 34.0 meters and 4.42 gpt / 46.0 meters. Intercepts of sulfide material include 1.62 gpt / 30.0 meters, 1.97 gpt / 44.0 meters and 13.3 gpt / 14.0 meters. The mineralization remains open along strike to the southwest and toward the Schooner zone to the southeast, and there is potential to add to the resource. However, this zone is structurally complex, and additional definition drilling will be required to better define and predict gold mineralization. Bottle roll test results indicate recoveries of > 80 % to depths of 60 meters from surface.

Trenching at the west margin of the Schooner zone yielded 1.27 gpt / 50.0 meters from oxidized monzonite. This target, when drill tested returned gold values of 2.29 gpt / 6.0 meters and 3.04 gpt / 10.0 meters; however, this mineralization is hosted within a very structurally complex domain and the zone appears very limited in extent. Farther southeast, trenching defined steep east-trending structures that cut Steel Formation footwall rocks, to form a mineralized trend over 2.5 km long. Although the gold grades are not high (1.32 gpt / 17.7 meters) this style of mineralization is interesting and warrants follow-up work, as it is the only occurrence of mineralization in structures that cut potentially reactive footwall stratigraphy. These structures combined with the presence of high angle NNE structures that mimic the drainage pattern may represent a new target for replacement potential as well as feeders to sulfide mineralization.

Extensive trenching was conducted in the South Canadian and Sleemans zones. In the South Canadian, a long gold-in-soil anomaly is explained by the presence of a narrow, mineralized south-dipping sill that invaded a minor thrust. Typical gold results from this sill include 0.51 gpt / 4.0 meters and 1.27 gpt / 6.0 meters; this area will have no impact on the resource and further work is not recommended. In the Sleemans zone, trench results confirmed narrow intrusive-hosted mineralization that was drill-tested in 1992; however, the work did not increase the existing targets or identify new ones. In the south Sleemans zone, cm-scale quartz arsenopyrite veinlets hosted within Earn Group sediments returned 16.08 gpt; when these veinlets were sampled with wall rock material, the best gold intercept was 1.12 gpt / 10.0 meters. Due to the low-grades, the distance from the leach pad and the lack of an economic critical mass additional work is not recommended.

Drilling and trenching across steep NNW-trending structures in the Lucky zone, East Big Rock zone and Lucky- Golden Gap failed to confirm that these act as conduits for mineralization at higher levels. However, deeper drilling across steep NNE and NNW structures that cut the potentially reactive calcareous Road River Group footwall stratigraphy is still highly recommended. Fault gouge from a west-directed thrust surface at the Moosehead – North Slope boundary returned 22.06 gpt. The significance of the intercept is uncertain, but its occurrence and possible relationship to the deep mineralization encountered in DD95-85 should be investigated.

Work in 1999 will focus on expanding the resource in the Bohemian – Schooner area through systematic trenching and step-out drilling. The Bohemian zone and Schooner zone have the best potential to add to the mineable oxide reserves. The North Slope Zone, which received very little attention in 1998, will require 1,500 meters of drilling to define mineralization at 50-meter centers. Additionally, aggressive drilling will be required to investigate the deep gold intercept in DD95-85.

CHAPTER 1: INTRODUCTION

1.1 Introductory Statement

The Brewery Creek Mine is a bulk tonnage heap leach gold operation located 57 kilometers due east of Dawson City, Yukon Territory (Figure 1.1). The property, owned and operated by Viceroy Resource Corporation, consists of 803 contiguous quartz claims that cover 16,785 hectares. Mine and camp facilities, pit and dump areas, and the surrounding exploration zones are all contained within the claim block.

A global geological resource, of 43,809,106 tonnes of 1.03 gpt gold has been drill-defined within thirteen deposits; ten of these deposits are scheduled for mining. This resource contains an oxidized portion that is amenable to heap leaching. The purpose of the 1998 exploration work was to increase the resource base within a feasible haul from the leach pad and to develop higher-grade structural targets across the entire property. Reverse circulation drilling and trenching was conducted adjacent to currently defined deposits, outside the pit limits, in an attempt to expand the oxide reserves in these areas. Intensive trenching programs were conducted in previously under-explored regions that displayed significant gold-in-soil geochemical anomalies. A measured resource of 59,427 ounces was realized in the Bohemian zone, where mineralization remains open-ended

This report summarizes the exploration work conducted during the 1998 field season that spanned from May 12th to November 21st.

1.2 Location and Access

The Brewery Creek property is located 57 kilometers due east of Dawson City, Yukon Territory on NTS map sheet 116B-1 at latitude 64°02'N and longitude 138°15'W (Figure 1.2). Road access from Dawson city is 40 kilometers east on the paved Klondike Highway, 7 kilometers north on the all weather Dempster Highway, 13 kilometers east on the 2WD North Fork Road, and then 6 kilometers on the company road.

The Dempster Highway has a chip-seal surface to just past the access to the North Fork Road; the remainder of the highway is unpaved.

The North Fork Road or "Ditch Road" was built in 1928 to service a water diversion project that supplied water to the dredges in the Klondike gold fields. In 1996, this stretch of road was upgraded to Yukon Territorial Government standards. The two river crossings, across the North Klondike River and Lee Creek, have bridges with weight limits of >50,000 kilograms.

The company road was built by Noranda Exploration Company Limited (Norex) in 1989 and has been steadily upgraded since. In 1994 the road was realigned and reconstructed to meet standards for a drive-to-mine facility from Dawson City.

Travel time from Dawson City to the mine site is approximately 50 minutes.

1.3 Physiography and Vegetation

The property is located in the foothills of the Ogilvie Mountains, with elevations ranging between 540 and 1225 meters above sea level. Despite low elevations, relief on the property is moderately steep, characterized by V-shaped valleys that cut a gently rolling upland that rises from the Tintina Valley. The area escaped the latest glacial advance; thus, oxidation of rocks extends to a depth of 50 meters from surface. The natural outcrop is less than 1%, and is restricted to chert that forms the steeper ridge tops.

The higher elevations (>1050 meters) are vegetated with sub-alpine shrubs, grasses and widely spaced coniferous trees. Steep north-facing slopes and narrow valley floors are covered with thick blankets of moss with thickets of slope alder and stunted spruce. Steep south-facing slopes have two distinct types of

vegetation: 1) coniferous trees with abundant undergrowth and 2) deciduous aspen, poplar and birch with little or no undergrowth.

All north-facing slopes and valley bottoms are influenced by permafrost. Areas of gentle topography, especially northwest-facing slopes, and gullies contain loess (windblown silt) up to 17 meters thick.

1.4 Regional Exploration and Competitor Activity

The areas adjacent to the Brewery Creek property have been actively explored in the last decade. The land tenure map (Figure 1.4) shows the location of current quartz claims with respect to Brewery Creek.

There is no recorded history of hardrock exploration in the immediate vicinity of the property. It is likely that the drainages had been tested for placer gold. Laura Creek, which drains the central portion of the property, was staked for placer in in 1998; these claimed received little work and subsequently lapsed in 1992.

Between 1987 and 1991, the areas twenty to thirty kilometers north and east of the property has been the focus of several exploration projects. These programs targeted precious metal anomalies associated with Cretaceous intrusive bodies.

Antimony Mountain, one of larger intrusive centers in the area, was staked by Total Energold; key adjacent properties were also staked. In 1989 a summer long program included drill testing, but the results did not warrant a program in 1990. In late 1995, Kennecott Canada optioned the property and added peripheral claims. They conducted a small program that did not include drilling, during the summer of 1998.

In 1987, Noranda Exploration Company (Norex) conducted extensive reconnaissance work in central Yukon Territory that led to the discovery of the Brewery Creek deposits. Other claims staked by Norex include the Ida-Oro and Aus claims ten to thirty kilometers north of the property. Work on these claims consisted of mapping, soil sampling, geophysics and trenching; the results from these programs did not warrant drill testing. In 1995, Orinoco Minerals optioned these claims from Battle Mountain Gold Company Limited (formerly Hemlo Gold Mines Ltd. – Norex) and conducted Kubota backhoe trenching. Follow-up diamond drilling was conducted in 1996. Results from this program returned intersections as high as 20.0 gpt / 1.0 meter from quartz-arsenopyrite veinlets. Orinoco did not conduct any work in 1997 or 1998.

Homestake Canada Ltd. Optioned the Laurie property, thirty kilometers northeast of Brewery Creek, from Tombstone Exploration Ltd. in the summer of 1997.

In the fall of 1996, 520914 BC Ltd. staked 900 contiguous quartz claims around the north and east edges of the Brewery Creek claim block. The ground was staked based on encouraging silt geochemistry, gossans and structural features. In 1997 the company, now Kodiak Resources Ltd., conducted additional silt, soil and rock sampling; an additional 2400 claims were staked. Further reconnaissance-style work was conducted in 1998.

1.5 Claim History

The initial claims were staked to cover a reconnaissance geochemical anomaly. Additional claims were staked in subsequent years to cover possible extensions of gold mineralization. The property currently consists of 803 claims that form a contiguous block that covers 16,785 hectares (Figure 1.5). In June 1990, Loki Gold Corporation (Loki) entered into an option agreement with Norex; Loki achieved a 49% interest in the property by August 1991. In June 1993, Loki attained sole ownership of the property by purchasing the remaining 51%. In 1994 the core claims that covered the deposits, leach pad and mine facilities areas were surveyed and taken to lease. Ownership of the claims was transferred from Loki to VLB Resource Corporation, a wholly owned subsidiary of Viceroy Resource Corporation, following a May 1996 merger.

In 1998, 708 claims will have assessment credits applied to them. (Table 1.5)

1.6 Work Program

The 1998 field program that spanned from May 12th 1998 to November 21st 1998 consisted of reverse circulation (RC) drilling, trenching and mapping. RC drilling was conducted in an attempt to increase the mineable oxide reserves outside and adjacent to the currently defined deposits. Extensive trenching and mapping was conducted in previously under-explored areas that displayed good gold-in-soil anomalies.

Table 1.6 provides a summary of 1998 exploration activities. Refer to Plate 5.1 for the locations of 1998 work.

Table 1.6 Summary of 1998 Exploration Activities

RC drilling	82 holes (6008.5 m)	Midnight Sun Drilling, Whitehorse, YT
Drill Pad Construction	75	Henry Gulch Explorations, Dawson City, YT
	7	Viceroy Minerals Corporation, Dawson City, YT
Trenching/Roads	89 trenches (14911.5 m)	Henry Gulch Explorations, Dawson City, YT
	5 trenches (484 m)	Viceroy Minerals Corporation, Dawson City, YT
Rock Samples	81	Viceroy Exploration (Canada), Inc, Whitehorse, YT

Collar details for all drill holes and trenches are provided in Appendix 1a. Drill and trench logs are compiled in Volume 4. Significant results are summarized in Appendix 1b and are discussed in Chapter 5. Appendix 2a lists the applicable expenditures for assessment credit. Appendix 2b lists the total expenditures.

1.6.1 Sample Preparation and Assay Procedures

All trench and RC drill samples were prepared and assayed by the on-site VMC laboratory. The samples were dried, crushed to –1/4 inch, riffle-split to 500 grams and then pulverized. Each sample was analyzed for gold by 30 gram fire assay with an atomic adsorption (AA) spectrometer finish. If a sample returned a result of greater than 6.0 gpt then it was re-assayed and finished gravimetrically. All coarse rejects and pulps are stored on-site.

The quality of assay results was rigorously tested both internally and externally. For each drill hole, a sample from a pre-selected interval was submitted as a blind duplicate. Selected samples were sent to Chemex Labs (North Vancouver) for check analysis. The VMC laboratory also implemented a rigorous quality control procedure that involved both internal and external checks. Memos discussing quality control procedures are provided in Appendix 3a

A listing of check assay results is provided in Appendix 3b. Original assay certificates are compiled in Volume 3. Memos outlining sampling procedures are provided in Appendix 3c.

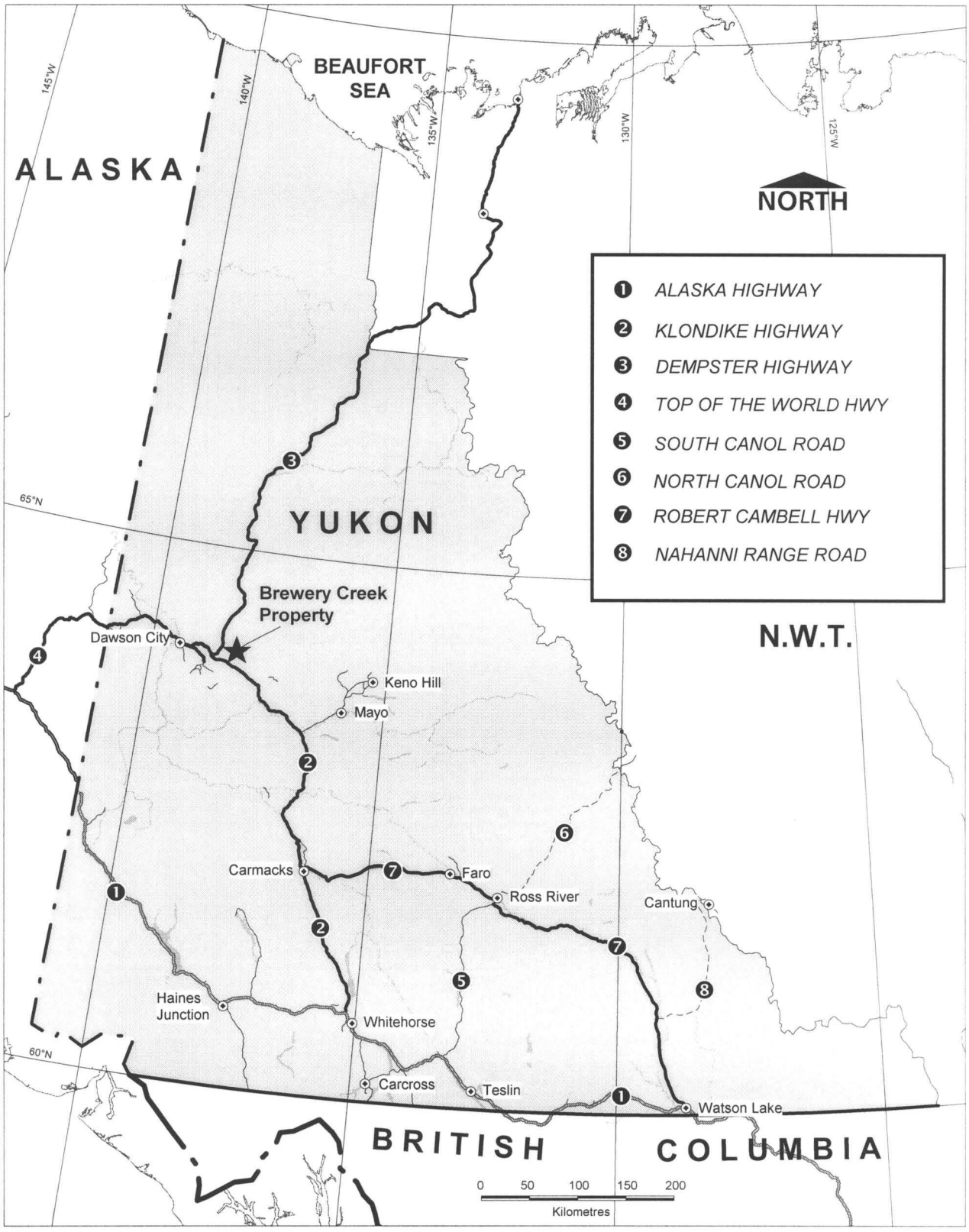
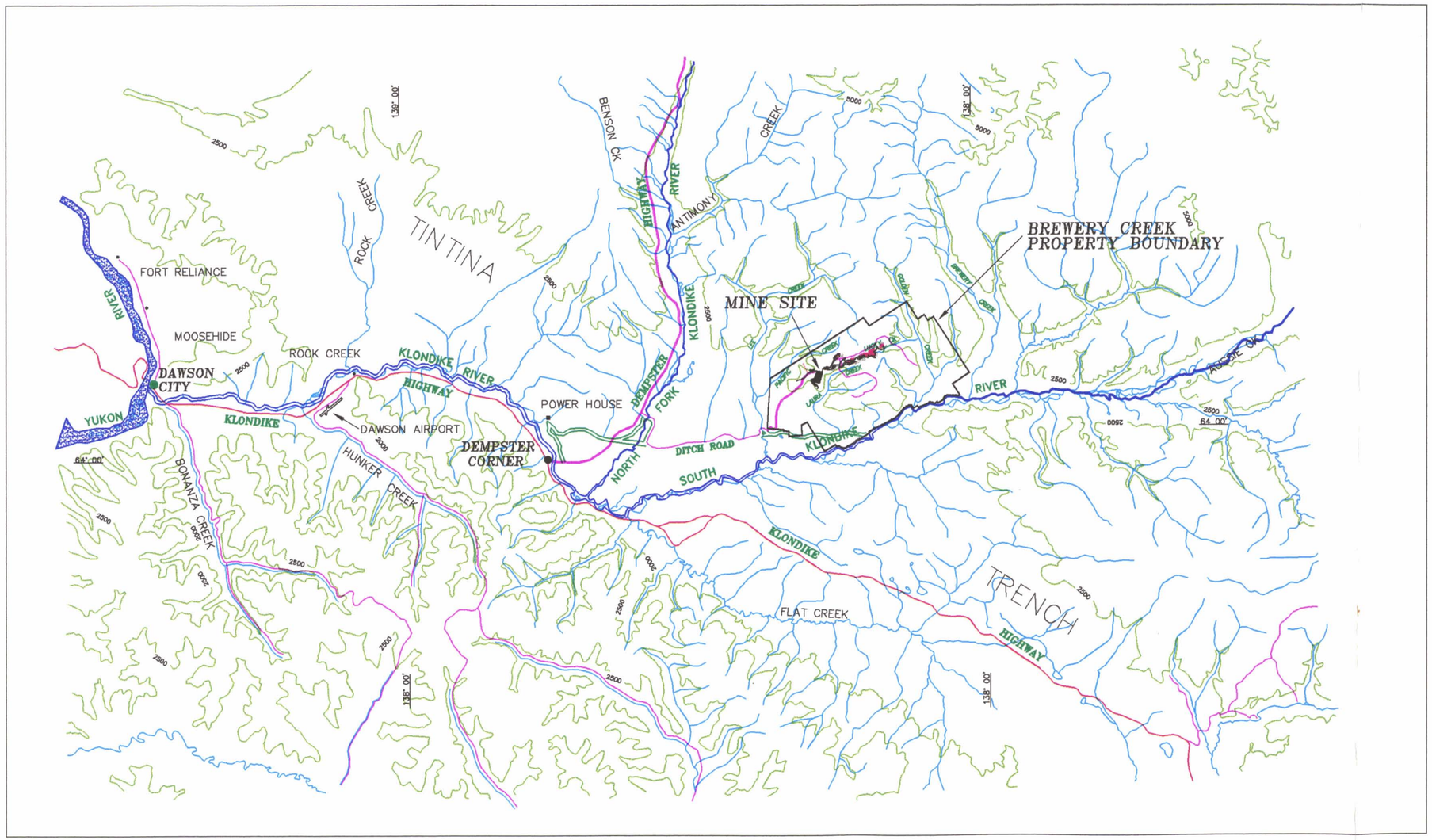


FIGURE 1.1: GENERAL LOCATION MAP



LEGEND

- 4 WHEEL DRIVE ROADS
- ALL WEATHER ROADS
- PAVED ROAD

0 20

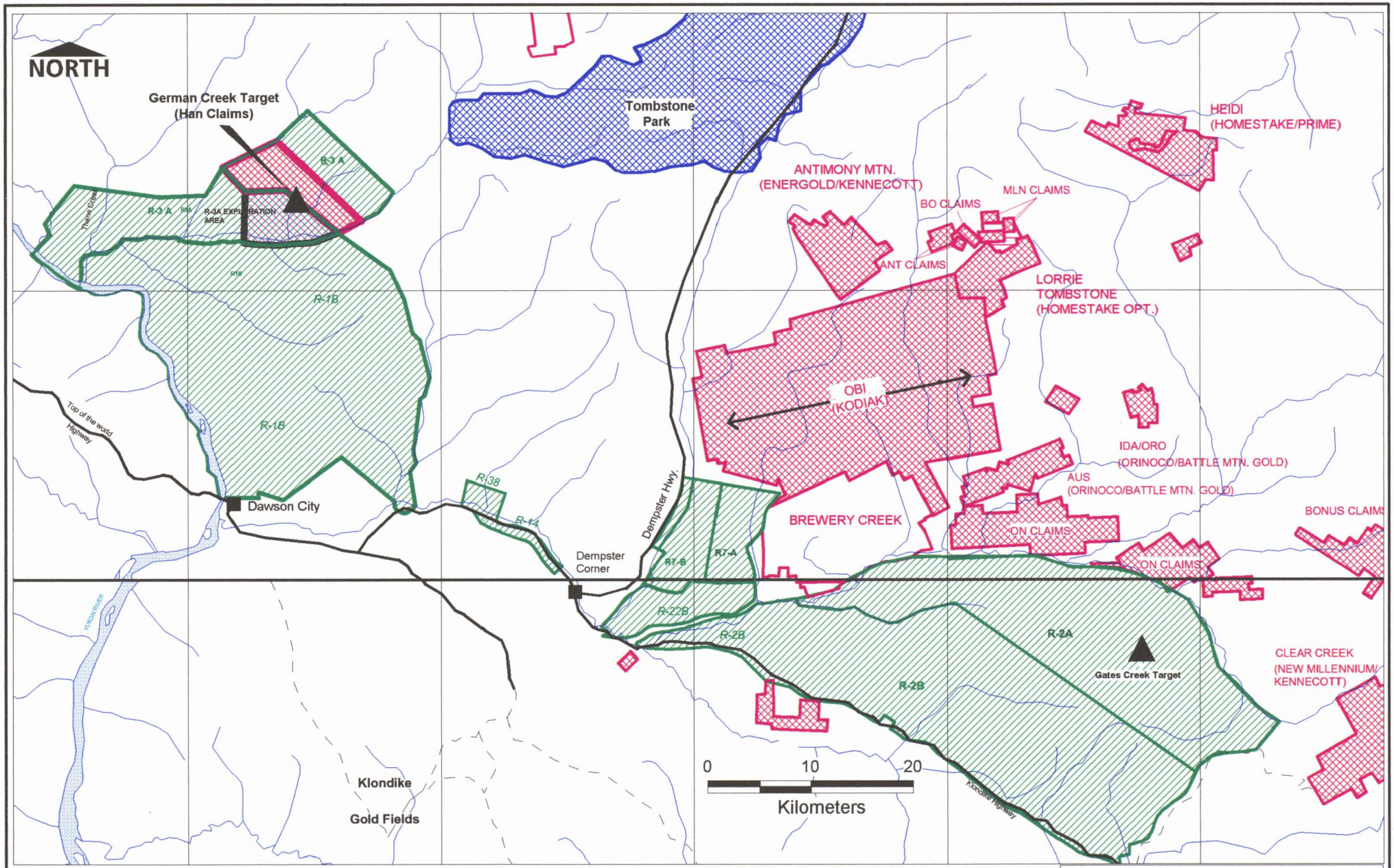
SCALE (Km)

CONTOUR INTERVAL: 500 FEET

VICEROY RESOURCE CORPORATION

BREWERY CREEK PROJECT, YUKON
REGIONAL LOCATION MAP

DRAWN BY:	DWG SCALE: 1:400,000
DATA BY:	MAP INDEX NO.: 1-1-2-A
DATE: FEB/11/97	PLATE NO.: Figure 1.2



RED (Valid Quartz Claims)

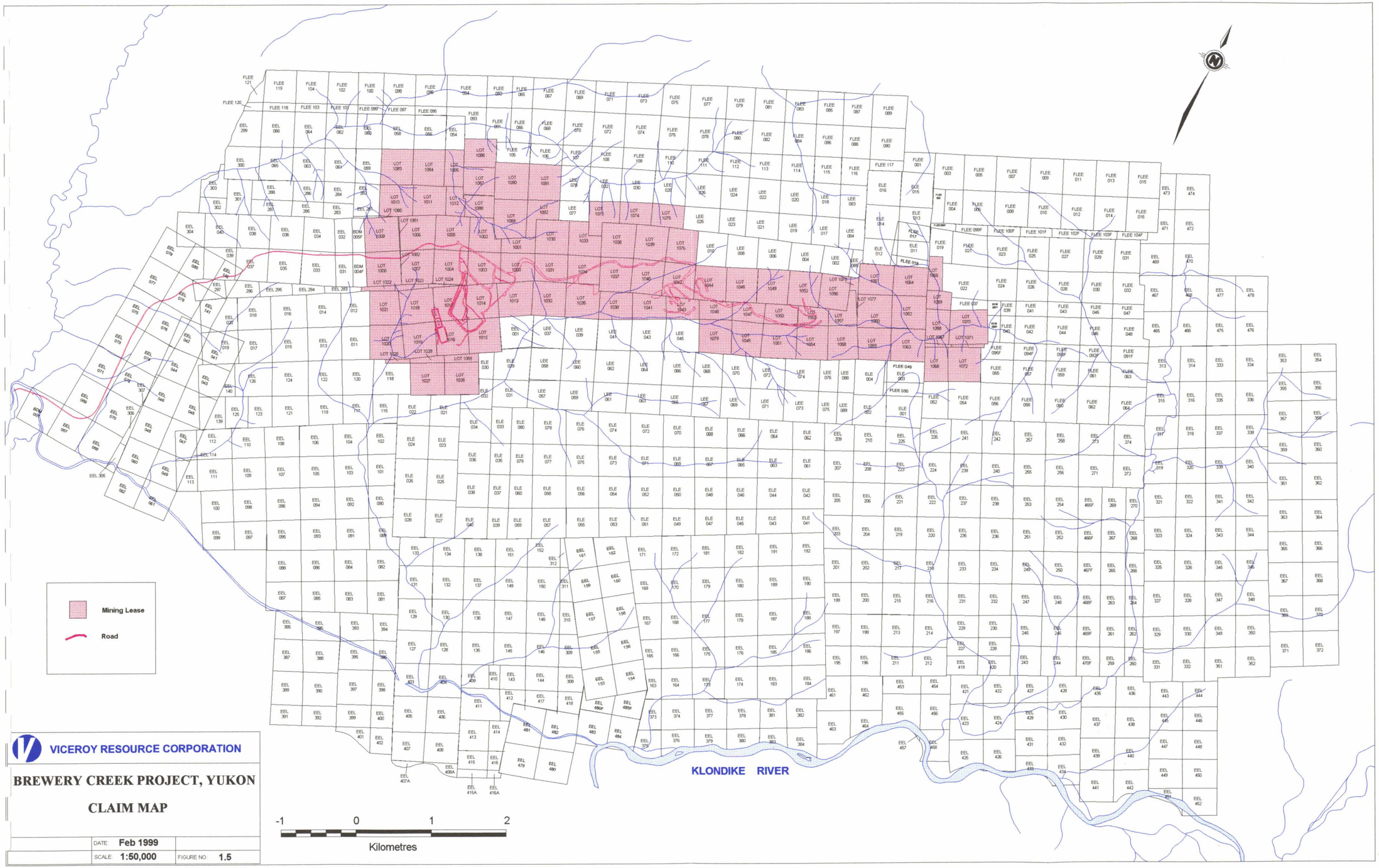
GREEN (Tr'on dek Hwech'in Land Claims)

BLUE (Parks)

VICEROY INTERNATIONAL EXPLORATION

REGIONAL LAND TENURE MAP

DRAWN: L. Jamrich	DATE: Feb 11, 1998	NTS: 116B
DATA BY: R. Diment	SCALE: 1:50,000	FIGURE 1.4



VICEROY RESOURCE CORPORATION

BREWERY CREEK PROJECT, YUKON

CLAIM MAP

	DATE: Feb 1999	
	SCALE: 1:50,000	FIGURE NO: 1.5

Table 1.5 Status of Claims after 1998 Filing

Sorted by new expiry date

Claim Name	*Fraction*	*Grant No.*	*No. of Units*	*new expiry date*
EEL 479-484		YC04543-48	6	January 20, 2007
EEL 485-486	F	YC04557-58	2	January 20, 2007
BDM 001		YB52721	1	January 20, 2009
BDM 004-005	F	YB52883-84	2	January 20, 2009
EEL 313-352		YB40326-65	40	January 20, 2009
EEL 353-372		YB40371-90	20	January 20, 2009
EEL 373-384		YB40393-404	12	January 20, 2009
EEL 419-458		YB40439-78	40	January 20, 2009
EEL 461-464		YB40479-82	4	January 20, 2009
BDM 007-008	F	YB88625-26	2	January 20, 2010
EEL 385-418		YB40405-38	34	January 20, 2011
EEL 407A-408A		YB40483-84	2	January 20, 2011
EEL 415A-416A		YB40485-86	2	January 20, 2011
EEL 465-470	F	YB45736-41	6	January 20, 2011
EEL 067-115		YB39516-64	49	January 20, 2013
EEL 117-192		YB39566-641	76	January 20, 2013
EEL 195-274		YB39642-721	80	January 20, 2013
EEL 465-478		YB40557-570	14	January 20, 2013
EEL 281-288		YB40252-59	8	January 20, 2014
EEL 293-297		YB40264-68	5	January 20, 2014
EEL 299-300		YB40321-22	2	January 20, 2014
EEL 301-303		YB40283-85	3	January 20, 2014
EEL 304		YB40323	1	January 20, 2014
EEL 305-307		YB40286-88	3	January 20, 2014
EEL 308-312		YB40366-70	5	January 20, 2014
FLEE 091-95	F	YB40131-35	5	January 20, 2014
FLEE 098-104	F	YB40139-45	7	January 20, 2014
FLEE 105-117		YB40270-82	13	January 20, 2014
FLEE 118-121		YB40317-20	4	January 20, 2014
LEE 088-89		YB40324-25	2	January 20, 2014
EEL 001		YB23313	1	January 20, 2016
EEL 011-20		YB23323-32	10	January 20, 2016
EEL 031-52		YB23343-64	22	January 20, 2016
EEL 054		YB23908	1	January 20, 2016
EEL 056		YB23910	1	January 20, 2016
EEL 058-66		YB23912-20	9	January 20, 2016
ELE 001-04		YB23541-44	4	January 20, 2016
ELE 011-16		YB23551-56	6	January 20, 2016
ELE 021-80		YB23777-836	60	January 20, 2016
FLEE 001-19		YB23923-41	19	January 20, 2016
FLEE 021-32		YB23943-54	12	January 20, 2016
FLEE 037		YB23959	1	January 20, 2016
FLEE 039-50		YB23961-72	12	January 20, 2016
FLEE 052		YB23974	1	January 20, 2016
FLEE 054-78		YB23976-24000	25	January 20, 2016
FLEE 079-104		YB30004-29	26	January 20, 2016
LEE 077-78		YB23207-08	2	January 20, 2016
LEE 083-85		YB38729-31	3	January 20, 2016
LEE 002		YB04487	1	January 20, 2017
LEE 004		YB04489	1	January 20, 2017
LEE 006		YB04491	1	January 20, 2017
LEE 008		YB04493	1	January 20, 2017
LEE 010		YB04495	1	January 20, 2017
LEE 017-26		YB04502-11	10	January 20, 2017
LEE 028		YB04513	1	January 20, 2017
LEE 030		YB04515	1	January 20, 2017
LEE 032		YB04517	1	January 20, 2017
LEE 037		YB17704	1	January 20, 2018
LEE 039		YB17706	1	January 20, 2018
LEE 041		YB17708	1	January 20, 2018
LEE 043		YB17710	1	January 20, 2018
LEE 045		YB17712	1	January 20, 2018
LEE 057-76		YB17724-43	20	January 20, 2018
			708	

CHAPTER 2: GEOLOGY

2.1 Regional Geology

The Brewery Creek property is located within the foothills of the Ogilvie Mountains along the northeastern boundary of the Tintina Trench (Figure 2.1). The Tintina Trench forms a 15 kilometer wide erosional valley that delineates the Mesozoic to Tertiary Tintina Fault, which is now obscured by extensive unconsolidated deposits that fill the Klondike River Valley.

At the latitude of the Brewery Creek project, the fault juxtaposes Selwyn Basin stratigraphy on the northeast and the accreted terranes of the Canadian Cordillera on the southwest. Selwyn Basin stratigraphy is composed of Late Proterozoic and Paleozoic marginal basinal deposits of Ancient North America. The Cordillera rocks are dominantly composed of Klondike Schist and other allied rocks of the Yukon-Tanana Terrane.

Selwyn Basin rocks northeast of the Tintina Trench have been imbricated by the Jura-Cretaceous Dawson, Tombstone and Robert Service Thrusts (Tempelman-Kluit, 1970). The Robert Service Thrust, extending from the Dempster Highway east-southeast through the Mayo map area, carries the bulk of Selwyn Basin rocks, including those of the Brewery Creek property, in its hanging wall. The hanging wall stratigraphy includes thick sequences of Lower Proterozoic Hyland Group, Cambrian-Ordovician Road River Group and Devonian-Mississippian Earn Group sediments.

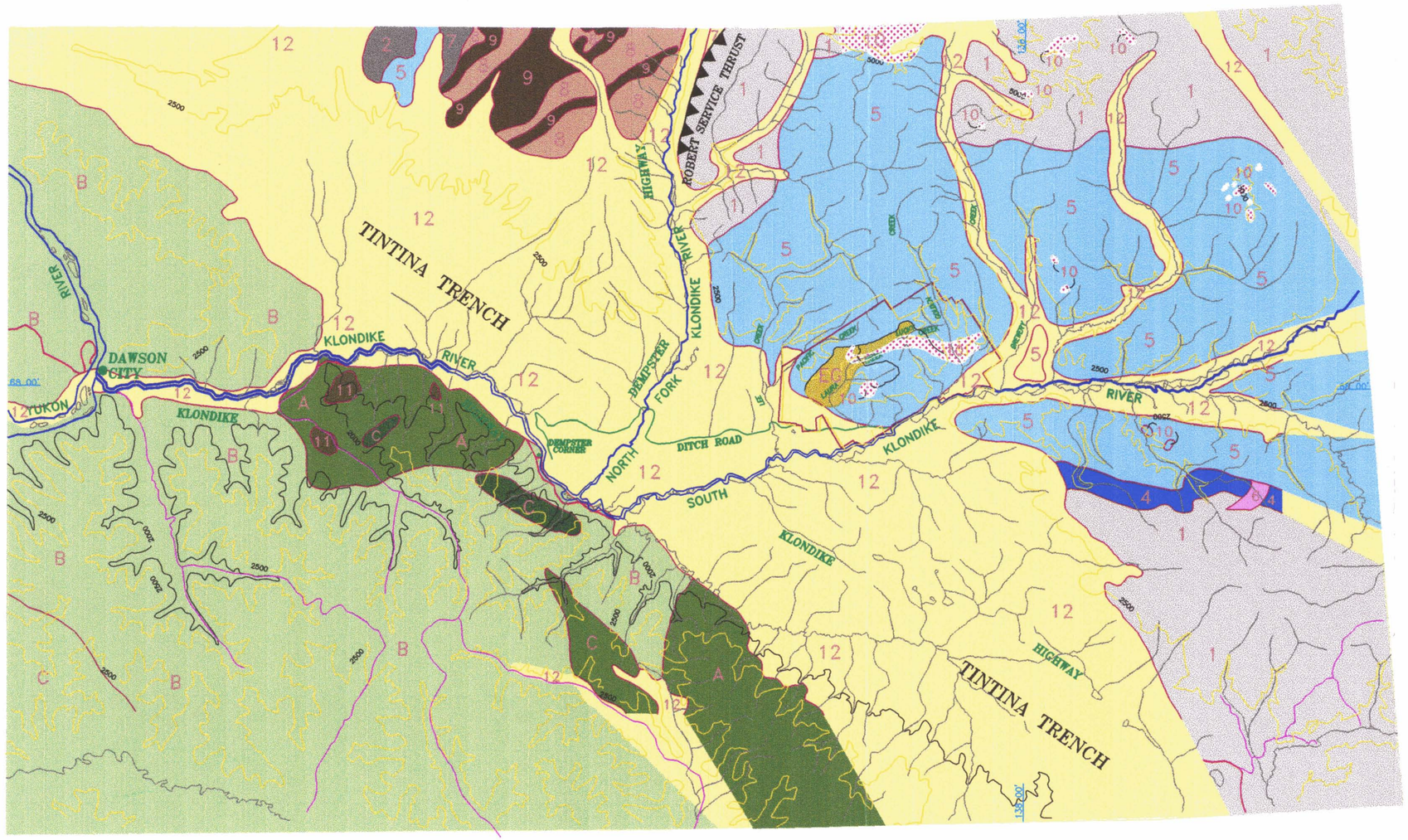
The Hyland, Road River and Earn Group rocks are cut by Cretaceous intrusives (Tombstone Suite) that form a northwest-trending belt of widely spaced intermediate to siliceous stocks and plutons that closely parallels the lateral extension of the Tintina Trench. This plutonic suite extends for over 350 kilometers to the southeast from Dawson City to the YT-NWT border. Precious metal occurrences are commonly associated with these intrusives, either proximal to or within them and considerable exploration efforts have been directed at these rocks during the last 15 years.

2.2 Property Geology

Supracrustal rocks within the property boundary are composed of Rabbitkettle Formation (Cambrian-Ordovician) calcareous phyllite overlain by Road River Group (Ordovician-Silurian) volcanics and off-shelf sediments and Earn Group (Lower Devonian) siliciclastics. The contact between the locus of NNW-trending, northeast-directed thrust faulting that has placed thin sequences (<150 meters) of Silurian siltstone against Devonian siliciclastics. The age of thrusting is probably related to the earliest Cretaceous movement on the Tombstone Thrust 100 km to the northeast.

Throughout most of the property, Cretaceous monzonite and quartz monzonite has intrudes Earn Group and Road River Group stratigraphy as a series of semi-conformable sills. Cretaceous biotite monzonite and syenite stock-like bodies occur locally in the south-central part of he property.

Plate 2.2 is a 1:15,000 property geology plan. Table 2.2 is a detailed list of formations. A list of the Brewery Creek Rock codes is provided as Appendix 4.



GEOLOGY LEGEND

QUATERNARY

- 12 — Unconsolidated glacial and alluvial deposits

TERTIARY

- Dark grey and brown andesite and basalt

CRETACEOUS

- Porphyritic hornblende/biotite syenite, diorite and quartz monzonite
- Diorite and gabbro
- 8 — Keno Hill Quartzite : massive grey and blue grey

JURASSIC

- 7 — Lower schist, dark grey argillite, slate, phyllite and quartzite
- 6 — Granite, granodiorite, quartz monzonite

DEVONIAN–MISSISSIPPIAN (EARN GROUP)

- EG — EARN GROUP : LOWER MEMBER : Argillite, shale and minor chert interbedded with bedded barite and andesite flows and tuffs; interbedded turbidite facies – shale, sandstone, greywacke and chert pebble conglomerate.

ORDOVICIAN TO SILURIAN

- 5 — Road River Formation : interbedded black chert, argillite and chert pebble conglomerate
- 4 — Grey limestone and dolomite

CAMBRIAN

- 3 — Grey to brown limestone

PRECAMBRIAN

- 2 — Dark brown to green volcanic rocks
- 1 — Buff brown gritty quartzite, sandstone quartz pebble conglomerate. Minor phyllites, slates, chert and limestone

METAMORPHIC ROCKS SOUTHWEST OF TINTINA TRENCH

- C — Reddish brown weathering, dark green serpentinized ultrabasic rocks
- B — Klondike Schist : green quartz muscovite – chlorite schist
- A — Nasina Series : grey micaceous quartzite, quartz–mica schist and biotite gneiss

SYMBOL LEGEND

- GEOLOGICAL BOUNDARY
- PROPERTY BOUNDARY

0 — 20
SCALE (Km)

VICEROY RESOURCE CORPORATION

BREWERY CREEK PROJECT, YUKON
REGIONAL GEOLOGY

DRAWN BY:	DWG SCALE:
DATA BY:	MAP INDEX NO.: REG-GEOL-A
DATE: FEB/20/1998	PLATE NO.: Figure 2.1

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Table 2.2 Table of Formations

Age	Group	Formation	Geology Map Designation	Rock Code	Description
Cretaceous (91 Ma)	Tombstone Plutonic Suite	Quartz Monzonite Monzonite	K_{qm} K_m	QM M	**QUARTZ MONZONITE** High level sills of quartz monzonite with K-feldspar megacrysts with zoned rims with exsolved fine-grained biotite and sulfide inclusions, up to 2 cm across and round quartz eyes, in a light grey aphanitic to fine-grained groundmass containing biotite and hornblende. **MONZONITE** Sills with an aphanitic groundmass, with fine-grained biotite (2 to 4 mm) and K-feldspar phenocrysts 3 to 7 mm (to 9mm in more porphyritic phases), and often containing small xenoliths. Host most of the Reserve Trend mineralization. Host shale is friable and unmetamorphosed at contacts indicating emplacement above the zone of supercritical fluid (1.5 km approx.). Igneous contacts are sharp and delicately embayed; some contacts are slickensided and marked by zones of hydrothermal clay 0.5-15 cm wide which appear to be altered fault gouge. A clast from a sub-volcanic intrusive breccia in the Fosters Zone with clasts of quartz-eye rhyolite in volcanic glass gave a similar whole rock age, as did loose biotite flakes separated from white clay in the Golden Zone clay trench.
Cretaceous (91 Ma)	Tombstone Plutonic Suite	Biotite Monzonite	K_{bm}	BM	**BIOTITE MONZONITE** Dykes and sills of fine-grained monzonite with about 50% dark minerals, mostly biotite. Varies considerably in colour from light to dark as a result of variations in mafic content. Some hornblende in places but biotite predominates. Strongly foliated at base due to alignment of biotite flakes. Dykes of this phase have been observed cutting the syenite. This unit has only been described from the panel south of Laura Creek. At the highest point in the Schooner Zone, fine-grained tuffs have been hornfelsed above a sill of this unit to form a hard, white-banded rock that resembles chert.
Cretaceous (91 Ma)	Tombstone Plutonic Suite	Syenite	K_{sy}	SY	**SYENITE** Large intrusion of medium to coarse-grained syenite with trachytic texture (strongly aligned feldspar and hornblende crystals up to 2 cm, pegmatitic). Forms a major intrusion cutting tuffaceous sequence south and west of the Classic Zone, not seen elsewhere. In this area, limestone in contact with the syenite has formed a small amount of tremolite-epidote-diopside-garnet-skarn. Dykes of the pegmatitic phase cut Devonian tuff discordantly on a ridge south of the Classic Zone road.
Early-Mid Devonian	Earn Group	Portrait Lake Formation Upper Member	D_{Ptss}	TSS	**TUFFACEOUS SANDSTONE** Medium to light grey fine grained quartz sandstone with abundant tuffaceous material (sericitic). Sericitic material may be due to a primary volcanic component or weak hornfelsing from nearby biotite monzonite and syenite intrusives.
Early-Mid Devonian	Earn Group	Portrait Lake Formation Upper Member	D_{Pts}	TSH	**TUFFACEOUS SHALE** Dark grey to black, soft tuffaceous shale. Small (5 mm) sharp-crested asymmetric current ripples on some bedding surfaces. Looks like a distal turbidite sequence. Grades upward into tuffaceous sandstone described above.
Early Devonian	Earn Group	Portrait Lake Formation Middle Clastic Member	D_{Pcg}	CPC	**CONGLOMERATE** Massive debris flow conglomerate, containing multi-coloured pebbles of Duo Lake Formation chert and occasional clasts of Hyland Group micaceous quartzite in a siliceous matrix. Clasts range up to about 4 cm in size and from rounded to angular. In this area the conglomerate seems to be emplaced within Steel Formation siltstone described below suggesting that the regional unconformity between the Earn

					and Road River Group was confined to local, confined rift zones (channels) at Brewery Creek.
Early Devonian	Earn Group	Portrait Lake Formation Middle Clastic Member	D_{Pg}	**GW**	**GREYWACKE** Dark grey matrix supported greywacke. 1.0 mm-0.5 cm sub-angular clasts of chert, shale and argillite within a poorly sorted sandstone. Grades locally into chert pebble conglomerate.
Early Devonian	Earn Group	Portrait Lake Formation Middle Clastic Member	D_{Pss}	**SS**	**SANDSTONE** Dark grey massive well sorted siliceous sandstone. Minor crude bedding planes. Grades downward into shale described below.
Early Devonian	Earn Group	Portrait Lake Formation Middle Clastic Member	D_{Ps}	**SLT,SH**	**SHALE, SILTSTONE** Fissile, grey to brown-weathering, non-calcareous fine grained shale; pin- striped and slightly burrowed silty shale. Interbedded with greywacke and sandstone lenses described above.
Early Devonian	Earn Group	Portrait Lake Formation Lower Member	D_{pa}	**ARG**	**ARGILLITE** Black baritic shale and graphitic argillite.
Early - Devonian	Earn Group	Portrait Lake Formation Lower Member	D_{Pb}	**BAR**	**BARITE** Light grey laminated barite and minor interbedded felsic tuff. South of the Classic Zone road, laminated barite is associated with dark grey baritic limestone. Commonly interbedded with graphitic argillite and limestone described below. In the Nahanni Map Area conodont data from barite returned Mid to Late Devonian ages(Anderson, Gordey 1993). However at Brewery Creek baritic argillite overlying Silurian Siltstone suggests that barite deposition may have occurred as early as Late Silurian.
Early Devonian	Earn Group	Portrait Lake Formation Lower Member	D_{Pl}	**LST**	**LIMESTONE** Fetid black micritic limestone, weathers grey. Extensively veined and recrystallized in places, no recognizable textures. Also, thin bedded brown to grey weathering silty limestone, calcareous siltstone and dark grey chert.
Early Devonian	Earn Group	Portrait Lake Formation Lower Member	D_{pa}	**ARG** **ARGG**	**GRAPHITIC ARGILLITE** Black siliceous argillite, chert and graphitic shale. Characteristically fractured, brecciated and quartz veined in places. In drill core, interbedded with yellow-weathering siltstone at top of Steel Formation. According to Gordey, the base of the Earn Group is defined as the top of the highest wispy-laminated siltstone layer.
Silurian	Road River Group	Steel Formation	S_S	**SST**	**SILTSTONE** Yellow-weathering burrowed calcareous siltstone with wispy laminations; calcareous silty shale. Contains a distinctive bed of yellow-weathering, hard blue-grey siliceous dolomite. Interbeds of black graphitic argillite, chert and minor bedded barite form a distinctive upper member near the top of the formation. According to Gordey, the upper boundary of the Steel Formation is placed at the top of the last siltstone layer. The presence of barite suggests that the Steel Formation may span a wider time interval (Silurian to Early Devonian) than its type area. Limestone and calc-arenite beds (turbidites) are common near the bottom of the formation. In the valley northeast of the Classic Zone, a limestone bed immediately overlies an andesite-pebble conglomerate at the top of a thick sequence of Menzie Creek volcanics, suggesting a possible unconformity. Age dating of this limestone is needed to confirm this assumption.

Ordovician-Silurian	Road River Group	Duo Lake Formation	OS_D	**CH**	**CHERT** Black chert and argillite; chert is massive or thick bedded and lacks banding; no limy or tuffaceous layers. Although it generally underlies the Steel Fm siltstone, identical chert commonly forms beds several meters thick within the Steel Fm.
Cambro-Ordovician	Road River Group or Rabbitkettle Formation	Menzie Creek Volcanics ?	CO_M	**MTUFF**	**MAFIC TUFFS, FLOWS AND BRECCIA** Dark calcareous amygdaloidal flows, tuffs and volcanic breccia; probably andesitic; highly altered with calcite and zeolite-filled amygdules; thin limestone interbeds. An andesite pebble conglomerate occurs at the top of a thick wedge of this unit northeast of the Classic Zone. Well-rounded andesite clasts up to 8 cm across occur in a dark matrix of highly calcareous fine-grained tuff. This unit is overlain by Steel Formation siltstone in the southern map area suggesting a major unconformity during Ordovician Time.
Cambro-Ordovician	Rabbitkette Formation		CO_M	**PHY**	**CALCAREOUS PHYLLITE** Light to medium grey calcareous phyllite. Well developed foliation parallel to bedding. Tightly konk-folded. Interbedded cm-scale siliceous and calcareous layers. Unit is restricted to one locality 300 meters grid west of the Moosehead Zone where it is found in thrust contact with Devonian Earn Group shale.

2.2.1 Stratigraphy

2.2.1.1 Rabbitkettle Formation

Calcareous phyllite, the oldest rock type on the property is seen in the eastern portion of the Moosehead zone. This thin sequence of light grey thinly bedded and tightly kink-folded phyllite is conformably overlain by a thin but complete sequence of Road River Group volcanics, chert and siltstone and Earn Group shale. This entire package was folded and then experienced a series of NNE-trending, WNW-directed thrusts that placed phyllite in contact with Earn Group shale at its western edge. The phyllite correlates well with the Rabbitkettle Formation, an Upper Cambrian phyllitic/shaley carbonate unit mapped in the Sprague Creek map area 50 kilometers to the southeast (Murphy and Heon, 1993).

2.2.1.2 Road River Group

The stratigraphic section on the property is dominated by Road River Group rocks, consisting of calcareous siltstone that overlays massive black chert and calcareous andesitic tuffs and flows. A shortened but complete section of the Road River Group is well exposed in an east Moosehead zone road cut (TR98-M27). The siltstone and chert units correlate with the Silurian Steel Formation and Ordovician Duo Lake Formations respectively as defined by Gordey and Anderson in the Nahanni map area (105-I). The volcanics (Menzie Creek Volcanics) correlate with intermediate flows mapped by Green (1972) in the Larsen and Nash Creek map areas as a facies equivalent of the Road River Formation. However, recent mapping by Gordey and Anderson in the Nahanni mapsheet correlate similar lithic tuffs with the Upper Cambrian Rabbitkettle Formation.

The Steel Formation occurs sporadically throughout the Selwyn Basin and is an important stratigraphic marker that forms the top of the Road River Group. At Brewery Creek, the top part of the formation consists of tan weathering, wispy laminated, burrowed siltstone. That contains interbeds of graphitic shale, chert, bedded barite and limestone; it can be mistaken for the overlying graphitic argillite of the Lower Earn Group. Fossils from this upper member of the Steel Formation contain Silurian to Early Devonian conodonts (Norford and Poulton, 1995). Mapping by Gordey and Anderson (Nahanni map area 105-I, 1993) has defined the contact as the highest occurrence of wispy-laminated siltstone; this same parameter is employed on the property.

Throughout much of the central part of the property, Road River Group siltstone overlies Earn Group graphitic argillite, shale and sandstone. Intensely sheared interbeds of argillite are believed to be the locus of thrust faulting which has juxtaposed thin (<150m) sequences of Steel Formation over Lower Earn Group rocks. Throughout the Selwyn Basin the contact between the Road River and Earn Group is marked by a regional unconformity (Murphy, Heon 1994). At Brewery Creek the interbedding of Road River siltstone and Earn Group graphitic argillite and bedded barite may represent continuous deposition from Late Silurian through to Early Devonian.

2.2.1.3 Earn Group

In the central part of the property area, the stratigraphic section is dominated by siliclastic rocks of the Devonian Earn Group. Gordey and Anderson, in Nahanni Map Area 105-I, divide the Earn Group into a lower fine-grained locally clastic and baritic member (Portrait Lake Formation), and an upper coarser clastic member (Prevost Formation).

At Brewery Creek, the Earn Group section appears to be confined to the Lower Portrait Lake Formation consisting of an interbedded sequence of graphitic argillite and minor chert (<250m). This Formation extends east-west through the entire central part of the property. Locally, bedded barite ($\leq$ 20m) and thin (<4m) black limestone are found interbedded within this unit north of the Kokanee Zone. The age and stratigraphic position of the argillite is based solely on its baritic composition, which closely resembles similar Early to Late Devonian baritic strata mapped in the Nahanni Map Area (Gordey and Anderson, 1993).

The argillite is overlain by locally tuffaceous shale interbedded with minor sandstone, greywacke and chert pebble conglomerate. This coarser clastic assemblage (<100m) grades up-section into soft sericitic shale and sandstone that caps the higher ridge tops in the western map area. This soft, sericitic texture may be due to a primary tuffaceous component or the result of weak hornfelsing that was caused by nearby intrusives bodies. In the central map area, chert pebble conglomerate is incised within Steel Formation Siltstone suggesting that rifting and uplift during Devonian time produced local unconformities (channels) through the underlying Road River Group. The general eastward thinning and coarsening of Earn Group sediments along Laura Creek may also define a northwest striking Early Devonian rift zone, filled by clastic material derived from the southeast

2.2.2 Intrusive Rocks

The stratigraphic sequence has been intruded by Cretaceous Tombstone Suite rocks that consist of monzonite and quartz monzonite porphyry, biotite monzonite and syenite. Dating of zircon by the Geological Survey of Canada (G.S.C) yielded an age of 91.4 Ma ± .2 for the quartz monzonite. This is approximately the same age as similar intrusive complexes found to the north at Antimony Mountain and elsewhere within the Tombstone Range.

The monzonite has intruded Upper Road River and Lower Earn Group stratigraphy as semi-conformable sills along a strike length of at least twelve kilometres. Sill emplacement is closely associated with well-developed, gently dipping shear fabrics within graphitic argillite, suggesting that the monzonite has invaded early Cretaceous thrust faults. Hornfelsing is limited in the surrounding sediments supporting the hypothesis of a high-level, low-temperature, dry intrusive event. The monzonite-shale contacts strike ESE (090° to 120°) and dip gently (5° to 30°) to the southwest. The sills vary in thickness, from less than five meters in the west and south to greater than 100 meters in the east.

In the south-central map area, syenite and biotite monzonite stocks intrude Road River Group and Earn Group sediments. Biotite monzonite sills also occur in the south-central and south-eastern map areas. The syenite and biotite monzonite is relatively coarse-grained and equigranular with well developed hornfelsed aureoles. Despite textural and compositional differences, these intrusives are related in age to the quartz monzonite (Green 1972).

2.2.3 Structural Geology

The stratigraphic sequence generally strikes WNW and dips gently NE (010° – 020°); however, within the Reserve Trend dips are primarily southwest, with associated broad south vergent folding found in Road River and Earn Group shale and siltstone. The fold limbs range in dip from 10° to 60^0. The fold axes trend ENE and ESE (80° - 110°) and plunge gently (10°) to the west. Although this style of deformation is consistent with the Sprague Creek map area (115P/15) 50 km to the southeast, where similar south vergent folding has been mapped in similar stratigraphy (Murphy and Heon, 1994), the discontinuity between the Reserve Trend and less deformed stratigraphy outboard suggest that fold deformation and cleavage development maybe the result of drag along normal faults forming a district scale structural domain.

Several episodes of faulting have cut the entirety of the stratigraphic pile and include: early Cretaceous northeast directed thrusts and NNE shears, late Cretaceous WNW and NNE shears, and younger NNW and NE high angle brittle faults.

2.2.3.1 Listric Normal Faults - Reactivated Thrust Faults

WNW-trending, northeast-directed thrusts traversing the property area juxtapose Silurian Steel Formation against Early Devonian Portrait Lake sediments. Argillite, common to both the Upper Road River and Lower Earn Group, is highly tectonized, incompetent, graphitic and likely represents the decollement surface along which thrust faulting has been accommodated. However, slickensides along these graphitic surfaces show consistent strike and dip-slip movement and thus may represent later listric normal movement along pre-existing thrust surfaces. This later extensional event is primarily responsible for the emplacement of the monzonitic sills within the graphitic argillite.

Trench exposures commonly display these listric normal faults as stacked "rift-like" curvilinear surfaces that progressively flatten south-dipping strata by rotation of the hanging wall block. Gently north-dipping argillite in the Canadian Zone may be the result of this rotation.

In the Moosehead – North Slope area, thrusting is west-directed where Rabbitkettle phyllite has been juxtaposed over Earn Group shale. This west directed thrusting might be related to second-phase northwest-directed movement on the Tombstone Thrust 100 kilometers to the north. This thrusting might persist through to the Lucky zone. Mineralization is only associated with the gouge along the basal thrust. It is unclear if this style of thrusting is associated with mineralization.

2.2.3.2 NNE Faults

Prominent NNE vertical structures (020° to 040°), characterized by tightly spaced en echelon fractures are common within the hanging wall sediments of thrust sheets. The fracture intensity increases down section toward the thrust surface. These structures have also been invaded by quartz monzonite, similar to the intrusion of the thrust faults, and are believed to be the same age; the Moosehead zone may have this genesis. These structures are primarily orthogonal to the trend of thrust faulting and may represent transverse sinistral tear faults.

2.2.3.3 ESE and NNE Shears

The most dominant structural fabric on the property consists of ESE (100°) and NNE (040°) shears. This fabric is sub-vertical; however, moderate SW and NE dips are also associated with WNW structures. The age of deformation is constrained to 91 Ma or younger as this fabric crosscuts the quartz monzonite sills. Slickensides show both sinistral and minor normal movements on WNW faults and dextral movement on NNE faults. Relative offsets within the stratigraphic pile are generally less than 3.0 meters. The relative orientation and movement of these structures suggests that they may represent a conjugate set with maximum compressive stress and extension oriented ENE (070^0) and SSE 160^0) respectively. Trench exposures within the Pacific zone show minor north-dipping en echelon structures that are truncated against a more dominant south-dipping fault. This geometry suggests graben style extension where minor antithetic structures fall against a dominant master fault, as exposed in the Kokanee pit (Phase 1). This shear/extension system appears to be confined to the hanging wall of listric normal faults (pre-existing thrust faults). Fault gouge (<30.0 cm), with strong strike-slip and dip-slip slickensides, along the graphitic argillite- monzonite contacts suggest that these thrust surfaces may have been reactivated to form deep-seated master graben faults. Further movement along early Cretaceous NNE structures is also suggested.

2.2.3.4 NNW and NE Brittle Faults

The latest stage of deformation on the property consists of NNW and NE trending unhealed faults. Little work has been done on these structures and therefore they remain primarily interpretative. Limited drilling along these structures in the Kokanee Zones suggests left-lateral strike-slip movement for the NE faults. Offset of the bedded barite horizons is suggestive of up to 200 meters of displacement. However, surface mapping and trenching in the Schooner and Sleemans zones suggests that these faults, coincident with the drainages, display post-mineral dip-slip and dextral strike-slip movement. NNW faults show normal movement (>10 m) in the Lucky and East Big Rock Zones. Both NNW and NE faults truncate sulphide mineralization and all previously described structures.

CHAPTER 3: MINERALIZATION

3.1 Introduction

High level fracture-controlled gold mineralization is hosted within Cretaceous monzonite sills and Devonian Earn Group siliciclastics of the Selwyn Basin. Structural controls include NE and SE sub-vertical shears bounded by moderately to gently south-dipping listric normal faults that extend southeasterly for more than 15 km. Listric faulting and sill emplacements are localized along pre-existing graphitic thrust faults that are related to early Cretaceous movement on the Tombstone Thrust 100 km to the north.

Recent exploration has discovered fracture-controlled gold mineralization that occurs in narrow zones within calcareous Silurian Road River Group sediments. This, along with the presence of decalcification and silica replacement, suggests that a Carlin-Type model might be appropriate at Brewery Creek. Low-grade mineralization associated with sheeted quartz veinlet systems within larger Cretaceous biotite monzonite and syenite stocks increases the potential for defining a Fort Knox-type deposit.

The average gold grade of the reserves deposits is 1.47 gpt, with individual assays ranging from below detection to greater than 30.0 gpt. The host lithologies are variable, but tectonized graphitic argillite usually forms the footwall to the deposits. Late Cretaceous dip-slip and strike-slip reactivation along these graphitic thrust surfaces suggest that they may have also acted as deep-seated conduits that tapped gold bearing hydrothermal solutions.

A global geologic resource of 43.8 million tonnes of 1.03 gpt gold (1 445 414 ounces) has been defined in thirteen deposits (Table 3.1). Ten of these deposits have been scheduled for mining. The reserves, as at January 1998, stand at 13.3 million tonnes of 1.44 gpt gold (613 000 ounces). An updated reserves value will be available in early 1999. The Schooner, Sleemans, South Canadian and West Grid zones have received limited drilling and no resource estimates have been attributed to them.

Table 3.1 **Brewery Creek Global Resource**

Reserves: Original: (1994) 17.1 MT @ 1.45 opt Au (797,000 oz.).
Current: (Dec/97) 13.3 MT @ 1.44 gpt Au (613,000 oz.). Revision due Jan/99.

Resource:

	Deposit	Cut-off (gpt)	Tonnes	g Au/t	Au Ounces
	West Big Rock	0.3	1,691,370	0.87	47,490
	East Big Rock	0.3	1,504,320	0.75	36,360
	Blue	0.3	2,930,560	1.27	119,870
	Lucky-old 1996	0.5	3,089,970	0.99	98,005
	Pacific	0.3	1,298,880	1.03	43,020
	Canadian	0.3	579,000	1.04	19,360
	Moosehead	0.3	2,097,530	0.93	62,770
	Lower Fosters	0.3	1,690,130	1.05	56,980
	Kokanee	0.3	6,013,430	0.99	190,860
	Golden	0.3	6,781,090	1.10	239,680
*	Lucky- SE Explo 97 Addition	0.5	1,715,887	2.63	145,028
*	Classic	0.25	10,883,255	0.52	182,750
*	North Slope	0.5	2,228,088	2.01	143,814
**	Bohemian	0.5	1,305,596	1.42	59,427
	Total		**43,809,106**	**1.03**	**1,445,414**

Note: * Resource added by 1997 exploration work. SE Lucky, Classic and North Slope zones were calculated manually and include measured, indicated and inferred classifications. All other zones, except 1996 Lucky, include measured and indicated classifications from MDA (ID4) model. 1996 Lucky include measured and indicated classifications from W. Hanson (ID4) model (May-97). ** Resource added by 1998 Exploration work and is inclusive of Phase 5 drilling.

3.2 Mineralization and Geology

Gold mineralization is hosted within porphyritic monzonite and quartz monzonite, biotite monzonite, interbedded fine siliclastic sediments, and calcareous siltstone. Although a wide variety of lithologies exist, mineralization and alteration is restricted to those units in which open space has been created due to structural deformation or decalcification caused by tectonic and hydrothermal forces. The finer grained siliceous argillites are generally unmineralized due to low porosity and poor permeability that was caused by weak hornfelsing and plastic deformation.

3.2.1 Intrusive Rocks

3.2.1.1 Monzonite and Quartz Monzonite

Eighty-five percent of the known gold mineralization is hosted within monzonite and quartz monzonite. Mineralized monzonitic intrusives occurs in most deposits and exploration target area delineated to date. A quartz-poor monzonite phase is the host to most of the Reserve Trend mineralization, but all phases in this area are logged as quartz monzonite to ensure continuity.

Mineralization is intimately associated with pervasive phyllic and locally intense argillic alteration. This assemblage is characterized by the destruction of mafic phenocrysts, the alteration of feldspars to sericite, the presence of illite and kaolinite, and the introduction of secondary quartz with fine pyrite and arsenopyrite. Silicification occurs primarily as coarse grained (0.5-2 cm wide) milky white quartz veinlets that have been overprinted by a wispy-textured hairline quartz stockwork. These two crosscutting vein systems are well developed adjacent to narrow fault gouge zones and produce locally pervasive silicification. These silicified areas host some of the highest-grade gold mineralization on the property with values up to 16 gpt / 6.0 meters (TR91-K6), and 11.24 gpt / 10.0 meters (RC98-2185) and 2.07 gpt / 50.0 meters (TR98-SK10). However, high gold values are also associated with intense fracturing and weak silicification, suggesting that the more subtle and passive hairline stockworking is the main mineralizing event. A weak propylitic halo, defined by weak chloritization of mafic phenocrysts and strong carbonatization, is commonly found associated within and peripheral to the mineralization. The introduction of carbonate to the matrix may have allowed decalcification and subsequent silicification during the phyllic overprint stage. This style of alteration is subtle, showing no signs of stockworking or brecciation but exhibiting well preserved feldspar megacrysts within an aphanitic, siliceous and pyritic groundmass.

Stibnite veins (<1.0 m) are common within the mineralized zones but rarely contain any significant gold values. Silicified intrusive clasts within these veins imply that the stibnite may represent a later hydrothermal event that occupied the same structures as the gold mineralizing event.

Extensive oxidation persists to a depth of 50 meters from surface. The most common oxidation minerals are geothite after pyrite, scorodite after arsenopyrite, and antimony ochre and kermesite after stibnite.

At Brewery Creek, the monzonite is grossly divided into the following variants; altered quartz monzonite (AQM) and limonitic altered quartz monzonite (LAQM). The AQM represents the sulfide or hypogene zone, where sulfides typically remain unoxidized. LAQM represents rock in which oxidation is complete. Please refer to the Table of Formations (Table 2.2) and the Brewery Creek Rock Code (Appendix 4) for more detailed explanations of the rock types.

A selected suite of altered and unaltered monzonite was submitted for whole-rock analysis to determine the relationship between the major element chemistry and gold mineralization. The results exhibit a strong positive correlation between alteration and gold, and show consistent sodium and potassium depletion, and silica enrichment.

3.2.1.2 Biotite Monzonite and Syenite

Mineralized biotite monzonite and syenite occurs only in the Classic zone. Alteration consists of pervasive sericitization, carbonatization and limonite staining due to the destruction of hornblende, biotite and minor pyrite; it extends along a NNW trend for over one kilometer and has a width of 200 to 600 meters. Calc-silicate skarn minerals such as tremolite, epidote and calcite are common near hornfelsed sedimentary contacts. Gold is associated with centimeter-scale, NW-trending, en echelon quartz veinlets within the broad alteration halo. These veinlets are more distinct in less altered intrusive and suggest that the intense sericitization and carbonatization may indicate retrograde alteration that has overprinted the silica-gold event. The Classic Zone continues to be a target of considerable interest and tonnage potential, as the soil anomaly extends for 5 kilometers and oxidation extends great depths. Additionally, bottle roll test recoveries were similar for samples of oxidized and unoxidized rocks; this suggests that the gold is free and may not require oxidation to liberate it. Drilling has returned gold values of up to 0.41 gpt / 100 meters and 0.61 gpt /46.0 meters. Individual assay results within these broad intercepts are relatively uniform, usually between 0.25 and 1.0 gpt.

3.2.2 Sedimentary Rocks

3.2.2.1 Mineralized Sandstone and Shale

Mineralization in siliclastic rocks is confined to the Pacific, Blue and Moosehead Zones. Oxidation is less extensive than in the intrusive rocks, limited to a depth of 25 meters from surface. Gold appears more closely associated with arsenopyrite (yielding up to 7.5 gpt / 28.0 meters form DD91-46) than is apparent elsewhere; however, this may be more a result of better preservation of the sulfides in the typically less oxidized sediments. All lithologies host gold mineralization; however, shale, siltstone and sandstone host higher gold values than greywacke and chert pebble conglomerate. This is likely due to the increased primary porosity in the thinly bedded, fine-grained sediments. Where structural controls are strongest, the host rock lithology becomes less significant.

Alteration is characterized by intense fracturing that is occupied by fine quartz stockwork and cryptocrystalline montmorillonite within a well-foliated groundmass of sericite and detrital quartz. Very fine-grained pyrite (trace to 10%) is disseminated throughout the siliceous stockwork. Pre-mineralization cement appears to have been silica, noted in thin section descriptions as overgrowths on monocrystalline quartz grains. Stibnite occurs as sub-centimeter veins and pods. Preliminary ground radiometric surveys of the Blue and Pacific zones show consistent potassium enrichment that is associated with mineralized sandstone and shale.

3.2.2.2 Mineralized Argillite

Argillite is a dominant rock type in most of the deposits, but it is generally unmineralized. Elevated gold values in argillite are largely confined to the highly sheared graphitic and stockworked contacts between the mineralized intrusives and coarser clastic sediments. The lack of mineralization within this heavily tectonized unit raises questions about the function of graphite or carbonaceous material acting as a chemical front or inhibitor for gold deposition.

3.2.2.3 Mineralized Calcareous Siltstone

In the North Slope zone, fracture-controlled gold mineralization occurs in narrow zones within Silurian Road River Group sediments. The Steel Formation, a calcareous and pyritic siltstone, appears to exhibit pervasive decalcification and replacement: these are typical characteristics of Carlin-type mineralization. Thin section analysis shows silica-replaced siltstone fragments within a foliated groundmass of sericite, illite and montmorillonite. Microcavities caused by the dissolution of interstitial carbonate in the siltstone are filled with cryptocrystalline clay minerals and minor silica, producing a soft, porous tuffaceous texture. Late-stage quartz-stibnite stockworking is also common, forming localized fault breccias. Alteration is usually very subtle; mineralized siltstone,(<16.0 gpt) is often visually indistinct from unmineralized

siltstone. The Steel Formation has striking similarities, both in age, lithology and in alteration or the lack thereof, with the highly productive Roberts Mountain Formation in the Carlin Trend.

Mineralized Steel Formation siltstone also occurs in the Schooner Zone where drilling has returned intersections of 1.1 gpt / 50.0 meters and trenching has returned gold values of 1.32 gpt / 17.7 meters (TR98-SK20) and 0.66 gpt / 17.7 meters (TR98-SK22). The wide variability in alteration and gold grade throughout the zone is attributed to structure and lithology. Wispy, laminated, calcareous siltstone is fractured, and locally decalcified, bleached and silicified; higher gold values are associated with micro-stockwork of fine open-space drusy quartz, illitic clay and trace arsenopyrite. This member may be the better host hock due to primary porosity along bedding. The sediments are isoclinally folded and faulted on ESE structures; mineralization occurs in these dilation zones. This style of mineralization is economically interesting as it is the only occurrence of mineralization in structures that cut potentially reactive footwall stratigraphy. Cherty, dirty, muddy and siliceous siltstones are less favourable host rocks even where the structural setting is favourable.

Mineralization is fracture-controlled and is associated with chalcedonic quartz stockwork zones in massive argillic siltstone. The argillic texture is thought to be the result of weak hornfelsing caused by nearby biotite monzonite intrusive bodies. A sericitic alteration halo up to 20 meters wide envelops the more siliceous mineralization. Calc-silicate minerals such as tremolite, actinolite and calcite are also common within this halo. Pyrite occurs along fracture surfaces and along weakly developed bedding planes while stibnite occurs locally as discontinuous pods and veins.

Oxidation is weak to moderate, limited to a depth of 30 meters. The presence of skarn minerals, hornfelsing due to the proximity of biotite monzonite bodies and the absence of mercury suggest a higher-temperature and deeper-level hydrothermal system than in the Reserve Trend or North Slope zone.

3.3 Relationship between Mineralization and Structure

Four structural fabrics, WNW trending imbricate listric normal faulting, NNE and WNW sub-vertical shears, NNW high angle faults and south vergent folded bedding are the main genetic controls to gold mineralization in the Reserve Trend. In the Classic zone, a NNW-trending structure, parallel to the Tintina Trench appears to control mineralization.

3.3.1 Mineralization and Listric Normal Faults

The dominant control to gold mineralization is EW- to ESE-trending, imbricate listric normal faults (reactivated thrust faults) that extend from the West Big Rock zone to the Sleemans zone. Later shearing and extension along thrusts produced the necessary open space for migration of gold-bearing hydrothermal solutions. The repetitious, imbricate nature of these structures provided the ground preparation for the moderately to steeply mineralized domains within the more gently dipping sills. These faults are localized along contacts between barren, fine-grained, graphitic footwall argillites and the brittle, coarse-grained clastic sediments and intrusive rocks in the mineralized hanging wall. Pyrite occurs in fractures and along weakly developed bedding planes. Stibnite occurs locally as discontinuous pods and veins. Fracture intensity, alteration and associated gold values often increase up-dip where imbrication is greatest. Footwall argillites may have acted as a physical permeability trap, concentrating ascending gold-bearing solutions or as down-dip extensions of the listric structures. The decreased gold grade and fracture intensity down dip suggests that these structures are not feeders to mineralization, but form a stratabound window that might be cut by steep N-NNW high-angle normal faults.

The Moosehead – North Slope area exhibits a series of west-directed thrusts that are possibly related to earlier NW-directed movement on the Tombstone Thrust, 100 kilometers to the north. The thrusts are not associated with graphitic horizons. Some of these thrust contacts, especially the basal contacts, are strongly mineralized (22.06 gpt in TR98-MN1). These structures are not clearly understood; however, due to their limited width; these structures are a low priority.

3.3.2 Mineralization and WNW and NNE Shears

Mineralized sub-vertical WNW and NNE shears are common in the hanging wall of imbricate thrust faults. Fractures are often occupied by en echelon, sub-cm quartz veinlets that contain fine-grained arsenopyrite. In the Golden zone bulk trench, a NNE fabric has developed into a 10 meter wide vertical quartz breccia shear zone that crosscuts monzonite. These shear systems appear to form vertical and moderately north- and south-dipping ore chutes within the broader gently dipping mineralized domains of listric normal faults. These structures control the majority of the ore reserves throughout the Reserve Trend. Higher-grade mineralization is strongly associated with greater fracture intensity regardless of silicification. These fabrics terminate at the base of the master listric normal faults.

3.3.3 Mineralization and NNW Faults

Exploration work in 1997 discovered mineralized NNW high angle faults in the Lucky and East Big Rock Zones. These structures appear to down-drop mineralized domains by as much as ten to twenty meters suggesting that movement occurred during and after the mineralizing event. In the Lucky Zone, on of these structures appear to cut through the bounding graphitic footwall, returning a gold grade of 5.2 gpt / 4.0 meters from fault breccia. Both of these structures were drill tested in 1998; new drilling failed to confirm that these structures act as conduits for mineralization within the monzonite. However, the mineralizing potential of these structures below the footwall, in the underlying Steel Formation, has not been tested.

3.3.4 Mineralization and South Vergent Folding

Mineralization in the Blue zone and North Slope zone appears to be controlled by broad south vergent folds in thin bedded Earn Group silty shale and Road River Group siltstone rather than in the cross cutting planar shears mentioned earlier. Although stockworking is present, silicification primarily occurs as fine-grained en echelon quartz veinlets along bedding. Structural deformation and associated mineralization are best developed in the hinges of these folds. Two bulk sample trenches exhibit a south vergent isoclinal synform that bounds higher-grade (<6.0 gpt) mineralization. Drilling has delineated this grade along a strike length of 200 meters. This style of deformation is common regionally throughout the Selwyn Basin; however, the folding appears to be very localized and is interpreted to be a manifestation of drag along south dipping normal faults.

In the Schooner zone, the sediments are isoclinally folded and faulted on ESE structures; mineralization occurs in these dilation zones. At the east side of the Lucky zone, similar structures are unmineralized.

3.3.5 Mineralization and the NNW Classic Zone Structure

In the Classic zone a NNW-trending sub-vertical extensional fault hosts low grade gold (0.30 gpt to 0.60 gold mineralization along a 500 meter strike length. Alteration crosscuts syenite and biotite monzonite stocks vertically to depth. Centimeter-scale en echelon quartz veinlets parallel this structural trend and dip moderately to the southwest. A strong gold-arsenic soil anomaly parallels this structure and extends for over five kilometers from the East Big Rock zone through the Classic zone to the South Klondike River Valley.

3.4 'Preg-Robbing' Characteristics of Graphitic Argillite

Metallurgical testing has been conducted on argillite and graphitic argillite in order to assess its preg-robbing tendencies. Preg-robbing lithologies have serious implications on leach recoveries and selective mining techniques must be utilized to avoid these lithologies. Footwall argillite and intercalated graphitic argillite lenses within mineralized zones were specifically selected and tested. No testing has been conducted since 1995.

The test results show a strong correlation between the oxide/sulfide interface and paleo-water table. The following generalized conclusions can be made:

1. Within the oxide facies (all sulfides have been strongly altered to limonite) and above the paleo-water table, graphitic argillite is demonstrably not preg-robbing. The percentage and morphology of the graphite do not affect the leach rate or recovery, even where the argillite is mapped as "massive and soot

2. Within oxidized portions of the deposits but below the paleo-water table, graphitic argillite is variably weakly to moderately preg-robbing.

3. Within the transition facies (sulfides are moderately oxidized and oxidation is typically confined to fractures) graphitic argillite is commonly weakly preg-robbing if located above the paleo-water table, and moderately to strongly preg-robbing if located below the paleo-water table.

4. Within the sulfide facies (sulfides are fresh) graphitic argillite is always strongly preg-robbing.

3.5 Occurrence of Gold

Microprobe work on selected mineralized samples was conducted at the University of Western Ontario in 1990. Results show that gold occurs as sub-micron particles in solid solution with arsenopyrite and pyrite as growth bands around larger sulfide grains. Most of the gold is concentrated in the outer rim and only limited oxidation is required to liberate it from solid solution. The sulfide grains themselves are typically very fine-grained (100 to 250 microns).

3.6 Geological Model of Mineralization and Alteration

Geological, geochemical, petrographic and fluid inclusion data indicates that the original sill emplacement, first stage alteration and associated mineralization occurred at a relatively low temperature and high level within the crust. An epithermal depositional environment is supported by the following factors: 1) the gold, arsenic, antimony, mercury association within veins and breccias, 2) very low base metal concentrations, 3) the absence of hornfelsing in sediments around sill contacts, 4) euhedral, coarse grained quartz with primary growth zones, 5) open space textures such as comb and cockade textured quartz and chalcedony, and 6) the presence of trace amounts of CO2, low salinities (<7% NaCl) and low homogenization temperatures (<3000 °C) within fluid inclusions. However, the presence of wispy-textured quartz veinlets, related to later shear zone deformation, indicates deposition at moderate to deep levels (Dunne, 1995), a common characteristic of Carlin-type deposits (Poulsen,1996). The reserves delineated to date consist of fracture-controlled quartz stockwork in siliclastic and intrusive rocks; however, the presence of decalcification and silica replacement in the calcareous Steel Formation suggests that a Carlin Type model may be appropriate at Brewery Creek.

Differences in alteration and bulk chemistry between the Reserve Trend and Classic Zone intrusives suggest two separate magmatically evolved hydrothermal systems. However, their proximity to each other raises questions about whether they are structurally linked. For example, does the radiometrically hot, deeper-level Classic intrusives represent a source of hydrothermal solutions for the distal, lower temperature epithermal and Carlin style mineralization found in the Reserve Trend? South dipping reactivated thrust faults or NNW steep faults that cut the ESE stratabound window may represent the structural conduit.

The recent discovery of mineralized NNW and NNE steep faults that penetrate the footwall sediments, in the Lucky and Schooner zones may represent conduits for sulfide mineralization or for replacement-style mineralization in reactive stratigraphy.

CHAPTER 4: GEOCHEMISTRY

The Brewery Creek deposit was discovered during the investigation of regional stream sediment geochemical anomalies. Geochemistry continues to play a major role in exploration. A considerable database of soil and lithogeochemical data has been accumulated.

4.1 Lithogeochemistry

Greater than 75 000 samples of reverse circulation drill chips, trench samples and drill core have been analyzed for gold. A large portion of these samples have been analyzed for silver, arsenic, antimony, mercury, lead and zinc; numerous samples were submitted for 30-element intercoupled plasma (ICP) scans. Consequently, the geochemical characterization of the ore zones and property lithologies is well known. The ores are elevated in gold but also contain anomalous arsenic and, in places, antimony. Barium is locally anomalous and a broad mercury signature is characteristic.

4.2 Soil Geochemistry

Soil geochemistry has been an important exploration tool. Gold-in-soil anomalies strongly define all the ore zones and exploration targets discovered (Plate 4.2a). To date, greater than 23 000 soil samples have been collected. Plate 4.2b shows all the soil sample locations.

The hydrothermal system at Brewery Creek is anomalous in gold, arsenic, antimony and mercury. Enriched zinc and lead values are characteristic of Earn Group sediments. Silver is weakly anomalous and erratic; it is associated with zinc in the sediments and gold in the epithermal system.

Between 1988 and 1992, more than 8 000 soil samples were collected at 50 meter intervals on 100 meter and 200 meter spaced lines over the mineralized zones. Lines were spaced at 400 meters over the remainder of the property. The samples were analyzed for gold, silver, antimony, arsenic and mercury; two-thirds of these samples were submitted for ICP analysis.

Between 1994 and 1996, more than 10 500 soil samples were collected across previously sampled portions of the exploration grid. Anomalies were extended south of the Classic zone and west of the Big Rock zones. Soil samples were collected at 25 meters intervals in areas of moderate topographic relief or at 12.5 meter intervals in subdued relief on 100 meter spaced lines. Bedrock and surficial geology were mapped at each sample site.

In 1997, approximately 6 000 soil samples, at 25 meter intervals on 100 meter spaced lines were collected to better define anomalous trends in the South Canadian zone.

During 1998, soil samples at 25 meter intervals on 400 meter spaced lines, were collected from the R-7A land block that abuts the Brewery Creek property to the west. Some of these samples were collected within the property boundary. All R-7A soil results will be maintained in the Brewery Creek database.

4.2.1 Gold

Gold-in-soil geochemistry defines two major trends.

i) A long and broad (12 km by 2 km) SSE-trending anomaly delineates the West Grid, West Big Rock, East Big Rock, Pacific, Blue, Moosehead, North Slope, Canadian, Fosters, Kokanee, Golden, Lucky, Bohemian, Schooner and Sleemans zones. This anomaly mimics the occurrence of the monzonite sills and associated listric normal faulting. It is abruptly truncated to the east by Golden Creek, which may represent a post-mineral fault. A narrow (3.5 km by >25 km) parallel gold trend, 500 meters to the south, delineates a minor thrust trace that hosts a very narrow mineralized monzonite sill.

ii) A NNW- trending anomaly parallels a strong photo-geologic lineament that extends from the East Big Rock zone through the Classic zone. The gold values are strongest in the Classic Zone where a sub-vertical normal fault crosscuts syenite and biotite monzonite stocks.

4.2.2 Arsenic

There is a strong positive correlation between arsenic and gold with an approximate relationship of 1 ppm As = 1 ppb Au. Arsenic-in-soil geochemistry is more dispersed, but reinforces, and in some places such as the Classic zone, better defines the mineralized structural trends.

4.2.3 Antimony

Antimony is the least mobile element and appears restricted to the main gold trend, occurring in all the mineralized zones except for the Classic and Moosehead. Stibnite occurs as discontinuous veins that crosscut mineralized quartz veinlets. This sporadic association with gold implies that antimony may represent a later hydrothermal event that occupied some of the same structures as gold. Elevated antimony may accompany gold, but does not always, and can occur independently of gold.

4.2.4 Mercury

Mercury, the most widely dispersed element, forms a regional anomaly that still reinforces the main gold-arsenic signature. Mercury values in individual pit areas are not necessarily elevated above the regional anomaly. Mercury is absent from the Classic Zone. The absence of mercury and antimony along the Classic Zone gold-arsenic structural trend suggests lower level mineralization than that associated with the east-west listric normal and strike-slip fault controls in the main trend.

CHAPTER 5: 1998 WORK

5.1 Summary of Exploration Work

The following is a brief discussion of work conducted at Brewery Creek during the 1998 field season. The purpose of the exploration work was to increase the resource base within a feasible haul from the leach pad and to develop higher-grade structural targets across the entire property. Reverse circulation drilling and trenching was conducted adjacent to currently defined deposits, outside the pit limits, in an attempt to expand the oxide reserves in these areas. Intensive trenching programs were conducted in previously under-explored regions that displayed significant gold-in-soil geochemical anomalies. An measured resource of 59,427 ounces was realized in the Bohemian zone, where mineralization remains open-ended.

The exploration areas that received work in 1998 span across a cumulative strike length of 15 kilometers. These areas, listed from west to east are: East Big Rock, Pacific, Blue, Moosehead, Moosehead-North Slope, Golden, Lucky-Golden Gap, Lucky, Bohemian, Schooner, Sleemans, South Canadian and Classic (Plate 5.1). 82 exploration RC holes for 6,009 metes and 94 trenches for 15,396 meters were completed. Additionally, the mine drilled 137 infill RC holes for 7 961 meters and 10 metallurgical DD holes for 662 meters. The results from the development work will not be discussed in this report. Table 5.1 provides a summary of all the physical work competed on the Brewery Creek property in 1998.

For each zone, a summary of 1998 exploration work, results and recommendations will be presented along with a brief description of the local geology and style of mineralization. The zones are described from east to west, in the same order they were listed above. Refer to the 1996 Brewery Creek Progress Report for detailed descriptions of the mineable Reserve Trend deposits. Refer to the 1997 Brewery Creek Progress Report for additional descriptions of the exploration areas.

5.2 East Big Rock

Four holes for 240 meters were drilled in the East Big Rock zone to test and expand the oxide resource at both the east and west margins (Plate 5.2).

At the east margin, gold mineralization occurs in steeply dipping bands that appear exclusive of lithology. Gold values are higher, up to 2.54 gpt / 6.0 meters, in holes drilled to the east of a major NNW fault that runs from the Classic zone through the East Big Rock zone refer to Plate 2.2. RC98-2119 returned a gold result of 1.06 gpt / 4.0 meters; however, although the mineralization persists, the intersections are narrow. Additional drilling is not recommended.

Gold mineralization in the western portion of the zone consists of moderately dipping mineralized monzonite sills and as mineralized bands within sills. The mineralized zone swells to 20.0 meters thick, and the gold grade slightly increases (to 1.06 gpt / 22.0 meters) proximal to the high angle NNW fault that divides the West and East Big Rock zones. Holes drilled north of existing mineralization and westward into the drainage proved the existence of an ESE post-ore normal fault that truncates mineralization; no significant gold values were returned. It is recommended that three holes, on a fence 50 meters to the west, be drilled in an attempt to prove continuity of the existing mineralization on the west side of the major NNW drainage/fault. One other hole should be drilled due east.

Bottle roll test recoveries from 1998 drill samples range from 1.13 % to 68.95 %. The poor recoveries were returned from Earn Group sediments. The better recoveries were from mixed lithology (LAQM:SED) overburden. A listing of bottle roll test results is provided as Appendix 5b.

5.3 Pacific

Five holes for 304.0 meters and 3 trenches for 304.0 meters were completed in the Pacific zone (Plate 5.3).

Gold mineralization in the Pacific zone occurs in sharply defined, continuous, steeply south-dipping bands (<15 – 20 m) within Earn Group sediments. Mineralization occurs in all lithologies, but shale, siltstone and

Table 5.1	Summary of All 1998 Brewery Creek Property Work					
	Reverse Circulation (RC) Drilling					
	Exploration		Infill		All	
Zone	# of Holes	Meterage	# of Holes	Meterage	# of Holes	Meterage
Blue	2	120.0	0	0.0	2	120.0
Bohemian	43	3369.0	24	1572.0	67	4941.0
East Big Rock	4	234.0	0	0.0	4	234.0
Golden	5	198.0	14	868.0	19	1066.0
Kokanee	0	0.0	12	740.0	12	740.0
Lower Fosters	0	0.0	9	365.0	9	365.0
Lucky	7	445.0	14	880.0	21	1325.0
Lucky - Golden Gap	2	280.0	0	0.0	2	280.0
Moosehead	7	368.5	64	3536.0	71	3904.5
Pacific	5	304.0	0	0.0	5	304.0
Schooner	7	690.0	0	0.0	7	690.0
All Zones	**82**	**6008.5**	**137**	**7961.0**	**219**	**13969.5**
	Diamond (DD) Drilling					
	Exploration		Infill		All	
Zone	# of Holes	Meterage	# of Holes	Meterage	# of Holes	Meterage
Blue	0	0.0	3	180.0	3	180.0
Kokanee	0	0.0	2	127.7	2	127.7
Moosehead	0	0.0	3	220.0	3	220.0
Pacific	0	0.0	2	134.0	2	134.0
All Zones	**0**	**0.0**	**10**	**661.7**	**10**	**661.7**
	Trenching					
	Exploration		Infill		All	
Zone	# of Trenches	Meterage	# of Trenches	Meterage	# of Trenches	Meterage
Bohemian	6	332.0	0	0.0	6	332.0
Lucky	2	348.0	0	0.0	2	348.0
Lucky - Golden Gap	3	870.0	0	0.0	3	870.0
Moosehead	3	499.0	0	0.0	3	499.0
Moosehead - North Slope	4	898.0	0	0.0	4	898.0
Pacific	3	304.0	0	0.0	3	304.0
Schooner	29	4512.0	0	0.0	29	4512.0
Sleemans	19	5643.5	0	0.0	19	5643.5
South Canadian	25	1989.0	0	0.0	25	1989.0
All Zones	**94**	**15395.5**	**0**	**0.0**	**94**	**15395.5**

sandstone host higher values than greywacke and chert pebble conglomerate. The highest values are associated with continuous, very narrow, very steep structures within the broader bands and are slightly less dependent on the host lithology. Graphite is a minor component, typically occurring as interbeds within dominantly non-graphitic sequences; graphitic argillite does not form the footwall to mineralization. Monzonite is not lithologically significant. The zone is cut by steep post-mineral NNE and NNW faults, into at least three major structural domains, each with similar characteristics. Gold mineralization in the central part of the deposits strikes ESE and occurs as wider intersections of higher grade. The west and east domains contain narrow mineralized bands of slightly lower grade that strike SSE. RC98-2124, drilled at the extreme east edge returned 0.77 gpt / 4.0 meters from greywacke and confirmed continuity of low-grade mineralization. However, due to lackluster results and the proximity of the haul road, no further work is recommended.

Four holes were drilled along a pre-existing fence to test a lens of monzonite northwest of the Pacific deposit. This discontinuous intrusive body was intersected by TR98-P32 and TR98-P34, returning values of up to 0.89 gpt / 24.0 meters; however, no significant results were returned from drilling, indicating a lack of continuity to the west. Additional drilling is not recommended.

Bottle roll test recoveries from 1998 drill samples range from 38.19 % to 85.21 %. The variable results were returned from Earn Group coarse clastic sediments with minor oxidized sulfides. A listing of bottle roll test results is provided as Appendix 5b.

5.4 Blue

Two holes, for 120 meters were drilled to test for the possibility of blind mineralization associated with a structure parallel to and south of the main Blue deposit (Plate 5.4). Both holes intersected a monotonous sequence of fine Earn Group sediments and a narrow, gently south-dipping unoxidized monzonite sill. All assay results were negligible and no further work is recommended.

5.5 Moosehead

Seven holes for 342.5 meters were drilled in the southwest Moosehead zone (Plate 5.5) to complete drilling at fifty-meter centers. Results from this drilling will be used in the 1998 mineable reserves calculations. Three trenches for 449.0 meters were excavated north of the main deposit to test for a parallel mineralized structure.

Gold mineralization occurs as continuous, narrow, steeply south-dipping low-grade (eg. 0.70 gpt/ 18 m, 0.47 gpt / 14 m) bands within broader bands of anomalous but sub-economic (<0.30 gpt) grade. Mineralization is hosted within a gently northeast-trending, southeast-dipping monzonite sill with a predictable, strongly graphitic footwall. The area is bounded on all sides by steep brittle faults; mineralization is abruptly truncated at the western edge. RC98-2075, drilled through a an ESE fault at the east side of the target area, returned 2.12 gpt / 10.0 meters from calcareous, graphitic siltstone, a non-typical host rock. It is not certain if this intercept represents fault-related mineralization within reactive stratigraphy beneath the footwall, or an extension of typically intrusive-hosted mineralization to the east of the fault. Trenches excavated north of the Moosehead zone failed to return significant assay results. It is not likely that 1998 drilling added significant ounces to the oxide resource; additional work is not recommended.

The bottle roll test recoveries from 1998 exploration drilling range from 18.16 % to 86.84 %. The higher recoveries (>80.0 %) were returned from both oxidized monzonite within 10.0 meters from surface. The lower recoveries were from Earn Group sediments collected below 14.0 meters from surface. A listing of bottle roll test results is provided as Appendix 5b.

5.6 Moosehead – North Slope

Three trenches (new and pre-existing road cuts) for 898 meters were mapped and systematically sampled (Plate 5.6). This target area spans east edge of the Moosehead zone (19550E) through the North Slope (21000E) zone. The Moosehead portion is represented as a small hill.

This area is structurally unique, consisting of a series of west-directed thrusts that place Road River Group and Rabbitkettle Formation rocks on top of Earn Group sediments. Calcareous, tightly kink-folded Rabittkettle phyllite is conformably overlain with thin sections of Road River Group chert, volcanics and siltstone and Lower Earn Group siliclastics. This entire sequence was deformed into west-vergent folds that broke into thrusts along the axial planes, to place steeply east-dipping phyllite in contact with more flat-lying siliclastics. The dip of the entire package flattens toward the east. The basal thrust that juxtaposes intensely sheared Earn Group rocks against similar rocks is well exposed in TR98-M27 as it swings into the main Moosehead zone. Assays of the one to two meter thick thrust gouge returned gold values of 2.46 gpt / 8.0 meters; due to the limited thickness quantity of this material, additional test work is not recommended. Gold values from all other samples were insignificant. All previously identified mineralization in this area is hosted within silty Earn Group shale, within 25 meters from surface, along pre-existing thrust surfaces. The potential for adding additional ounces to the resource is limited.

The North Slope zone is composed entirely of Road River Group rocks, dominantly Steel Formation siltstone. Gold mineralization occurs in moderately south-dipping bands within siltstone and volcanics and some intrusive. A deepened road cut (TR98-MN1) exposed structural complexities that are the result of west-directed thrusting. The north-south trending basal thrust that separates the Moosehead zone from the North Slope is exposed as a one meter thrust gouge band that returned 22.06 gpt. Meter-scale structurally bounded pods of siltstone show decalcification and adjacent silicification; these rocks do not host mineralization. 1998 work did not add ounces to the resource.

Several composite samples, selected from 1997 RC drilling and corresponding to those used to calculate the 1997 resource, were submitted for bottle roll tests. Steel Formation siltstone returned recoveries of 1.87 % to 75.18 %. One sample of oxidized monzonite returned a recovery of 55.85 %. The majority of the geological resource of the North Slope zone is hosted within very weakly oxidized material. Samples that returned a value of < 10.0 % contained fresh to very, very weakly oxidized pyrite (P0 – P1). Samples that returned the highest recoveries contained strongly to completely oxidized sulfides (P3 – P4). The recoveries have no apparent relationship to their depth from surface, that is, poor recoveries of <10.0 % were returned from samples < 25.0 meters from surface; however, the better recoveries were always from less than 30.0 meters from surface. A listing of 1997 composite bottle roll test results is provided as Appendix 5a.

Most samples from TR98-MN1 were submitted to Chemex for ICP analysis. The gold values returned were always higher than those from the VCM lab but the mineralized intervals corresponded. Arsenic was elevated throughout but the highest values corresponded with the highest gold values. Barium and phosphorus were strongly elevated for the fifty meters of trench leading to the basal thrust. The intervals described as decalcified were strongly elevated in calcium. Antimony and mercury results were flat. Overall, there was very little visual diversity in the rocks sampled; consequently, it is difficult to explain the anomalous sequences. A listing of ICP results is provided in Appendix 6.

It is recommended that the deposit be drilled off at fifty-meter centers and that the resource be re-calculated. Decisions regarding infill drilling should be based on these results. Additionally, the source of the very deep mineralization (2.63 gpt / 13.8 m) intersected in a fault breccia in DD95-85, 400 meters south of the main deposit, should be investigated; its relationship with the surface mineralization remains uncertain.

5.7 Golden

Five holes, for 198 meters, were drilled outside the pit boundaries at the eastern margins of the North and South Golden zones (Plate 5.7).

In the North Golden zone, gold mineralization occurs in narrow, EW-trending (085° – 095°), moderately to steeply south-dipping lenses hosted within a more gently south-dipping oxidized monzonite body. Within the pit limits, the deposit is strongly oxidized and fractured; these alterations decrease toward the southwest but are still often associated with economic gold values. Blast hole assay results indicate that the highest grade mineralization (>5.0 gpt) is strongly structurally controlled; geotechnical mapping of the pit walls confirms that gold mineralization is associated with steeply north- and south-dipping, EW-tending micro-fractures and shears. At the east margin, narrow at-surface mineralization (0.96 gpt/6.0 m) is displaced by a steep, NNW fault. One step-out hole (RC98-2063) was drilled in an attempt to expand the oxide resource; this hole intersected unaltered, oxidized monzonite with negligible gold values. This area has since been mined-out, and no further exploration work is recommended.

In the South Golden zone, gold mineralization occurs similarly to that in the North Golden pit. Mineralization is continuous, but narrows and weakens toward the east. RC98-2039, drilled at the east edge confirmed the presence of a fault and the continuity of narrow mineralized bands (0.92 gpt / 12.0 m). Three additional step-out holes were drilled to the east and north; due to extremely poor ground conditions, these holes were abandoned prior to their targeted depths. Due to poor assay results (all were below detection limits) and the proximity of the confluence of two drainages, additional work is not recommended. Drilling in 1998 failed to add ounces to the mineable reserves.

5.8 Lucky– Golden Gap

Three trenches (new and pre-existing road cuts) for 870 meters, and two drill holes for 280 meters were completed in the Lucky-Golden Gap, the broad area between the Golden and Lucky zones that straddles a NNW-trending drainage (Plate 5.8).

The stratigraphy is dominated by various members of Steel Formation siltstone, with minor intercepts of Earn Group sediments. A road cut across the top of the drainage exposed bedding that is atypically vertical but flattens toward the east. Numerous small and larger scale faults and shears show minor drag and sub-meter displacements; the major structure trends NNW and tracks to the east of the drainage. An additional structure trends NNE and may represent a conjugate partner that is associated with brecciation observed on the west slope of the drainage, north of the Golden pit. Assays returned results of 0.46 gpt / 6.4 meters (TR98-LG1) from the most intensely sheared areas. Higher gold values (<1.55 gpt/0.3 m) were returned from samples taken directly along the structures. TR98-LG3, excavated down-slope and south of TR98-LG1, intersected the same NNW-trending fault, but it was very subtly expressed and unmineralized. Gold values of up to 0.59 gpt / 6.0 meters were returned from typical, light grey, flat-lying unaltered Steel Formation siltstone.

The RC holes were drilled across the drainage at the elevation of the proposed Lucky haul road to test the possibility of the fault as a deep-seated feeder to sulfide mineralization. Both holes intersected monotonous sequences of Steel Formation siltstone; all gold values were negligible.

The work conducted in 1998 suggests that the NNW-trending structure does not act as a conduit to mineralization. The vertical bedding may be due to west-directed folding and thrusting, similar to that seen in the east Moosehead zone. Additional work is not recommended.

5.9 Lucky

Seven holes for 445 meters were drilled in the southeast Lucky zone (Plate 5.9).

East of the main Lucky deposit, gold mineralization occurs in a flat lying monzonite sill that is truncated at its west edge by a NNW argillitic graben that approximates the trace of the creek. Gold values in the sill to the west of the graben increase toward the fault contact, suggesting that this structure may represent a deep-seated feeder. Drilling and trenching in 1998 defined the eastern extent of the flat-lying sill. Assay results indicate that the mineralization is abruptly truncated to the north by a ESE normal fault; the monzonite sill is continuous and road exposures in this area show that the rock is relatively unaltered. Steel Formation siltstone forms the footwall to the sill east of Lucky Creek; samples collected from the tightly isoclinally

folded siltstone (TR98-L3) returned insignificant gold values. RC98-2125, drilled due west into the graben, returned assay values of 1.2 gpt / 16 meters from unoxidized monzonite. The mineralization might represent a down-dropped portion of the main mineralized body. Deeper drilling into the calcareous, potentially more reactive stratigraphy of the Road River Group is recommended to test if the steep faults are conduits to mineralization. All gold intercepts were hosted within monzonite; mineralized calcareous footwall rocks were not intercepted.

Bottle roll test recoveries for 1998 exploration drilling range from 5.00 % to 93.93 %. Most of the material analyzed was not oxidized. Overburden and near surface rocks returned low recoveries. The highest recovery was returned from one sample of calcareous, pyritic, oxidized monzonite. A listing of 1998 bottle roll test results is provided as Appendix 5b.

5.10 Bohemian

In the Bohemian zone, forty-three holes for 3,369 meters and six trenches (pre-existing exposures) for 332.0 meters were completed (Plate 5.10). This work, combined with concurrent infill drilling, defined a global resource of 1.31 million tonnes at a grade of 1.42 gpt, for a total of 59,427 ounces of gold. Eighty five percent of the resource is classified as oxide. Please refer to the **Bohemian Zone – 1998 Resource Estimate** memo (6 December 1998) in Appendix 7. This deposit is currently being block modeled for inclusion in the mineable reserves; results should be released in early 1999.

Geology in the Bohemian zone consists of a flat-lying monzonite sill that has invaded along the contact between Steel Formation siltstone footwall rocks and graphitic argillite hanging wall rocks. Graphitic argillite in the footwall is decreasingly common to the east, where it is often absent or occurs as a very narrow horizon immediately below the sill. The footwall is intensely disrupted by numerous steep brittle faults that displace lithology and mineralization by up to twenty meters. This intense block faulting is atypical of most Reserve Trend deposits except for the Lower Fosters zone.

Although the block faulting is extreme, the zone can be described as four major blocks: core, west, east and south. The core (23 000 E – 23 400 E, north of 19 300 N)) hosts the best mineralization, with intercepts of 1.2 gpt / 40.0 meters (RC98-2148), 1.45 gpt / 34.0 meters (RC98-2194) and 4.42 gpt / 46.0 meters (RC98-2185). The dominant controls to geology and mineralization are NNE. Economic gold mineralization is hosted within monzonite; anomalous values occasionally occur in footwall siltstone toward the east. Mineralized domains are broad, although the higher-grade intersections are likely related to steep structures within the hanging wall. Fracture orientations measured in 1998 trenches are NNE and ESE and the highest-grade intercepts probably occur at the intersection of these structures. The highest-grade intercepts typically occur in monzonite that is intensely silicified. Oxidation persists to at least 60.0 meters from surface.

Geology and mineralization in the west and east domains trend ESE, an orientation that is more typical of all Reserve Trend deposits. Mineralization, hosted in oxidized monzonite, occurs as predictable south-dipping, occasionally flat-topped bands. Significant intercepts include 1.54 gpt / 20.0 meters (RC98-2150) and 0.73 gpt / 30.0 meters (RC98-2205). This mineralization daylights to the east; additional step-out drilling is not recommended. Mineralization to the west remains open-ended along strike; however, the best potential for adding to the resource is south of 19 330 N. Step-out drilling in this direction is strongly warranted.

The south domain is separated from the core by two convergent, steeply north-dipping faults. The area is dominated by great expanses of graphitic argillite into which monzonite has intruded. The graphitic argillite might have impeded oxidation. Significant results include 1.62 gpt / 30.0 meters (RC98-2215), 1.97 gpt / 44.0 meters (RC98-2196) and 13.3 gpt / 14.0 meters (RC98-2245); this mineralization is hosted within pyritic, unoxidized monzonite. Due to the wide-spaced drilling, the controls to lithology and mineralization are not well understood. Step-out drilling to the west of RC98-2245, and southeast of and immediately adjacent to RC98-2215 will likely yield mineralized sulfide intercepts. Please refer to Appendix 8 for a listing of recommendations for 1999.

Several composite samples from 1997 drilling, corresponding to those intervals used to calculate the 1997 resource were submitted for bottle roll tests. Oxidized quartz monzonite returned recoveries of 49.54 % to 75.66 %. A listing of 1997 composite bottle roll test results is provided as Appendix 5a. For 1998 drilling, all samples with a grade that exceeded 0.60 were submitted for bottle roll tests. Recoveries range from 1.54 % from completely unoxidized monzonite to 96.87 % from oxidized monzonite. Recoveries >90.0 % occur up to 60.0 meters from surface; thus, the Bohemian zone is very amenable to heap leaching. A listing of 1998 bottle roll test results is provided as Appendix 5b.

5.11 Schooner

Twenty-nine trenches (new and pre-existing cuts) for 3 512 meters and seven drill holes for 690.0 meters were completed in the Schooner zone (Plate 5.11). Exploration work was conducted in this area to evaluate gold-in-soil anomalies for additional oxide resources and to explore for higher-grade mineralization associated with steep structural targets. Two styles of mineralization, intrusive-hosted and sediment-hosted, have been identified as potential drill targets.

TR98-SK7 returned a gold intercept of 1.27 gpt / 66.0 meters from strongly oxidized, intensely fractured and stockworked monzonite. Steeply southwest dipping, SSE-striking fractures appear to be the control for the highest values; however, mineralized structures of widely variable attitude were also noted. RC drilling immediately over and to the northwest of this trench has returned gold values of 2.29 gpt / 6.0 meters and 3.04 gpt / 10.0 m (RC98-2198), 0.98 gpt / 42.0 meters (RC98-2241) and 0.57 gpt / 10.0 meters (RC98-2242). This mineralization appears to occur within a gently southeast-dipping horizon in a flat-lying but structurally complicated monzonite sill that daylights to the west. All structures and mineralization is truncated at the Steel Formation siltstone footwall. Drilling east of this mineralization failed to yield significant gold values. Results from trenching east of the drilling, but on the same geographical knob, revealed occasional, broad intersections of low- to sub-economic grade (0.56 gpt / 20.0 m from TR98-SK6). The mineralized zone appears very confined; there is a potential to add strike length on the west side of the NE-trending creek that separates this area from the Bohemian zone 200 meters to the northwest. Additional drilling in the drainage between the Bohemian and Schooner is warranted.

In the northeast Schooner zone, east of the intrusive-hosted mineralization just described, 1998 trench results delineate a fifty meter wide structurally bound zone within Steel Formation siltstone that trends ESE for a length of >900 meters. The wide variability in alteration and gold grade throughout the zone is attributed to structure and lithology. Wispy, laminated, calcareous siltstone is fractured, and locally decalcified, bleached and silicified; higher gold values are associated with micro-stockwork of fine open-space drusy quartz, illitic clay and trace arsenopyrite. The sediments are isoclinally folded and faulted on ESE structures; mineralization occurs in these dilation zones. This style of mineralization is interesting and warrants follow-up work as it is the only occurrence of mineralization in structures that cut potentially reactive footwall stratigraphy. Significant intercepts include 1.32 gpt / 17.7 meters (TR98-SK20) and 0.66 gpt / 17.7 meters (TR98-SK22). Cherty, dirty, muddy and siliceous siltstones are less favourable host rocks even where the structural setting is favourable, possibly due the decreased primary porosity and less calcareous matrix in these more massive units.

In the southeast Schooner zone (18700N,24100E), mineralization is hosted within Steel Formation siltstone. This area received very limited attention in 1998, and samples are restricted to a few grab rock chips. The best gold value of 1.05 gpt was from a sample of a quartz-arsenopyrite breccia. More detailed mapping and trenching and mapping is required to better evaluate this area.

The entire Schooner area is repeatedly cut by NNE-trending brittle faults that are coincident with the major drainages; these structures might act as feeders to sulfide mineralization or as a new target for replacement potential.

5.12 Sleemans

Nineteen trenches (new and pre-existing cuts) for 5 643.5 meters were systematically mapped and samples (Plate 5.12). Trenching in 1998 investigated intrusive-hosted mineralization in the north Sleemans area and sediment-hosted mineralization in the south Sleemans area.

In the north Sleemans area, ESE–trending mineralization is confined to quartz monzonite that is in contact with Earn Group sediments. The monzonite is silicified and sericitized along steep NW-trending structures that are cut by steep NE-trending structures. The contact is sub-vertical near surface and flattens with depth. The best results from 1998 trenching (1.93 gpt / 18.0 m from TR98-SL13) confirm the values received from RC drilling completed in 1992. The work did not increase the existing targets or identify new ones. Additional work is not recommended.

In the south Sleemans area, 1998 trenching exposed a high angle shear consisting of Earn Group carbonaceous siltstone and shale. Hanging wall sediments are interbedded sandstone and siltstone; the footwall rocks were not exposed. The shear is at least 60 meters wide and has been tested in two trenches 100 meters apart. Gold grade is developed in fractured, sericite- and clay-altered siltstone. In TR98-SL9, fractures up to 3.0 centimeters contained quartz-arsenopyrite veinlets that returned 16.08 gpt; intercepts that included wall rock material assayed 1.75 gpt / 2.0 meters. Other significant results include 1.31 gpt / 5.0 meters (TR98-SL9) and 1.12 gpt / 10.0 meters (TR98-SL6). The mineralized zone is untested to the southwest, northeast and southeast. It appears fault-bounded to the southeast and it has been obscured by fluvial deposits. However, the low-grade and insufficient tonnage potential does not warrant further work at this time.

Bottle roll tests on 1998 exploration drill samples returned recoveries of 13.33 % to 73.66 %. The highest recoveries were returned from unsilicified, oxidized monzonite and Earn Group sediments that lack strong alteration and are very weakly, visibly sulfidic. Moderate to low recoveries were returned from transitional (mixed oxidized and unoxidized) monzonite with weakly to moderately oxidized sulfides. The lowest result was returned from strongly silicified, sulfidic, oxidized monzonite. A listing of bottle roll test results is provided as Appendix5b.

5.13 South Canadian

Twenty-five trenches (new and pre-existing road cut exposures) for 1,989 meters were systematically mapped and sampled in the South Canadian zone (Plate 5.13). All 1998 work was conducted to test a long (>3.0 km), narrow ESE-trending gold-in soil anomaly. Two different structural domains, west and east of 21 000E, were tested for oxide potential. The zone is situated on the north-facing slope that opposes the Canadian, Fosters, Kokanee and Golden zones; it is separated from the Schooner and Sleemans zones by a major NNW drainage. The entire area is affected by permafrost, and many roads/exposures collapsed soon after the work was competed.

West of 21 000 E, the stratigraphy is dominated by Earn Group shale and siltstone; chert pebble conglomerate forms the ridge tops. TR98-SC4, excavated through the gold-in-soil anomaly, revealed a very thin lens of colluvial quartz monzonite that returned weakly anomalous assay results (0.28 gpt/4.0 m). The size of the anomaly was misrepresented due to extensive LAQM talus that covers the entire slope down to Laura Creek. Additional work in this area is not recommended.

East of 21 000 E, the stratigraphy is dominated by Steel Formation siltstone and very thin sequences of Earn Group graphitic argillite and other fine siliclastic sediments. The gold-in-soil anomaly corresponds well with a continuous but narrow (2-6 m), SSE-striking, southwest-dipping, oxidized, mineralized monzonite sill that has intruded along the thrust contact between the Road River Group and Earn Group sediments. The sill is encased in intensely tectonized graphitic argillite and the contacts are often invaded and crosscut by unmineralized stibnite veins and pods. This sill has returned assay results of 0.51 gpt/4.0 meters (TR98-SC20) to 1.27 gpt / 6.0 meters (TR98-SC25), but the majority of the sill is only weakly mineralized. Assays of samples collected from Earn Group and Road River Group sediments failed to

return any significant results. Due to the narrowness of the sill, and its anti-dipslope attitude, additional work is not recommended and this area will have no impact on increasing the oxide resource.

5.14 Classic

No physical work was conducted in the Classic zone; however, several composite samples from 1997 RC drilling were submitted for bottle roll tests. A listing of 1997 composite bottle roll test results is provided as Appendix 5a. The composite intervals correspond to those used for the polygonal resource calculation completed in early 1998.

Bottle roll tests of oxidized monzonite returned recoveries of 68.00 % to 95.52 % to 65.0 meters from surface. Unoxidized biotite monzonite returned recoveries of 57.10 % to 78.36 % to 120.0 meters from surface. One composite of oxidized syenite <65.0 meters from surface returned a recovery of 24.83 %.

The geological resource in the Classic zone is hosted within both oxidized and unoxidized material. Mineralization is associated with centimeter-scale sheeted quartz veinlets, hosted within sheared biotite monzonite and syenite, that strike northwesterly and dip moderately to the southwest. Pyrite oxidation, where sulfides are visible, is variable (P0 – P4). The favourable bottle roll test results from all material to depths of 120.0 meters suggests that the gold is free, rather than in solid solution with arsenian pyrite on rims of pyrite grains as in all the other deposits.

CHAPTER 6: CONCLUSION and RECOMMENDATIONS

The 1998 Brewery Creek exploration program included 6,009 meters of RC drilling and 15,396 meters of trenching. The work was conducted within the Reserve Trend outside of the currently defined pit limits and in the outboard exploration zones. The purpose of this work was to increase the oxide resource within a feasible haul from the leach pad and to develop higher-grade structural targets across the property. The program was successful in increasing the Bohemian resource to 59,427 ounces. However, work conducted adjacent to the currently defined pit limits in the Reserve Trend failed to add ounces to the resource.

In the Bohemian Zone, a gold resource of 1.31 million tonnes of 1.42 gpt was defined. Ninety-five percent of the resource is classified as measured; eighty-five percent of the resource is classified as oxide. Drill hole intercepts of oxide material include 1.2 gpt / 40.0 meters, 1.45 gpt / 34.0 meters and 4.42 gpt / 46.0 meters. Intercepts of sulfide material include 1.62 gpt / 30.0 meters, 1.97 gpt / 44.0 meters and 13.3 gpt / 14.0 meters. The mineralization remains open along strike to the southwest and toward the Schooner zone to the southeast, and there is potential to add to the resource. However, this zone is structurally complex, and additional definition drilling will be required to better define and predict gold mineralization. Bottle roll test results indicate recoveries of > 90 % to depths of 60 meters from surface.

Trenching at the west margin of the Schooner zone yielded 1.27 gpt / 50.0 meters from oxidized monzonite. This target, when drill tested returned gold values of 2.29 gpt / 6.0 meters and 3.04 gpt / 10.0 meters; however, this mineralization is hosted within a very structurally complex domain and the zone appears very limited in extent. Farther southeast, trenching defined steep east-trending structures that cut Steel Formation footwall rocks, to form a mineralized trend over 2.5 km long. Although the gold grades are not high (1.32 gpt / 17.7 meters) this style of mineralization is interesting and warrants follow-up work, as it is the only occurrence of mineralization in structures that cut potentially reactive footwall stratigraphy. These structures combined with the presence of high angle NNE structures that mimic the drainage pattern may represent a new target for replacement potential as well as feeders to sulfide mineralization.

Extensive trenching was conducted in the South Canadian and Sleemans zones. In the South Canadian, a long gold-in-soil anomaly is explained by the presence of a narrow, mineralized south-dipping sill that invaded a minor thrust. Typical gold results from this sill include 0.51 gpt / 4.0 meters and 1.27 gpt / 6.0 meters; this area will have no impact on the resource and further work is not recommended. In the Sleemans zone, trench results confirmed narrow intrusive-hosted mineralization that was drill-tested in 1992; however, the work did not increase the existing targets or identify new ones. In the south Sleemans zone, cm-scale quartz arsenopyrite veinlets hosted within Earn Group sediments returned 16.08 gpt; when these veinlets were sampled with wall rock material, the best gold intercept was 1.12 gpt / 10.0 meters. Due to the low-grades the distance from the leach pad and the lack of sufficient tonnage potential additional work is not recommended.

Drilling and trenching across steep NNW-trending structures in the Lucky zone, East Big Rock zone and Lucky- Golden Gap failed to confirm that these act as conduits for mineralization at higher levels. However, deeper drilling across steep NNE and NNW structures that cut the potentially reactive calcareous Road River Group footwall stratigraphy is still highly recommended. Fault gouge from a west-directed thrust surface at the Moosehead – North Slope boundary returned 22.06 gpt. The significance of the intercept is uncertain, but its occurrence and possible relationship to the deep mineralization encountered in DD95-85 should be investigated.

Work in 1999 will focus on expanding the resource in the Bohemian – Schooner area through systematic trenching and step-out drilling. The Bohemian zone and Schooner zone have the best potential to add to the mineable oxide reserves. The North Slope Zone, which received very little attention in 1998, will require 1,500 meters of drilling to define mineralization at 50-meter centers. Additionally, aggressive drilling will be required to investigate the deep sulfide intercept in DD95-85.

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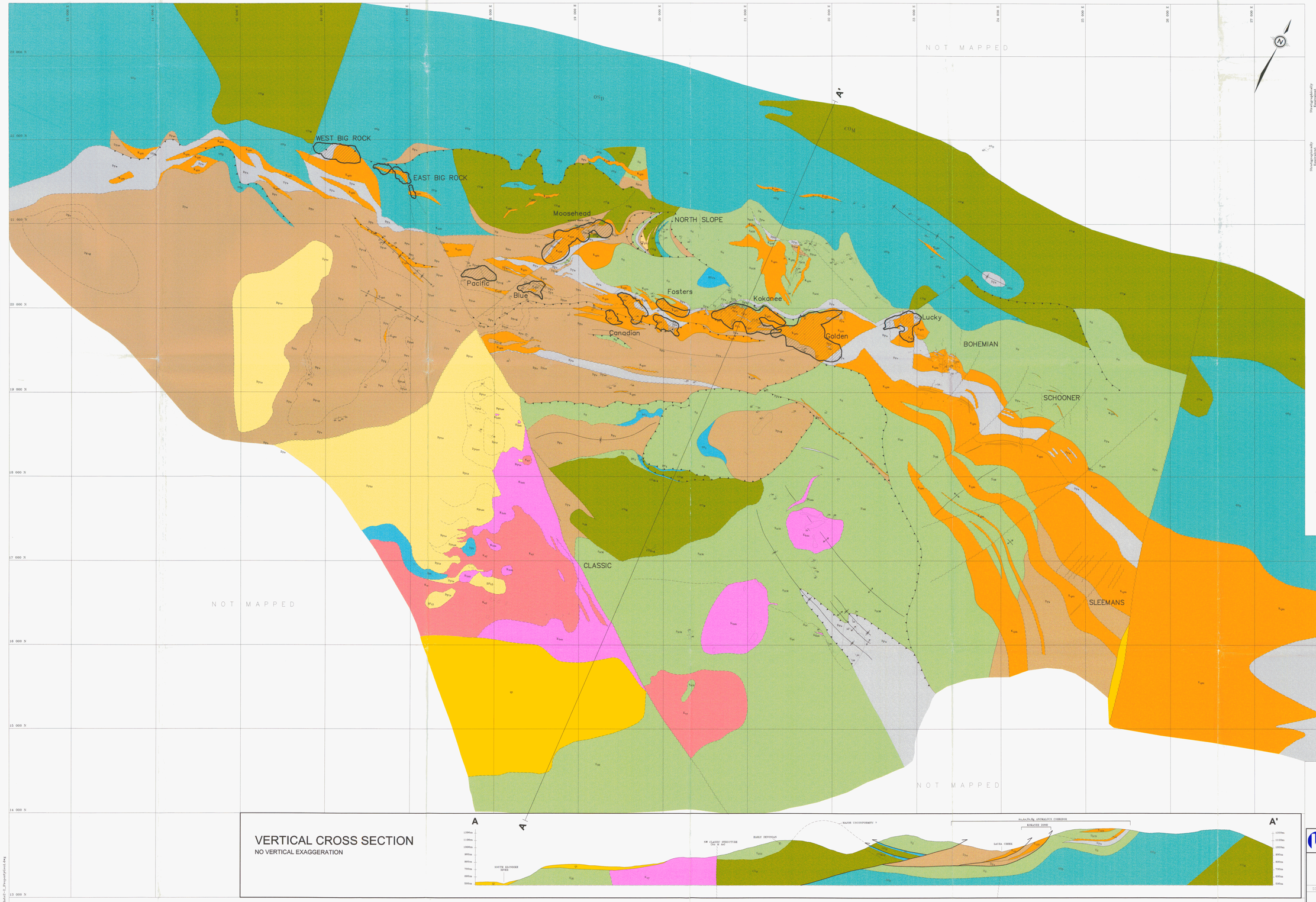

LEGEND

QUATERNARY

- Qc — UNCONSOLIDATED RIVER DEPOSITS (Gravel benches)

TOMISTONE PLUTONIC SUITE (MID-CRETACEOUS)

- K_{QM} — QUARTZ MONZONITE (91.4 Ma) Contains quartz eyes, megacrystic K feldspars, hornblende + biotite.
- K_{BMG} — BIOTITE MONZONITE / Equigranular, contains about 30% biotite. Strongly foliated at base.
- K_{SY} — SYENITE Trachytic texture due to strong alignment of feldspars. Coarse grained, contains hornblende + feldspar only.

EARN GROUP (DEVONIAN – MISSISSIPPIAN)

- D_{PTuf} — TUFFACEOUS SANDSTONE Fine grained laminated quartz sandstone with abundant tuffaceous material (terrestric)
- D_{PSh} — TUFFACEOUS SHALE Dark grey to black soft, tuffaceous shale. Small sharp crested asymmetric current ripples on bedding surfaces. Grades up-section into tuffaceous sandstone described above.

(On correlatively equivalent)

- D_{PCg} — DEBRIS FLOW CONGLOMERATE Clast supported chert pebble conglomerate. Pebbles consist of vari-coloured fine-grained chert, minor argillite, tuff and Hyland Group quartzite in a greywacke matrix.
- D_{PG} — GREYWACKE Dark grey matrix supported greywacke. 1mm – 0.5cm sub-angular clasts of chert, shale and argillite within a poorly sorted siliceous matrix, grades locally into chert pebble conglomerate.
- D_{PSs} — SANDSTONE Dark grey massive well sorted siliceous sandstone, minor crudely bedding surfaces.
- D_{PSh} — SHALE Fissile, dark grey fine grained shale; pin-striped and slightly burrowed silty shale, locally tuffaceous. Commonly interbedded with sandstone and greywacke described above.

(On correlatively equivalent)

- D_{PBs} — BLACK GRAPHITIC ARGILLITE Black siliceous argillite, chert and graphitic shale. Characteristically fractured, brecciated and quartz veined in places. Locally baritic.
- D_{PBa} — BARITE Finely laminated light grey baritic up to 15m in thickness, interbedded with limestone and Steel Formation siltstone below.
- D_{PLs}, D_{PBa} — LIMESTONE Ranges from fossiliferous oolitic limestone breccia to fetid pelitic limestone. Locally interbedded with laminated baritic.

ROAD RIVER GROUP (ORDOVICIAN – SILURIAN)

STEEL FORMATION

- S_{PC} — INTERBEDDED CALCAREOUS SILTSTONE AND CHERT. Thinly interbedded sequence of tan weathering siltstone and dark grey chert and argillite. Minor limestone, bedded baritic and chert breccia.
- S_{PC} — CALCAREOUS SILTSTONE. Tan weathering burrowed siltstone and calcareous shale. Contains rare limestone nodules. Contains distinctive beds of massive tan weathering, hard blue-grey siliceous dolomite.
- S_{PB}, S_{PBCH} — ALTERED / HORNFELSED CALCAREOUS SILTSTONE. The siltstone in both members commonly exhibits a soft, clay textured, buff weathering texture which may be the result of weak hornfelding or silicification. Forms white, fine grained siliceous hornfels around biotite monzonite intrusives.
- S_{PCG} — DUO LK FORMATION – CHERT Black chert and minor shale; chert is massive or thick bedded; unlike Steel Formation lacks limy or silty layers.

RABBITKETTLE FORMATION (CAMBRIAN & ORDOVICIAN)

- O_{PRkg} — CONGLOMERATE Consists of rounded cobbles and angular fragments of feldspar + augite porphyry & tuff and amygdaloidal andesite in a tuffaceous or calcareous matrix. Appears to have formed at the post-Road River unconformity surface.
- O_{PVa} — MENZIE CREEK VOLCANICS – ANDESITE, AUGITE-FELDSPAR PORPHYRY, TUFF & VOLCANIC BRECCIA Amygdaloidal andesite flows, calcareous greenish tuff and volcanic breccia. Fresh augite-plagioclase porphyry.
- O_{PMcf} — CALCAREOUS PHYLLITE Light grey calcareous phyllite Well foliated. Interbedded cm scale calcareous and siliceous layers.

- Trace of steep fault – normal or strike slip movement.
- Trace of Thrust fault – inferred from stratigraphy.
- Fold Axis: with direction of plunge
- Bedding – all bedding on property appears to be upright with strike and dip.
- Foliation in igneous rock
- Geological contact defined by outcrop, trenches or close-spaced drillholes
- Geological contact – inferred
- Fossiliferous limestone or chert
- Proposed Mine Pit

0 250 500 750 1000 1250 m

SCALE: 1:15 000

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VERTICAL CROSS SECTION

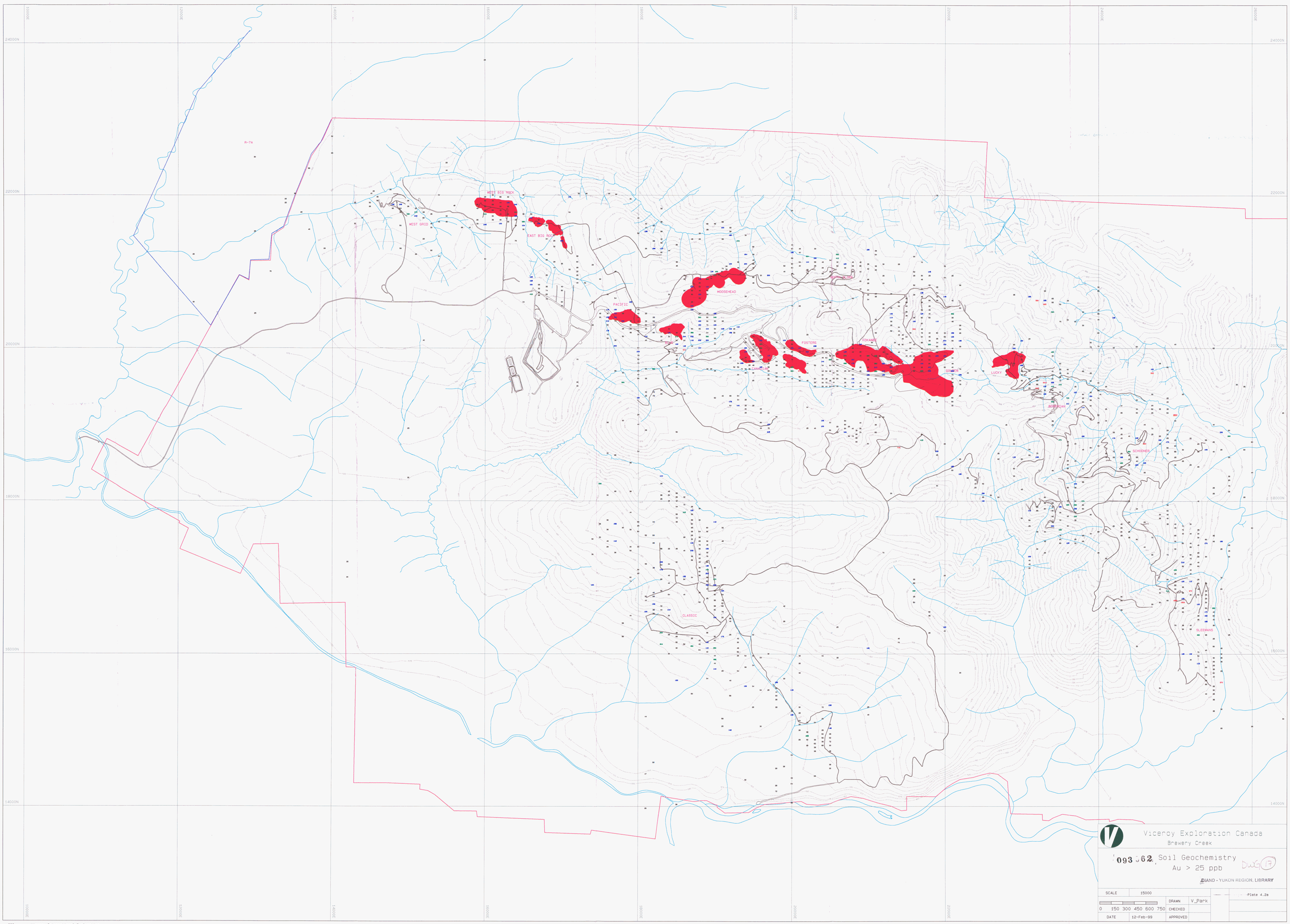
NO VERTICAL EXAGGERATION

Viceroy Exploration (Canada) Inc.
Brewery Creek

PROPERTY GEOLOGY PLAN

SCALE	1:15,000		DRAWN
DATE	May '99		PLATE: 2.2

Plot02-2_PropertyGeol.dwg



Viceroy Exploration Canada
Brewery Creek

093 062 Soil Geochemistry
Au > 25 ppb

DWG 17

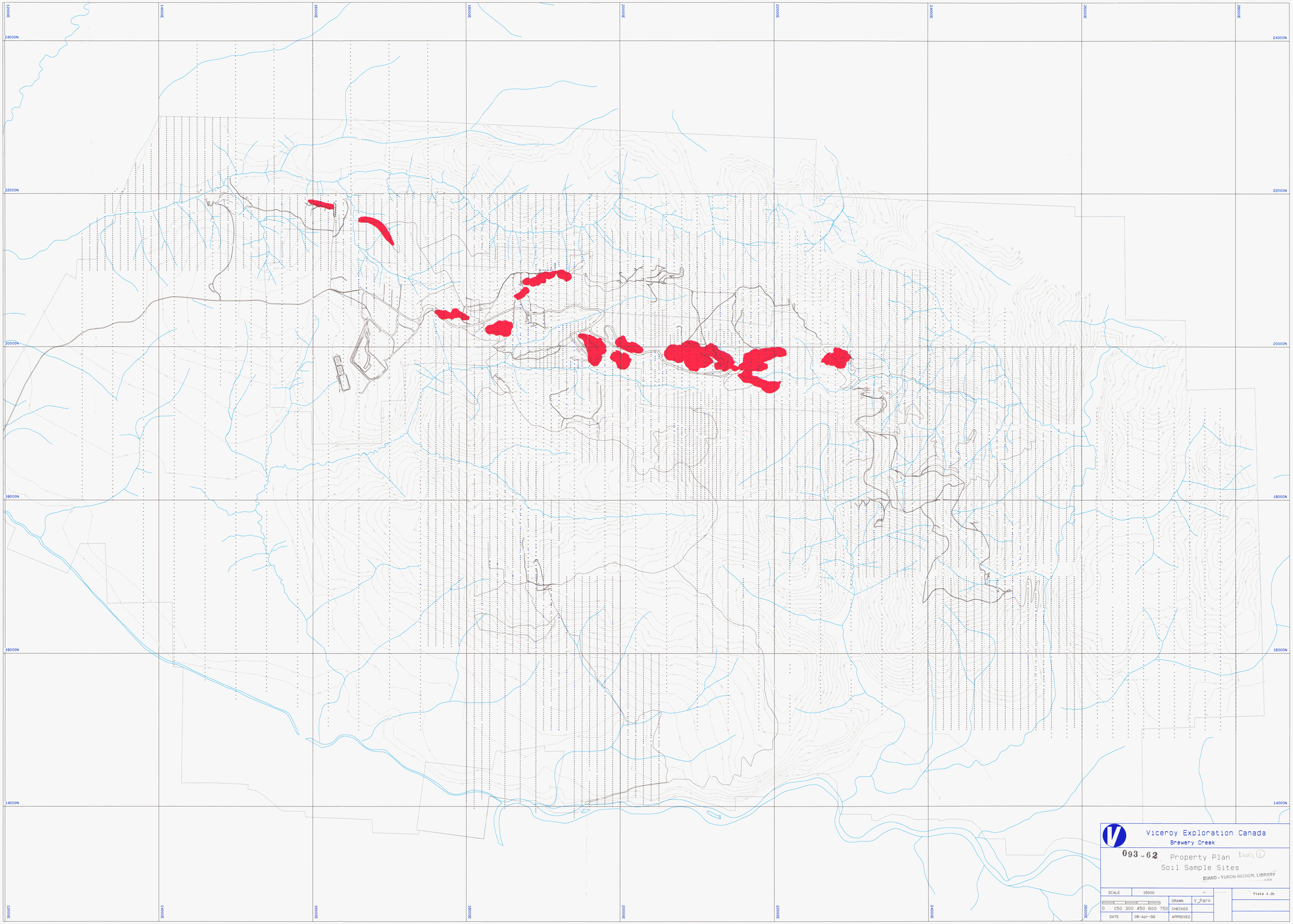
DIAND - YUKON REGION, LIBRARY

SCALE	15000		
0 150 300 450 600 750		DRAWN	V_Park
		CHECKED	
DATE	12-Feb-99	APPROVED	

Plate 4.2a

Plate4-2a.pr

SSI - Vicerov International Exploration



Viceroy Exploration Canada

Brewery Creek

093 c 62

Property Plan

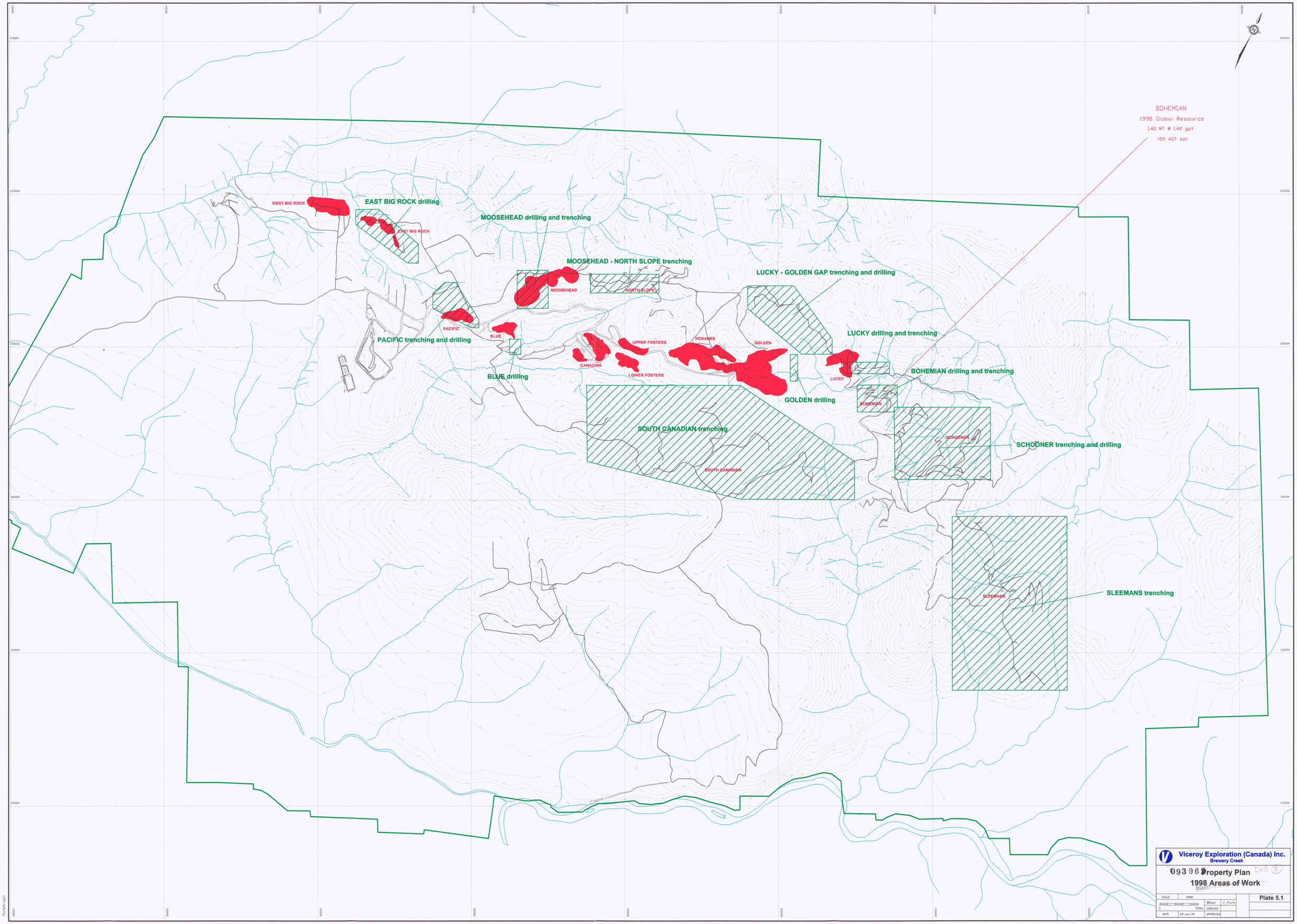
Soil Sample Sites

DIAND - YUKON REGION, LIBRARY

SCALE	15000		Plate 4.2b
0 150 300 450 600 750	DRAWN	V_Park	
	CHECKED		
DATE	06-Apr-98	APPROVED	

Plate 4-2b.pl

IK SSI - Viceroy Exploration Canada


BOHEMIAN
1998 Global Resource
1.42 MT @ 1.42 gpt
(59 427 oz)
WEST BIG ROCK
EAST BIG ROCK drilling
EAST BIG ROCK
MOOSEHEAD drilling and trenching
MOOSEHEAD - NORTH SLOPE trenching
MOOSEHEAD
NORTH SLOPE
LUCKY - GOLDEN GAP trenching and drilling
PACIFIC
BLUE
PACIFIC trenching and drilling
UPPER FOSTERS
KOKANEE
GOLDEN
LUCKY drilling and trenching
CANADIAN
LOWER FOSTERS
BLUE drilling
LUCKY
BOHEMIAN drilling and trenching
GOLDEN drilling
BOHEMIAN
SOUTH CANADIAN trenching
SCHOONER
SCHOONER trenching and drilling
SOUTH CANADIAN
SLEEMANS
SLEEMANS trenching
Viceroy Exploration (Canada) Inc.
Brewery Creek
093962
Property Plan
1998 Areas of Work
Plate 5.1
SCALE 1:5000
0 500m
DRAWN V_Park
CHECKED
DATE 25-Jun-99
APPROVED

Gold mineralization is truncated at north by ESE structure.

RC98-2120 **0.61/6.0m**

RC98-2121

potential for gold on west side of creek

At west end, gold occurs as moderately south-dipping monzonite sills and as bands within sills.

Note: surface expression of mineralized zone is not shown through core of deposit

CLASSIC ZONE STRUCTURE

At east end, gold occurs in steeply south-dipping bands in monzonite and sediments

0.91/2.0m

RC98-2118

RC98-2119 **1.06/4.0m**

Gold mineralization dies out to east where grade and thickness decrease

Splay off of main fault

16500E 16600E 16700E 16800E 16900E 17000E 17100E 17200E 17300E 17400E

21700N 21600N 21500N 21400N 21300N 21200N

LEGEND

QUATERNARY

QT — UNCONSOLIDATED RIVER DEPOSITS (Gravel benches)

TOMBSTONE PLUTONIC SUITE (MID-CRETACEOUS)

QM AQM LAQM — QM; UNALTERED QUARTZ MONTONITE. Contains magacrystic K-feldspars and 5 - 10% biotite.

AQM; PHYLLICALLY ALTERED QUARTZ MONZONITE Sulphide zone. O - TR amounts of limonite.

LAQM; Weathered equivalent of AQM. Oxide zone.

BM — BIOTITE MONZONITE Equigranular, contains about 30% biotite. Strongly foliated at base.

SY — SYENITE Trachytlic texture due to strong alignment of feldspars. Coarse grained, contains hornblende + feldspar only.

EARN GROUP (DEVONIAN - MISSISSIPPIAN)

Stratigraphically Equivalent

TSS — TUFFACEOUS SANDSTONE Fine grained laminated quartz sandstone with abundant tuffaceous material (xerlcitic).

TS — TUFFACEOUS SHALE Dark grey to black soft, tuffaceous shale. Small sharp crested asymmetric current ripples on bedding surfaces. Grades up-section into tuffaceous sandstone described above.

Stratigraphically Equivalent

CPC — DEBRIS FLOW CONGLOMERATE Clast supported chert pebble conglomerate. Pebbles consist of vari-coloured Duo Lake chert, minor argillite, tuff and Hyland Group quartzite in a greywacke matrix.

GW — GREYWACKE Dark grey matrix supported greywacke. 1mm - 0.5cm sub-angular clasts of chert, shale and argillite within a poorly sorted siliceous matrix, grades locally into chert pebble conglomerate.

SS — SANDSTONE Dark grey massive well sorted siliceous sandstone, minor crude bedding surfaces.

SH — SHALE Fissile, dark grey fine grained shale; pin-striped and slightly burrowed silty shale; locally tuffaceous. Commonly interbedded with sandstone and greywacke described above.

ARG ARGG — BLACK GRAPHITIC ARGILLITE. Black siliceous argillite, chert and graphitic shale. Characteristically fractured, brecciated and quartz veined in places. Locally baritic.

BAR — BARITE. Finely laminated light grey barite up to 15m in thickness. Interbedded with limestone and Steel Formation siltstone below.

LST — LIMESTONE. Ranges from fossilliferous oolitic limestone breccia to fetid pellet limestone. Locally interbedded with laminated barite.

ROAD RIVER GROUP (ORDOVICIAN - SILURIAN)

STEEL FORMATION

SST — CALCAREOUS SILTSTONE. Tan weathering burrowed siltstone with wispy laminations; calcareous silty shale. Contains distinctive beds of massive tan weathering, hard blue-grey, siliceous dolomite. Commonly contains thin interbeds of argillite and chert.

SST_H — ALTERED / HORNFELSED CALCAREOUS SILTSTONE. The siltstone in both S_A and S_{CH} members commonly exhibit a soft, clay rich, tuffaceous texture which may be the result of weak hornfelsing or decalcification. Forms white, fine grained siliceous hornfels around biotite monzonite intrusives.

CH — DUO LK FORMATION - CHERT Black chert and minor shale; chert is massive or thick bedded; unlike Steel Formation lacks limy or silty layers.

RABBITKETTLE FORMATION (CAMBRIAN & ORDOVICIAN)

MTUFF — MENZIE CREEK VOLCANICS - ANDESITE, AUGITE-FELDSPAR PORPHYRY, TUFF & VOLCANIC BRECCIA Amygdaloidal andesite flows, calcareous greenish tuff and volcanic breccia, fresh augite-plagioclase porphyry.

PHY — CALCAREOUS PHYLLITE. Light grey calcareous phyllite. Well foliated. Interbedded cm scale calcareous and siliclous layers.

- Trace of steep fault - normal or strike slip movement.
- Trace of Thrust fault - inferred from stratigraphy.
- Fold Axis; with direction of plunge
- Bedding - all bedding on property appears to be upright. with strike and dip.
- Foliation in igneous rock
- Geological contact defined by outcrop, trenches or close-spaced drillholes.
- Geological contact - inferred
- Fossilliferous limestone or chert
- Interpreted mineralized zone.
- **5.2/4m** grams per tonne Au / width in metres.
- A — A' Plan trace of cross or long section.
- 5gpt / 1gpt Histrogram of drill hole and trench Au values.
- Drill hole or trench with Au intersection

Test pit site: 0-100 ppb Au; > 100 ppb Au (4100)

Rock sample site: 0-0.5 gpt Au; > 0.5 gpt Au (1.17)

Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

- Road
- Mining Pit

Viceroy Exploration (Canada) Inc.
Brewery Creek

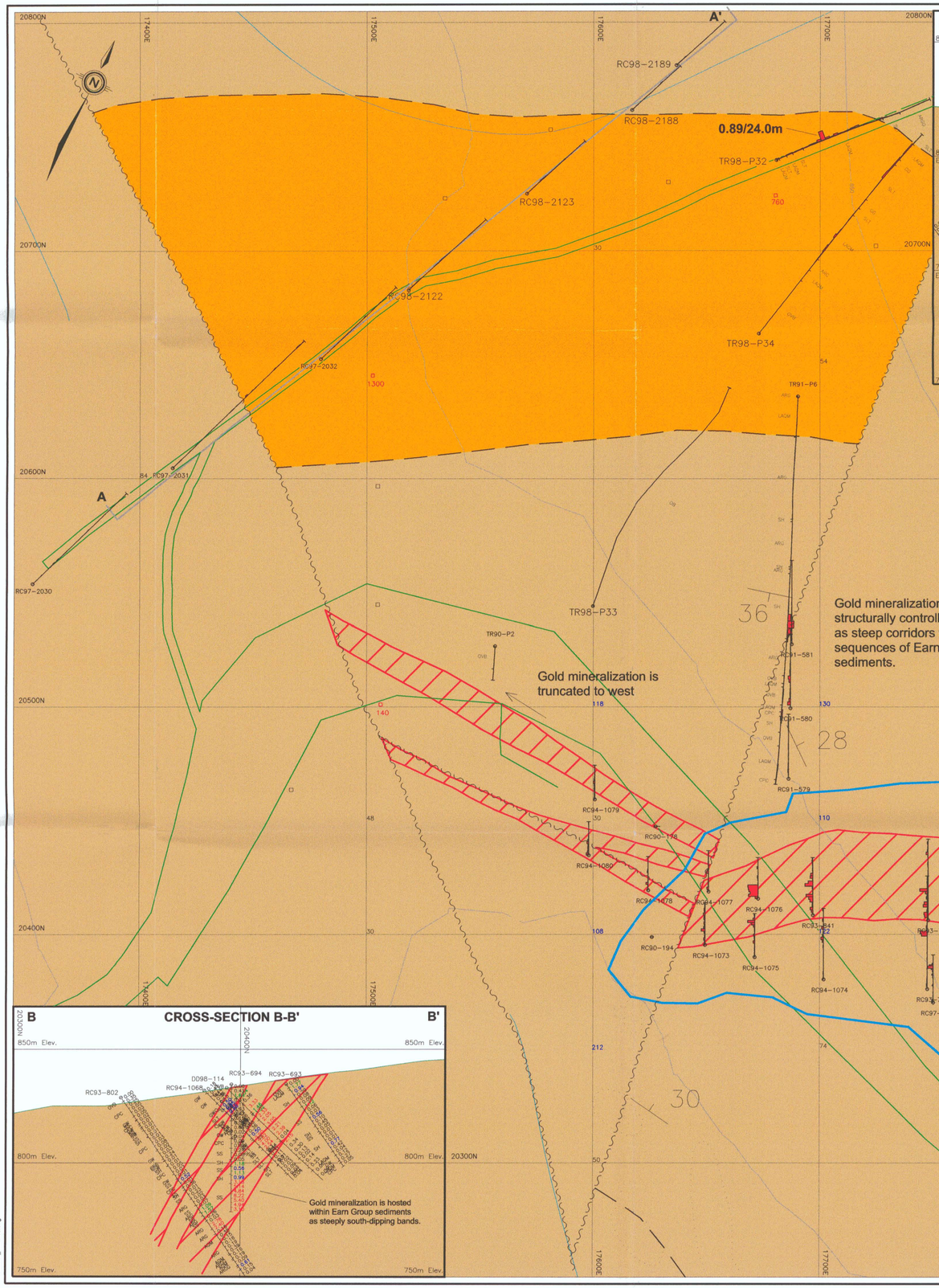
093962 Duo 9 (3)

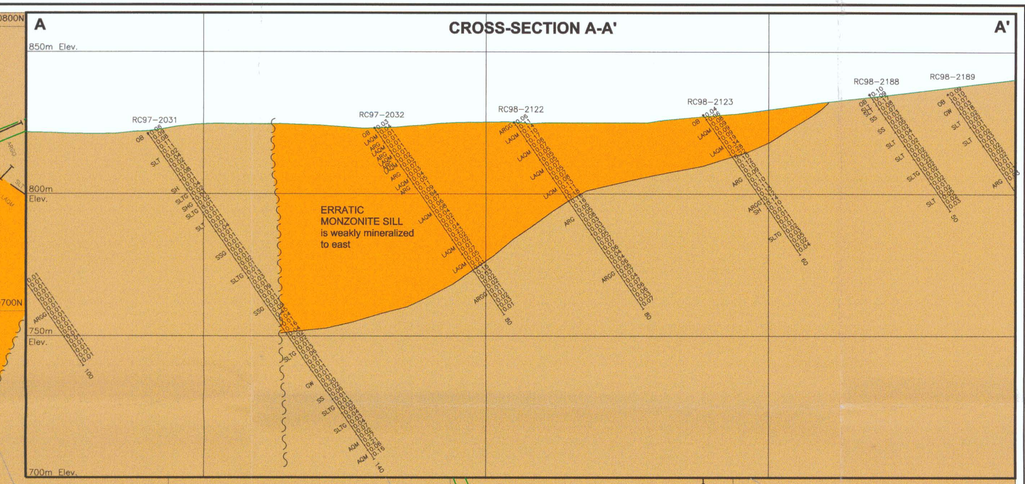
EAST BIG ROCK PLAN

DIAND - YUKON REGION. LIBRARY

SCALE	1:1250	DRAWN	V.P., T.L.
0	50 m		
DATE	Feb 99	**PLATE: 5.2**	

Plate5-2_EastBigRock98.dwg





LEGEND

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- BM — BIOTITE MONZONITE Equigranular, contains about 30% biotite. Strongly foliated at base.
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Foliation in igneous rock

Geological contact defined by outcrop, trenches or close-spaced drillholes.

Geological contact - inferred

(F) Fossilliferous limestone or chert

Interpreted mineralized zone.

5.2/4m — grams per tonne Au / width in metres.

A — A' Plan trace of cross or long section.

5gpt / 1gpt Histogram of drill hole and trench Au values.

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Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

Road

Mining Pit

Viceroy Exploration (Canada) Inc.
Brewery Creek

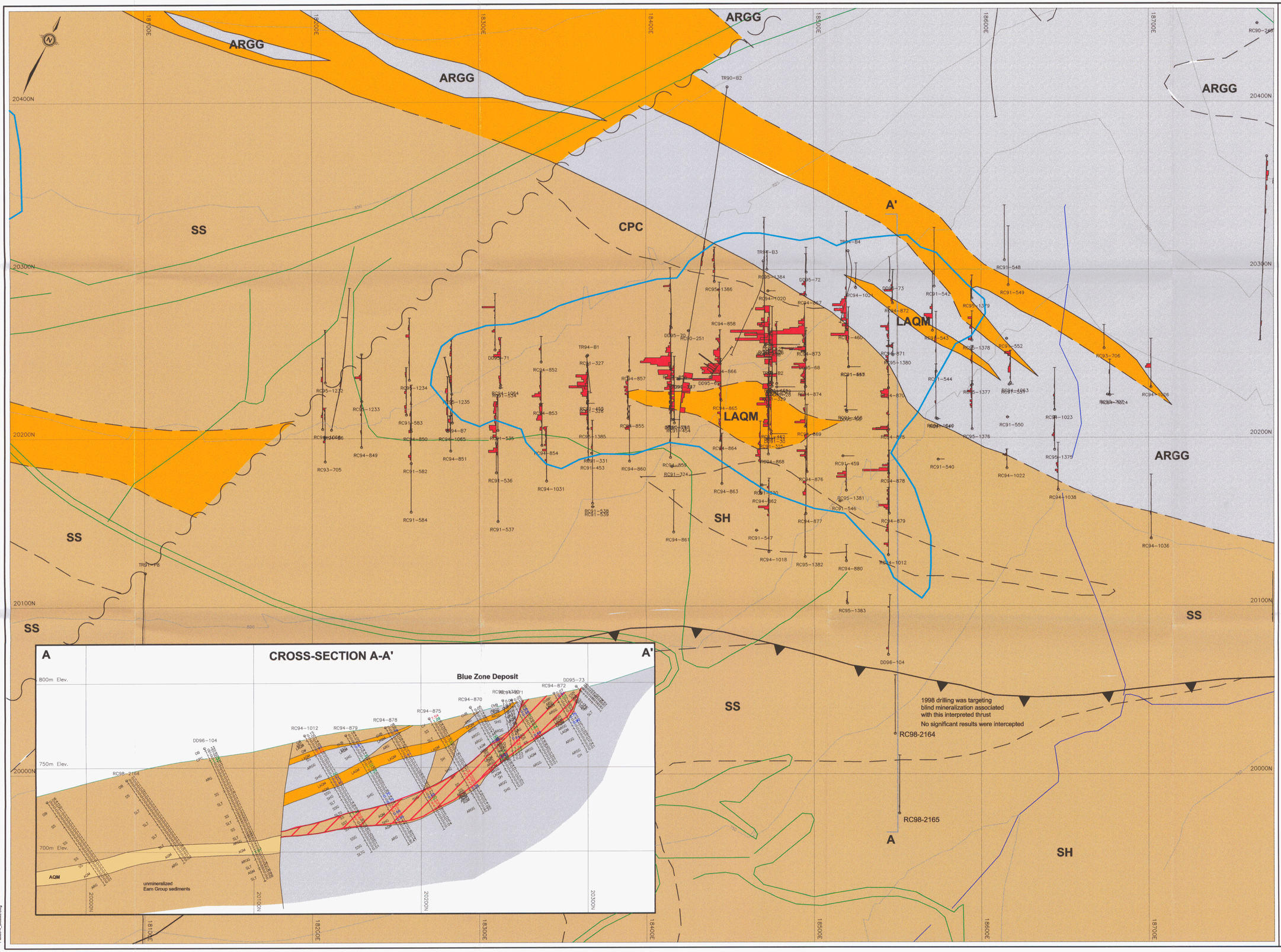
093662

PACIFIC PLAN with CROSS-SECTIONS

DIAND - YUKON REGION, LIBRARY

SCALE	1:1000		DRAWN	V.P., T.L.
	0 50 m			
DATE	Feb 99		PLATE:	5.3

Plate5-3_PacificMk.dwg



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- A — A' — Plan trace of cross or long section.
- 5gpt, 1gpt — Histogram of drill hole and trench Au values.
- Drill hole or trench with Au intersection
- Rock sample site
- Test pit site
- Road
- Mining Pit

Viceroy Exploration (Canada) Inc.
Brewery Creek

093 962 **BLUE PLAN with CROSS-SECTION**

DIAND - YUKON REGION, LIBRARY

SCALE	1:1000	DRAWN	V.P., T.L.
	0 50 m		
DATE	Feb 99	PLATE:	5.4

Plate5-1_Brk98.dwg

MAIN MOOSEHEAD ZONE
Intrusive-hosted mineralization

EAST MOOSEHEAD ZONE
Gold mineralization is hosted in Earn Group sediments.

SOUTHWEST MOOSEHEAD ZONE

1.86/12.0m

1.14/6.0m

Weak gold mineralization is hosted in steep south-dipping bands within broader intervals of anomalous grade.

SOUTHWEST MOOSEHEAD - CROSS-SECTION A-A'

Steep mineralized bands

950m Elev.

900m Elev.

850m Elev.

LEGEND

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Geological contact - Inferred

Fossiliferous limestone or chert

Interpreted mineralized zone.

5.2/4m — grams per tonne Au / width in metres.

Plan trace of cross or long section.

5gpt / 1gpt — Histogram of drill hole and trench Au values.

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Rock sample site: 0-0.5 gpt Au; > 0.5 gpt Au (1.17)
Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

Road

Mining Pit

Viceroy Exploration (Canada) Inc.
Brewery Creek

093 962

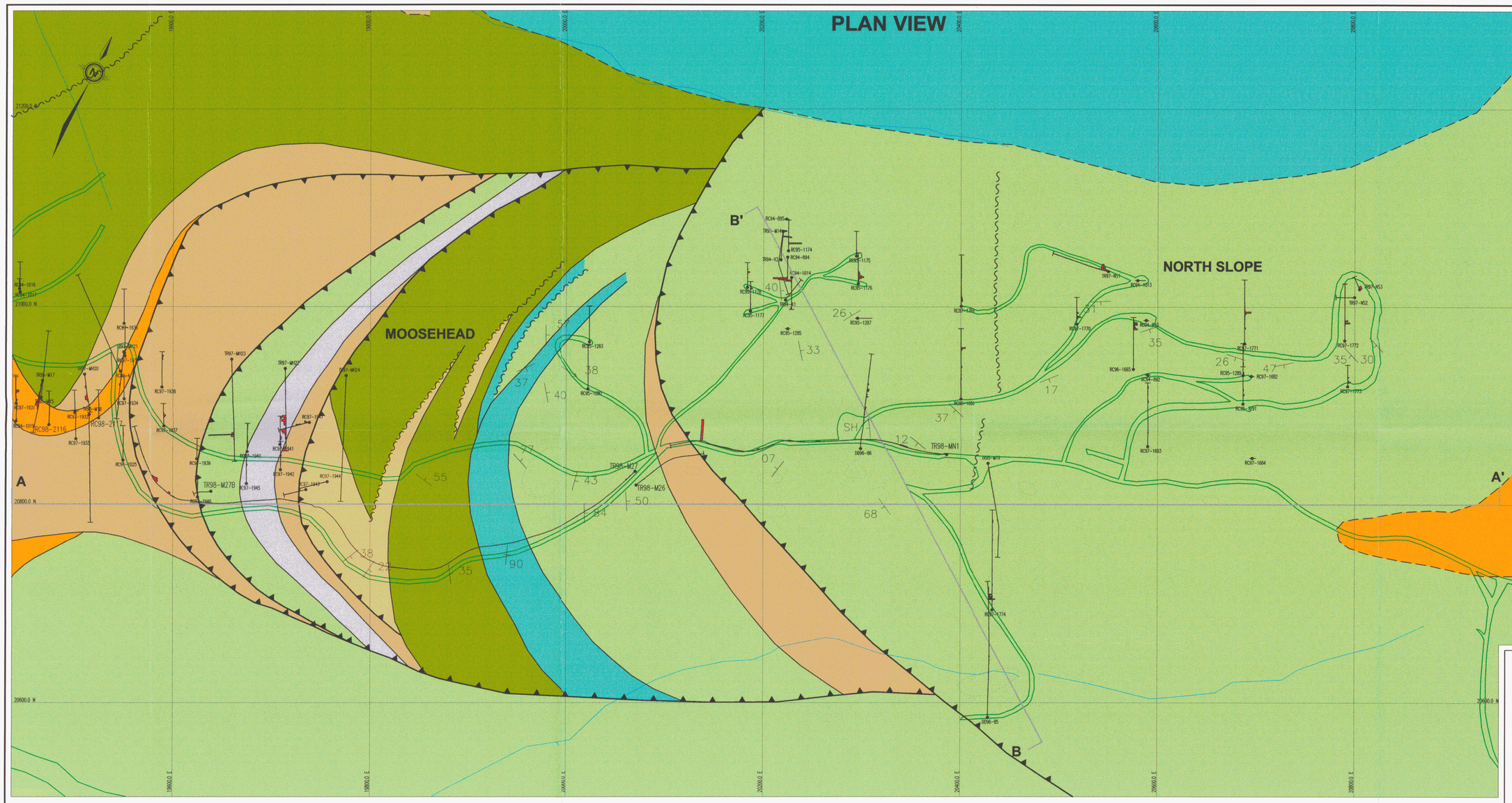
MOOSEHEAD PLAN with CROSS-SECTION

DIAND - YUKON REGION, LIBRARY

SCALE	1:1000		DRAWN	V.P., T.L.
	0 50 m			
DATE	Feb 99			PLATE: 5.5

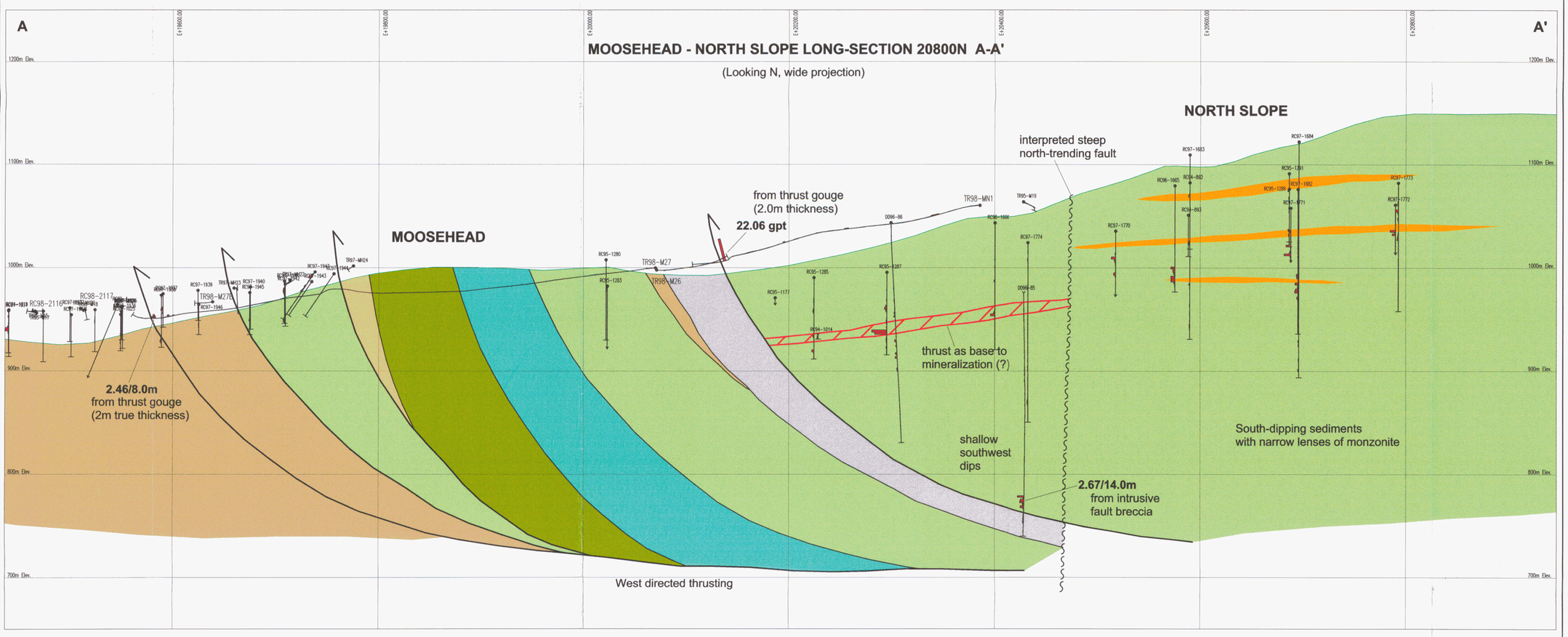
Plate5-5_Moosehead95.dwg

PLAN VIEW

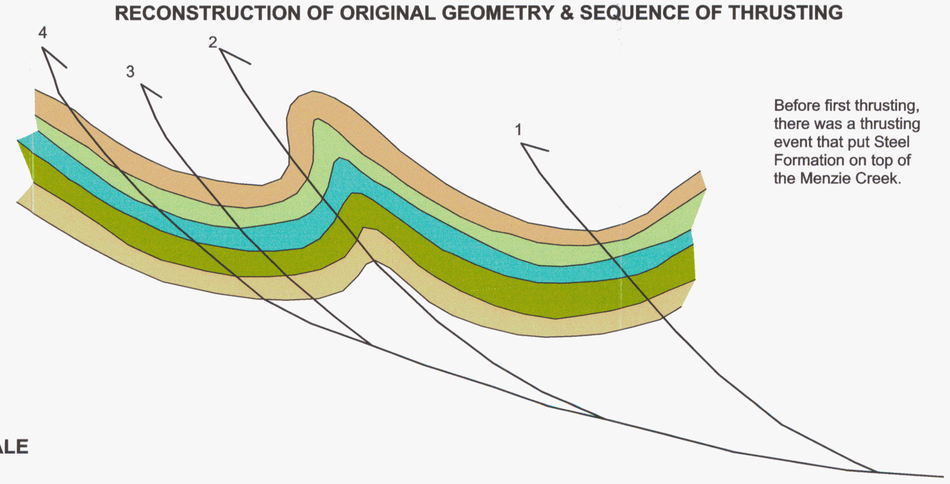


MOOSEHEAD - NORTH SLOPE LONG-SECTION 20800N A-A'

(Looking N, wide projection)



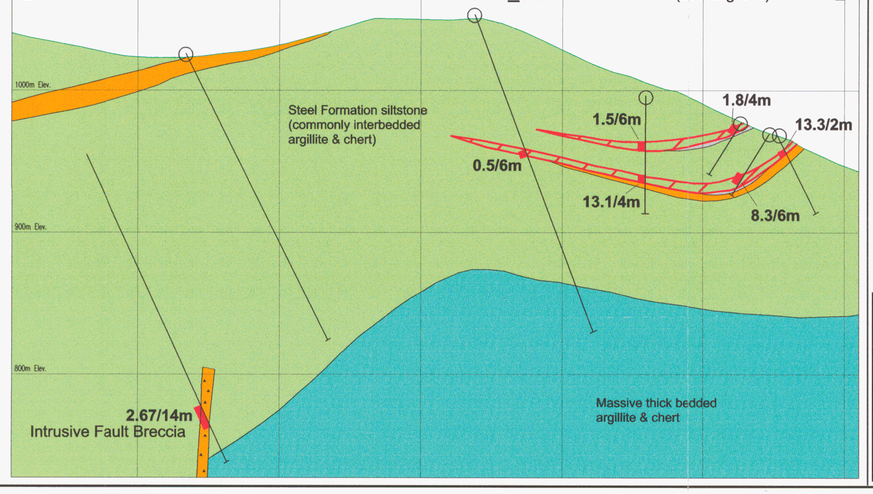
RECONSTRUCTION OF ORIGINAL GEOMETRY & SEQUENCE OF THRUSTING



Before first thrusting, there was a thrusting event that put Steel Formation on top of the Menzie Creek.

NOT TO SCALE

NORTH SLOPE ZONE - CROSS_SECTION B-B' (Looking SW)



LEGEND

QUATERNARY

- QT — UNCONSOLIDATED RIVER DEPOSITS (Gravel benches)

TOMBSTONE PLUTONIC SUITE (MID-CRETACEOUS)

- QM, AQM, LAQM — QM: UNALTERED QUARTZ MONTONITE Contains magacrystic K-feldspars and 5 - 10% biotite.
  AQM: PHYLLICALLY ALTERED QUARTZ MONZONITE Sulphide zone. O - TR amounts of limonite.
  LAQM: Weathered equivalent of AQM. Oxide zone.
- BM — BIOTITE MONZONITE Equigranular, contains about 30% biotite. Strongly foliated at base.
- SY — SYENITE Trachytilic texture due to strong alignment of feldspars. Coarse grained, contains hornblende + feldspar only.

EARN GROUP (DEVONIAN - MISSISSIPPIAN)

Stratigraphically Equivalent:
- TSS — TUFFACEOUS SANDSTONE Fine grained laminated quartz sandstone with abundant tuffaceous material (sericitic).
- TS — TUFFACEOUS SHALE Dark grey to black soft, tuffaceous shale. Small sharp crested asymmetric current ripples on bedding surfaces. Grades up-section into tuffaceous sandstone described above.

Stratigraphically Equivalent:
- CPC — DEBRIS FLOW CONGLOMERATE Clast supported chert pebble conglomerate. Pebbles consist of vari-coloured Duo Lake chert, minor argillite, tuff and Hyland Group quartzite in a greywacke matrix.
- GW — GREYWACKE Dark grey matrix supported greywacke. 1mm - 0.5cm sub-angular clasts of chert, shale and argillite within a poorly sorted siliceous matrix, grades locally into chert pebble conglomerate.
- SS — SANDSTONE Dark grey massive well sorted siliceous sandstone, minor crude bedding surfaces.
- SH — SHALE Fissile, dark grey fine grained shale; pin-striped and slightly burrowed silty shale; locally tuffaceous. Commonly interbedded with sandstone and greywacke described above.
- ARG, ARGG — BLACK GRAPHITIC ARGILLITE. Black siliceous argillite, chert and graphitic shale. Characteristically fractured, brecciated and quartz veined in places. Locally barritic.
- BAR — BARITE. Finely laminated light grey barite up to 15m in thickness. Interbedded with limestone and Steel Formation siltstone below.
- LST — LIMESTONE. Ranges from fossiliferous oolitic limestone breccia to fetid pellet limestone. Locally interbedded with laminated barite.

ROAD RIVER GROUP (ORDOVICIAN - SILURIAN)

STEEL FORMATION

- SST — CALCAREOUS SILTSTONE. Tan weathering burrowed siltstone with wispy laminations; calcareous silty shale. Contains distinctive beds of massive tan weathering, hard blue-grey, siliceous dolomite. Commonly contains thin interbeds of argillite and chert.
- SST_H — ALTERED / HORNFELSED CALCAREOUS SILTSTONE. The siltstone in both S_B and S_{CH} members commonly exhibit a soft, clay rich, tuffaceous texture which may be the result of weak hornfelsing or decalcification. Forms white, fine grained siliceous hornfels around biotite monzonite intrusives.
- CH — DUO LK FORMATION - CHERT Black chert and minor shale; chert is massive or thick bedded, unlike Steel Formation lacks limy or silty layers.

RABBITKETTLE FORMATION (CAMBRIAN & ORDOVICIAN)

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- PHY — CALCAREOUS PHYLLITE. Light grey calcareous phyllite. Well foliated. Interbedded cm scale calcareous and siliicious layers.

Trace of steep fault - normal or strike slip movement.

Trace of Thrust fault - inferred from stratigraphy.

Fold Axis; with direction of plunge

Bedding - all bedding on property appears to be upright. with strike and dip.

Foliation in igneous rock

Geological contact defined by outcrop, trenches or close-spaced drillholes.

Geological contact - inferred

Fossilliferous limestone or chert

Interpreted mineralized zone.

5.2/4m — grams per tonne Au / width in metres.

Plan trace of cross or long section.

Histrogram of drill hole and trench Au values.

Drill hole or trench with Au intersection

Test pit site: 0-100 ppb Au; > 100 ppb Au (4100)
Rock sample site: 0-0.5 gpt Au; > 0.5 gpt Au (1.17)
Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

Road

Mining Pit

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Brewery Creek

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MOOSEHEAD - NORTH SLOPE
PLAN with LONG-SECTION

SCALE	1:2000		DRAWN V.P., T.L.
0	100 m		
DATE	Feb 99		PLATE: 5.6

Plate5-6_NorthSlope98.dwg

NORTH GOLDEN

SOUTH GOLDEN

Unmineralized unaltered monzonite

1998 drilling at eastern margins of North Golden and South Golden Zones.

thick permafrost and overburden

0.92/12.0m

RC98-2046 RC98-2047 RC98-2048 RC98-2049 RC98-2050 RC98-2051 RC98-2052 RC98-2053 RC98-2054 RC98-2055 RC98-2056 RC98-2057 RC98-2058 RC98-2059 RC98-2060 RC98-2061 RC98-2062 RC98-2063 RC98-2064 RC98-2065 RC98-2039 RC98-2040 RC98-2041 RC98-2042 RC98-2043 RC98-2044 RC98-2045 RC98-2255 RC98-2256 RC98-2257 D098-107 D098-108

20000.0 N 20000.0 E 21000.0 E 22000.0 E

LEGEND

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- Trace of Thrust fault - inferred from stratigraphy.
- Fold Axis; with direction of plunge
- Bedding - all bedding on property appears to be upright. with strike and dip.
- Foliation in igneous rock
- Geological contact defined by outcrop, trenches or close-spaced drillholes.
- Geological contact - inferred
- Fossiliferous limestone or chert
- Interpreted mineralized zone.
- 5.2/4m — grams per tonne Au / width in metres.
- A — A' — Plan trace of cross or long section.
- 10gpt / 2gpt — Histrogram of drill hole and trench Au values.
- Drill hole or trench with Au intersection

Test pit site: □ 0-100 ppb Au; □ > 100 ppb Au; 4100

Rock sample site: △ 0-0.5 gpt Au; △ > 0.5 gpt Au; 1.17

Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

- Road
- Mining Pit

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Brewery Creek

093 962

GOLDEN PLAN

SCALE	1:2500		DRAWN	V.P., T.L.
	0 100 m			
DATE	Feb 99		PLATE:	5.7

Plate5-7_Golden98.dwg

MAJOR NNW STRUCTURE

Vertical bedding - flattens to east

TR98-LG1

RC96-1283

0.46/6.4m
Weak mineralization is associated with faults and shears

0.59/6.0m
Very weak gold values in unaltered siltstone

TR98-LG2

TR98-LG3

0.55/3.0m
Very weak, localized grade along fold axis

RC95-1284
RC95-1286

hydrothermal breccia

MNE Structure

Permafrost

RC98-2187

RC98-2190

Unmineralized Steel Formation siltstone

GOLDEN

LUCKY

20800N
20600N
20400N
20200N
20000N

21400E
21800E
22000E
22200E
22400E
22600E
22800E

LEGEND

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Road

Mining Pit

Doug (9)

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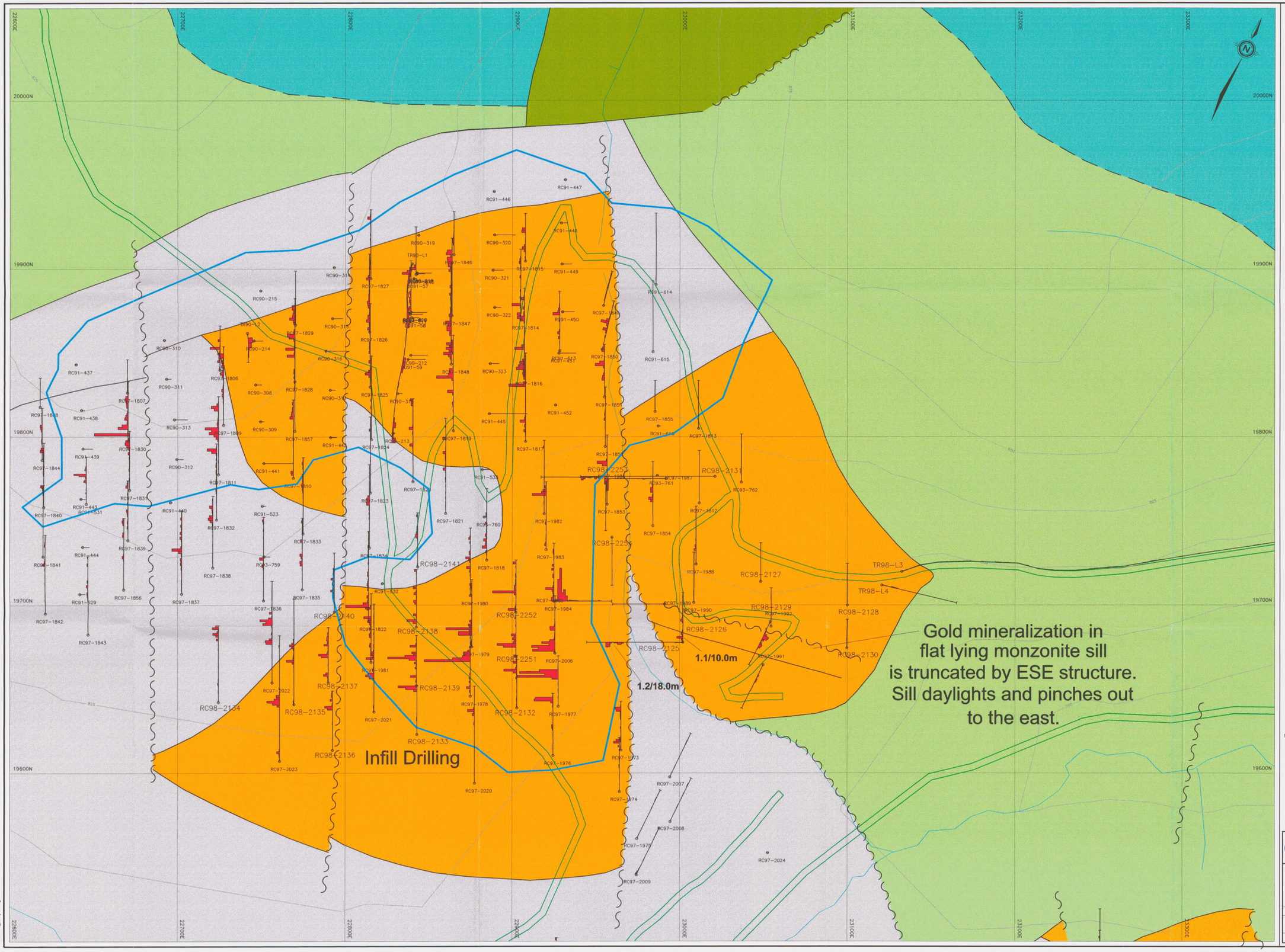
LUCKY-GOLDEN GAP PLAN

SCALE	1:2000		DRAWN V.P., T.L.
	0 100 m		
DATE	Feb 99		PLATE: 5.8

Plate5-8_LuckyGolden_Gapfill.dwg



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- Road
- Mining Pit

Dwg 15

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Brewery Creek

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LUCKY PLAN
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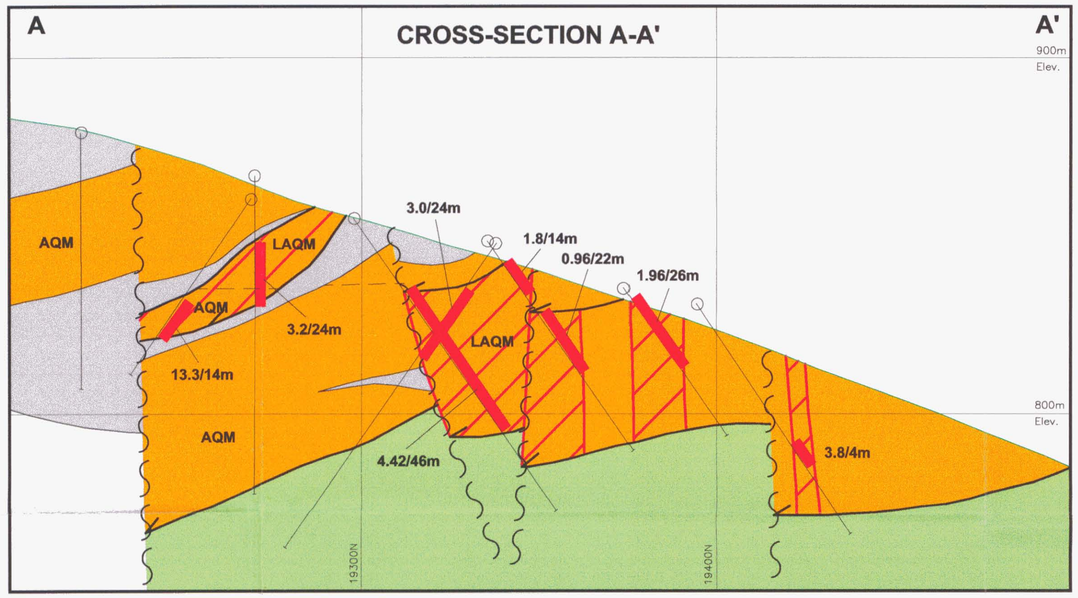
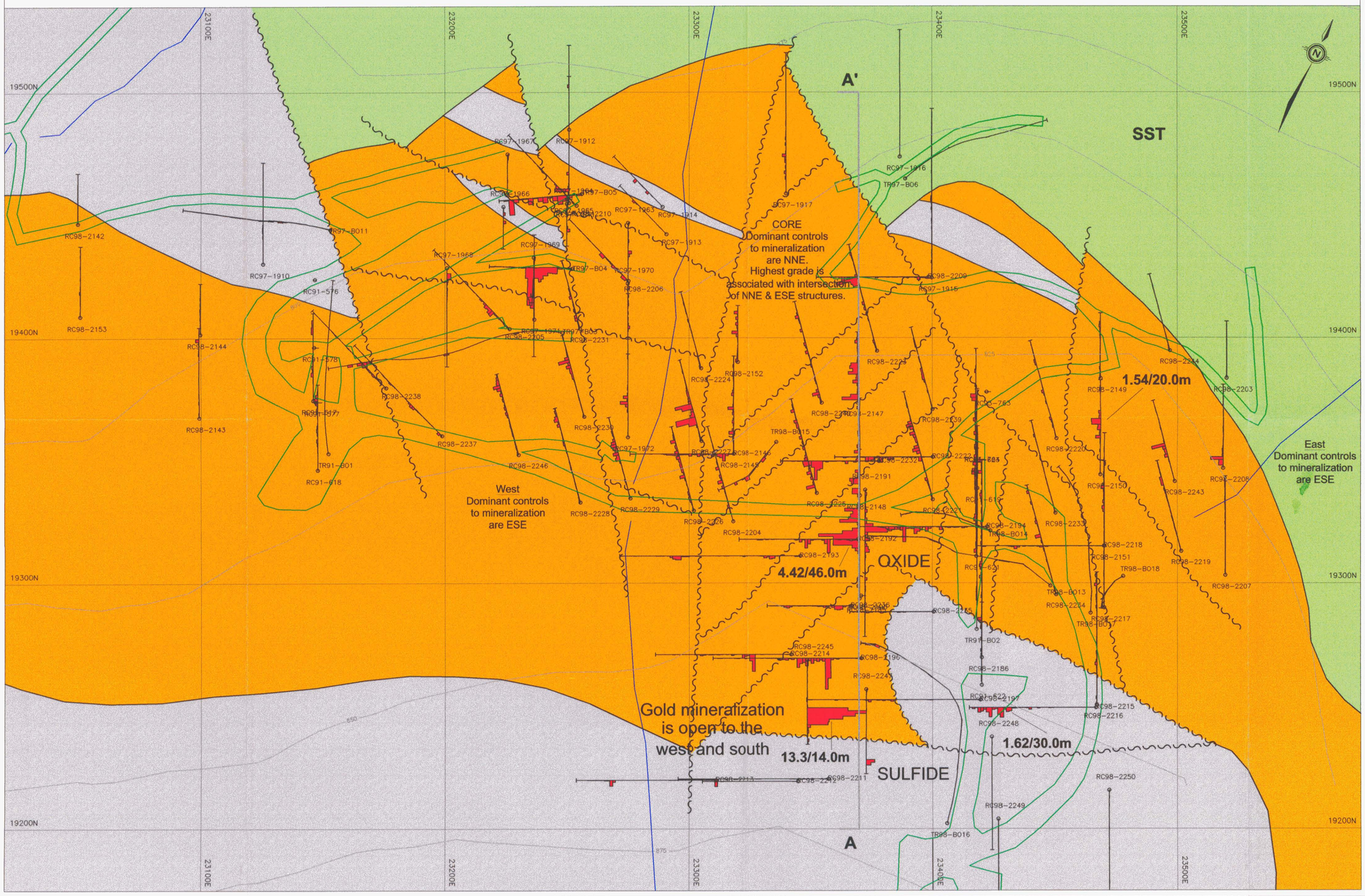
SCALE	1:1000		DRAWN V.P., T.L.
	0 50 m		
DATE	Feb 99		PLATE: 5.9

Plotted: Jun/99 9:41





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- Road
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Dwg 11

Viceroy Exploration (Canada) Inc.
Brewery Creek

093 962 **BOHEMIAN PLAN with CROSS-SECTION**

YUKON REGION, LIBRARY

SCALE	1:1000	DRAWN	V.P., T.L.
0	50 m		
DATE	Feb 99	PLATE:	5.10

Plate5-10_Bohemian96.dwg

NNE structures mimic drainage

BOHEMIAN ZONE

SCHOONER ZONE

SCHOONER ZONE

NORTH SLEEMANS ZONE

SOUTH SLEEMANS ZONE

SCHOONER ZONE - INTRUSIVE HOSTED GOLD MINERALIZATION

Monzonite, silicified and sericitized - oxidized. Strong mineralization along E-W and NE trending structures.

Significant Results:

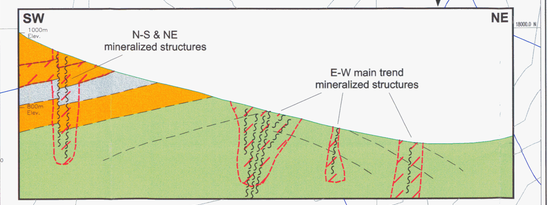
TR98-SK10	0-50	50m	2.07 gpt
TR98-SK7	25-91	66m	1.27 gpt
TR98-SK3	174-222	48m	0.39 gpt
	248-268	20m	0.48 gpt
TR98-SK5	36-44	8m	0.90 gpt
TR98-SK6	36-50	14m	0.72 gpt
TR98-SK14	338-360	22m	2.43 gpt

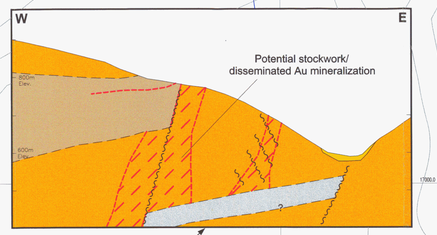
SCHOONER ZONE - SEDIMENT HOSTED GOLD MINERALIZATION

Silicified and de-calcified calcareous Steel Formation siltstone. Folded and fractured - mineralized in dilation zones.

Significant Results:

TR98-SK17	10-46	36m	0.76 gpt
TR98-SK18	22-25	3m	0.73 gpt
TR98-SK19	0-15.3	15.3m	0.61 gpt
TR98-SK20	160-174	14m	0.38 gpt
	128.8-144	15.2m	1.48 gpt
TR98-SK22	13.8-31.5	17.7m	0.66 gpt





NORTH SLEEMANS - INTRUSIVE HOSTED GOLD MINERALIZATION

Quartz Monzonite, silicified and sericitized along high angle NW trending structures that are cross-cut by high angle NE trending structures.

Significant Results:

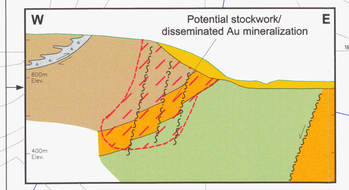
TR98-SL13	0-18	18m	1.93 gpt
TR98-SL12	35-38.5	3.5m	1.92 gpt
TR98-SL2	547-553	6m	1.72 gpt
	695-700	5m	1.61 gpt
TR98-SL4	19.7-25.7	6m	0.87 gpt
	73-100	27m	0.67 gpt

SOUTH SLEEMANS - SEDIMENT HOSTED GOLD MINERALIZATION

Earn Group siltstone is clay altered with NE trending high-angle quartz-arsenopyrite-pyrite veinlets; mineralization is covered to the east by fluvial deposits and is open to the south-southwest and at depth may converge with intrusives

Significant intercepts:

TR98-SL9	60-85	25m	0.74 gpt
incl	60-70	10m	1.16 gpt
TR98-SL19	33-48	15m	0.96 gpt
incl	36-39	3m	3.05 gpt
TR98-SL6	375-380	5m	0.60 gpt
	425-430	5m	0.64 gpt



LEGEND

QUATERNARY

- QT — UNCONSOLIDATED RIVER DEPOSITS (Gravel benches)

TOMBSTONE PLUTONIC SUITE (MID-CRETACEOUS)

- QM / AQM / LAQM — QM: UNALTERED QUARTZ MONTONITE. Contains magacrystic K-feldspars and 5 - 10% biottte.
  AQM: PHYLLICALLY ALTERED QUARTZ MONZONITE Sulphide zone. O - TR amounts of limonite.
  LAQM: Weathered equivalent of AQM. Oxide zone.
- BM — BIOTITE MONZONITE Equigranular, contains about 30% biottte. Strongly foliated at base.
- SY — SYENITE Trachytitic texture due to strong alignment of feldspars. Coarse grained, contains hornblende + feldspar only.

EARN GROUP (DEVONIAN - MISSISSIPPIAN)

Stratigraphically Equivalent

- TSS — TUFFACEOUS SANDSTONE Fine grained laminated quartz sandstone with abundant tuffaceous material (sericitic).
- TS — TUFFACEOUS SHALE Dark grey to black soft, tuffaceous shale. Small sharp crested asymmetric current ripples on bedding surfaces. Grades up-section into tuffaceous sandstone described above.

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- CPC — DEBRIS FLOW CONGLOMERATE Clast supported chert pebble conglomerate. Pebbles consist of vari-coloured Duo Lake chert, minor argillite, tuff and Hyland Group quartzite in a greywacke matrix.
- GW — GREYWACKE Dark grey matrix supported greywacke. 1mm - 0.5cm sub-angular clasts of chert, shale and argillite within a poorly sorted siliceous matrix, grades locally into chert pebble conglomerate.
- SS — SANDSTONE Dark grey massive well sorted siliceous sandstone, minor crude bedding surfaces.
- SH — SHALE Fissile, dark grey fine grained shale; pin-striped and slightly burrowed silty shale; locally tuffaceous. Commonly interbedded with sandstone and greywacke described above.
- ARG / ARGG — BLACK GRAPHITIC ARGILLITE. Black siliceous argillite, chert and graphitic shale. Characteristically fractured, brecciated and quartz veined in places. Locally baritic.
- BAR — BARITE. Finely laminated light grey barite up to 15m in thickness. Interbedded with limestone and Steel Formation siltstone below.
- LST — LIMESTONE. Ranges from fossiliferous oolitic limestone breccia to feld pellet limestone. Locally interbedded with laminated barite.

ROAD RIVER GROUP (ORDOVICIAN - SILURIAN)

STEEL FORMATION

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- SST_H — ALTERED / HORNFELSED CALCAREOUS SILTSTONE. The siltstone in both S_0 and S_{CL} members commonly exhibit a soft, clay rich, tuffaceous texture which may be the result of weak hornfelsing or decalcification. Forms white, fine grained siliceous hornfels around biottte monzonite intrusives.
- CH — DUO LK FORMATION - CHERT Black chert and minor shale; chert is massive or thick bedded; unlike Steel Formation lacks limy or silty layers.

RABBITKETTLE FORMATION (CAMBRIAN & ORDOVICIAN)

- MTUFF — MENZIE CREEK VOLCANICS - ANDESITE, AUGITE-FELDSPAR PORPHYRY, TUFF & VOLCANIC BRECCIA. Amygdaloidal andesite flows, calcareous greenish tuff and volcanic breccia, fresh augite-plagioclase porphyry.
- PHY — CALCAREOUS PHYLLITE. Light grey calcareous phyllite. Well foliated. Interbedded cm scale calcareous and siliceous layers.

- Trace of steep fault - normal or strike slip movement.
- Trace of Thrust fault - inferred from stratigraphy.
- Fold Axis; with direction of plunge
- Bedding - all bedding on property appears to be upright. with strike and dip.
- Foliation in igneous rock
- Geological contact defined by outcrop, trenches or close-spaced drillholes.
- Geological contact - inferred
- Fossilliferous limestone or chert
- Trace of interpreted mineralized zone.
- 5.2/4m — grams per tonne Au / width in metres.
- A — A' — Plan trace of cross or long section.
- 25gpt / 5gpt — Histrogram of drill hole and trench Au values.
- Drill hole or trench with Au intersection
- Test pit site: 0-100 ppb Au; >100 ppb Au (4100)
- Rock sample site
- Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500
- Road
- Mining Pit

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Brewery Creek

BOHEMIAN - SLEEMANS COMPILATION with SCHEMATIC CROSS-SECTIONS

093 962

SCALE	1:5000		DRAWN V.P., T.L.
0	250 m		
DATE	Feb 99		PLATE: 5.11a

OPEN-ENDED MINERALIZATION in drainage between Bohemian and Schooner

3.04/10.0m

NORTHWEST SCHOONER

13.3/14.0m (sulphide)

BOHEMIAN

0.63/20.0m

0.90/9.0m

0.47/20.0m

2.29/10.0m

INTRUSIVE-HOSTED MINERALIZATION
Oxidized, intensely fractured and silicified monzonite is host to mineralization

1.27/66.0m

3.35/2.0m

NORTHEAST SCHOONER

0.66/40.0m
incl. 1.77/12.0m

1.09/4.0m

0.61/15.3m

ESE-trend

SEDIMENT-HOSTED MINERALIZATION
Steel formation siltstone is isoclinally folded on ESE-structures; mineralization occurs in these dilation zones.

0.67/17.7m

0.64/45.0m
incl. 1.81/12.0m

NE steep faults mimic drainage

Quartz-Arsenopyrite veinlet/breccia

SOUTHEAST SCHOONER

2.26/22.0m

INTRUSIVE-HOSTED MINERALIZATION
Hosted within oxidized monzonite porphyry

LEGEND

QUATERNARY

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- QM, AQM, LAQM — QM; UNALTERED QUARTZ MONTONITE. Contains megacrystic K-feldspars and 5 - 10% biotite.
  AQM; PHYLLICALLY ALTERED QUARTZ MONZONITE Sulphide zone. O - TR amounts of limonite.
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- SY — SYENITE Trachytilic texture due to strong alignment of feldspars. Coarse grained, contains hornblende + feldspar only.

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Fold Axis; with direction of plunge

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Foliation in igneous rock

Geological contact defined by outcrop, trenches or close-spaced drillholes.

Geological contact - inferred

Fossiliferous limestone or chert

Interpreted mineralized zone.

5.2/4m — grams per tonne Au / width in metres.

A — A' Plan trace of cross or long section.

10gpt / 2gpt Histrogram of drill hole and trench Au values.

Drill hole or trench with Au intersection

Test pit site: □ 0-100 ppb Au; □ > 100 ppb Au (4100)

Rock sample site: △ 0-0.5 gpt Au; △ > 0.5 gpt Au (1.17)

Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

Road

Mining Pit

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Brewery Creek

093 962 Dwg (13)

SCHOONER PLAN

SCALE	1:2000		DRAWN V.P., T.L.
0	100 m		
DATE	Feb 99		PLATE: 5.11b

Plate5.11b_Schoonerdrft.dwg

NORTH SLEEMANS

1.93/18.0m

ESE-trending mineralization hosted within monzonite that is silicified and sericitized along steep NW structures that are cut by steep NE-trending structures.

SOUTH SLEEMANS

1.12/10.0m

with cm-scale quartz-arsenopyrite veinlets of 16.08 gpt, 8.68 gpt & 1.17 gpt

Gold grade is developed in fractured, sericitized and clay-altered siltstone. These fractures may contain mineralized quartz-arsenopyrite veinlets to 3cm.

NE high-angle shear (up to 60 metres wide)

tertiary fluvial deposits

LEGEND

QUATERNARY

QT — UNCONSOLIDATED RIVER DEPOSITS (Gravel benches)

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QM, AQM, LAQM

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5.2/4m — grams per tonne Au / width in metres.

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10gpt / 2gpt Histrogram of drill hole and trench Au values.

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Rock sample site: 0-0.5 gpt Au; > 0.5 gpt Au (1.17)

Soil sample >=25 ppb Au: xx 25-100; xxx 100-250; xxx 250-500; xxx >500

Road

Mining Pit

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SLEEMANS PLAN

SCALE	1:2500		DRAWN V.P., T.L.
0	125 m		
DATE	Feb 99		PLATE: 5.12

Plate5-12_Sleemans95.dwg

Soil anomaly is widely dispersed due to extensive talus on north-facing slope

Weak gold mineralization is hosted within a narrow (2-6m), south-dipping oxidized monzonite sill that has invaded thrust contact.

0.55/8.0m

0.82/4.0m

0.51/4.0m

1.27/6.0m

19000.0 N

18000.0 N

210000 E

LEGEND

QUATERNARY

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- Geological contact - Inferred
- Fossiliferous limestone or chert
- Interpreted mineralized zone.
- 5.2/4m — grams per tonne Au / width in metres.
- A — A' Plan trace of cross or long section.
- 25gpt / 5gpt — Histogram of drill hole and trench Au values.
- Drill hole or trench with Au intersection

Test pit site: 0-100 ppb Au; > 100 ppb Au (4100)
Rock sample site: 0-0.5 gpt Au; > 0.5 gpt Au (1.17)
Soil sample >=25 ppb Au: 25-100; 100-250; 250-500; >500

- Road
- Mining Pit

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Brewery Creek

093962 Dwg(15)

SOUTH CANADIAN PLAN

SCALE 1:5000 — 0 — 250 m
DRAWN V.P., T.L.
DATE Feb 99
PLATE: 5.13

Plate5-13_SouthCanadianRift.dwg

APPENDIX 1a

1998 DRILL HOLE AND TRENCH LISTING

1998 Brewery Creek Exploration
Drill Hole and Trench Summary

Hole ID	Pre Drill	Zone	Month	Northing	Easting	Elev	Az.	Incl.	Depth	Comments
RC98-2039	PGX-1	Golden	May	19567.9	22176.0	872.4	0	-55	66.0	PH1
RC98-2063	PGX-2	Golden	May	19883.0	22200.3	917.3	0	-55	30.0	PH1
RC98-2066	PMX-1	Moosehead	May	20601.7	18641.0	879.4	336	-55	26.0	PH1
RC98-2067	PMX-4	Moosehead	May	20637.1	18740.6	887.1	336	-55	20.0	PH1
RC98-2068	PMX-3	Moosehead	May	20683.9	18724.9	906.3	336	-55	30.0	PH1
RC98-2072	PMX-5	Moosehead	May	20715.2	18816.9	919.1	336	-55	46.0	PH1
RC98-2075	PMX-7	Moosehead	May	20743.8	18912.1	933.6	336	-55	56.0	PH1
RC98-2078	PMX-6	Moosehead	May	20700.3	18823.7	914.4	336	-55	54.5	PH1
RC98-2079	PMX-2	Moosehead	May	20575.0	18655.5	867.3	336	-55	110.0	PH1
RC98-2118	PEBX-2	East Big Rock	June	21189.2	17217.0	802.6	0	-55	56.0	PH1
RC98-2119	PEBX-1	East Big Rock	June	21164.5	17222.7	802.7	0	-55	76.0	PH1
RC98-2120	PEBX-4	East Big Rock	June	21730.6	16557.9	695.6	270	-55	60.0	PH1
RC98-2121	PEBX-3	East Big Rock	June	21703.4	16557.3	697.5	0	-55	42.0	PH1
RC98-2122	PPX-3	Pacific	June	20683.0	17518.4	825.1	48	-55	80.0	PH1
RC98-2123	PPX-4	Pacific	June	20725.0	17570.6	827.8	48	-55	60.0	PH1
RC98-2124	PPX-1	Pacific	June	20305.7	18050.0	841.0	0	-55	64.0	PH1
RC98-2125	PLX-1	Lucky	June	19677.6	23002.0	798.5	270	-55	100.0	PH1
RC98-2126	PLX-2	Lucky	June	19677.6	23002.0	798.5	0	-55	52.0	PH1
RC98-2127	PLX-4	Lucky	June	19713.9	23048.2	801.1	0	-55	40.0	PH1
RC98-2128	PLX-7	Lucky	June	19700.0	23100.1	794.5	0	-55	43.0	PH1
RC98-2129	PLX-3	Lucky	June	19687.2	23054.4	791.6	0	-55	40.0	PH1
RC98-2130	PLX-6	Lucky	June	19674.2	23099.8	782.4	0	-55	30.0	PH1
RC98-2131	PLX-12	Lucky	June	19776.3	23021.1	815.8	270	-55	140.0	PH1
RC98-2142	PBOX-4	Bohemian	June	19446.6	23049.9	774.6	0	-55	36.0	PH1
RC98-2143	PBOX-1	Bohemian	June	19367.6	23099.3	806.7	0	-55	64.0	PH1
RC98-2144	PBOX-2	Bohemian	June	19401.6	23099.8	804.1	0	-55	36.0	PH1
RC98-2145	PBOX-10	Bohemian	June	19352.5	23318.3	829.0	0	-55	70.0	PH1
RC98-2146	PBOX-14	Bohemian	June	19352.5	23318.3	829.0	270	-55	74.0	PH1
RC98-2147	PBOX-9	Bohemian	June	19373.7	23369.5	835.2	0	-55	50.0	PH1
RC98-2148	PBOX-8	Bohemian	June	19335.5	23370.4	848.0	0	-55	70.0	PH1
RC98-2149	PBOX-7	Bohemian	June	19383.6	23468.6	837.4	0	-55	46.0	PH1
RC98-2150	PBOX-6	Bohemian	June	19344.0	23468.6	845.4	0	-55	68.0	PH1
RC98-2151	PBOX-5	Bohemian	June	19315.2	23470.2	846.6	0	-55	80.0	PH1
RC98-2152	PBOX-11	Bohemian	June	19390.2	23320.0	816.1	0	-55	40.0	PH1
RC98-2153	PBOX-3	Bohemian	June	19408.8	23050.9	786.4	0	-55	50.0	PH1
RC98-2164	PBX-2	Blue	June	20024.0	18548.6	742.7	0	-55	60.0	PH1
RC98-2165	PBX-1	Blue	June	19976.6	18551.2	729.8	0	-55	60.0	PH1
RC98-2185	PBX-15	Bohemian	August	19293.6	23370.3	860.2	0	-55	106.0	PH2
RC98-2186	PBX-16	Bohemian	August	19269.8	23420.3	868.9	0	-55	140.0	PH2
RC98-2187	PLGX-1	LG Gap	August	19971.7	22484.7	854.7	248	-55	148.0	PH2
RC98-2188	PPX-5	Pacific	August	20761.6	17617.0	835.0	48	-55	50.0	PH2
RC98-2189	PPX-6	Pacific	August	20781.2	17636.7	835.1	48	-55	50.0	PH2
RC98-2190	PLGX-2	LG Gap	August	19952.5	22458.8	839.0	248	-55	132.0	PH2
RC98-2191	PBOX-17	Bohemian	September	19337.8	23372.5	847.5	180	-55	103.0	PH3
RC98-2192	PBOX-19	Bohemian	September	19317.8	23369.7	847.9	270	-55	86.0	PH3
RC98-2193	PBOX-20	Bohemian	September	19311.1	23346.1	847.2	270	-55	130.0	PH3
RC98-2194	PBOX-18	Bohemian	September	19322.9	23422.4	853.8	270	-55	92.0	PH3

1998 Brewery Creek Exploration
Drill Hole and Trench Summary

Hole ID	Pre Drill	Zone	Month	Northing	Easting	Elev	Az.	Incl.	Depth	Comments
RC98-2195	PBOX-23	Bohemian	September	19294.8	23370.9	861.5	0	-90	84.0	PH3
RC98-2196	PBOX-22	Bohemian	September	19269.4	23371.1	866.7	270	-55	107.0	PH3
RC98-2197	PBOX-21	Bohemian	September	19252.6	23419.7	869.4	270	-55	124.0	PH3
RC98-2198	PSKX-2	Schooner	September	19166.2	23662.7	831.5	0	-55	110.0	PH3
RC98-2199	PSKX-4	Schooner	September	19166.3	23661.0	831.5	270	-55	90.0	PH3
RC98-2200	PSKX-1	Schooner	September	19145.4	23665.3	836.9	0	-55	110.0	PH3
RC98-2201	PSKX-6	Schooner	September	19143.1	23725.3	849.9	0	-55	100.0	PH3
RC98-2202	PSKX-5	Schooner	September	19178.8	23723.1	840.4	0	-55	100.0	PH3
RC98-2203	PBOX-14	Bohemian	September	19383.7	23520.2	815.5	0	-55	40.0	PH3
RC98-2205	PBOX-35	Bohemian	October	19403.8	23226.6	813.1	316	-55	78.0	PH4
RC98-2206	PBOX-34	Bohemian	October	19423.2	23275.3	800.0	316	-55	61.0	PH4
RC98-2207	PBOX-12	Bohemian	October	19303.3	23519.6	837.6	0	-55	70.0	PH4
RC98-2208	PBOX-13	Bohemian	October	19346.7	23518.8	821.4	0	-55	60.0	PH4
RC98-2209	PBOX-28	Bohemian	October	19424.7	23398.6	823.5	270	-55	80.0	PH4
RC98-2210	PBOX-33	Bohemian	October	19453.8	23254.0	790.1	316	-55	70.0	PH4
RC98-2211	PBOX-25	Bohemian	October	19220.4	23357.5	878.8	270	-55	108.0	PH4
RC98-2212	PBOX-26	Bohemian	October	19219.4	23345.0	878.6	270	-55	69.0	PH4
RC98-2213	PBOX-27	Bohemian	October	19220.0	23310.0	870.0	270	-55	100.0	PH4
RC98-2214	PBOX-24	Bohemian	October	19219.9	23311.1	871.2	270	-55	98.0	PH4
RC98-2215	PBOX-32	Bohemian	October	19325	23318	838	270	-55	90	PH4
RC98-2216	PBOX-31	Bohemian	October	19291	23365	848	0	-55	94	PH4
RC98-2217		Bohemian	November	19290.0	23470.1	856.1	0	-55	104.0	PH4
RC98-2218		Bohemian	November	19315.2	23470.0	846.2	270	-55	90.0	PH4
RC98-2237	PBOX-36	Bohemian	November	19360.1	23198.9	824.6	316	-55	90	PH4
RC98-2238	PBOX-37	Bohemian	November	19379.9	23176.0	818.1	316	-55	76	PH4
RC98-2241	PSKX-7	Schooner	November	19178.0	23682.5	832.4	311	-55	90	PH4
RC98-2242	PSKX-8	Schooner	November	19188.4	23657.2	825.7	300	-55	90	PH4
RC98-2245	PBOX-38	Bohemian	November	19268.746	23348.886	860.081	180	-55	60	PH5
RC98-2247	PBOX-39	Bohemian	November	19256.863	23372.946	868.488	180	-55	60	PH5
RC98-2248	PBOX-40	Bohemian	November	19237.459	23424.353	873.053	180	-55	80	PH5
RC98-2249	PBOX-41	Bohemian	November	19204.015	23426.877	881.172	180	-55	60	PH5
RC98-2250	PBOX-42	Bohemian	November	19215.705	23472.141	865.532	180	-55	74	PH5
RC98-2255	PGX-4	Golden	November	19600.953	22212.301	855.229	0	-55	50	PH5
RC98-2256	PGX-5	Golden	November	19580.91	22229.794	854.606	0	-55	32	PH5
RC98-2257	PGX-3	Golden	November	19607.054	22172.525	865.173	0	-55	20	PH5
TR98-BO13		Bohemian	August	19298.925	23448.013	858.058			80.0	pre-existing cut
TR98-BO14		Bohemian	August	19321.3	23423.7	851.5			38.0	pre-existing cut
TR98-BO15		Bohemian	August	19357.4	23336.2	828.6			32.0	pre-existing cut
TR98-BO16		Bohemian	August	19202.2	23405.9	884.7			100.0	pre-existing cut
TR98-BO17		Bohemian	September	19287.8	23464.5	852.7			64.0	pre-existing cut
TR98-BO18		Bohemian	September	19302.9	23477.9	845.9			18.0	pre-existing cut
TR98-L3		Lucky	June	19719.9	23132.5	799.2			300.0	pre-existing cut
TR98-L4		Lucky	June	19711.8	23120.6	797.7			48.0	new cut
TR98-LG1		LG Gap	June	20781.0	21646.2	1140.5			156.0	pre-existing road cut
TR98-LG2		LG Gap	June	20576.7	21994.5	1080.1			230.0	pre-existing road cut
TR98-LG3		LG Gap	August	20545.8	21982.3	1063.9			484.0	new cut

1998 Brewery Creek Exploration
Drill Hole and Trench Summary

Hole ID	Pre Drill	Zone	Month	Northing	Easting	Elev	Az.	Incl.	Depth	Comments
TR98-M25		Moosehead	June	20910.0	18750.6	965.8			90.0	new excavation
TR98-M26		Moosehead	June	20819.6	20071.4	997.9			80.0	new cut
TR98-M27		Moosehead	June	20833.5	20070.3	1000.0			616.0	pre-existing road cut
TR98-M27B		Moosehead	June	20813.2	19638.7	967.1			18.0	pre-existing road cut
TR98-M28		Moosehead	June	20916.6	18844.1	967.3			90.0	new excavation
TR98-M29		Moosehead	June	20731.5	18666.2	916.7			210.0	new excavation
TR98-MN1		MH-NS	July	20850.7	20385.7	1060.6			293.0	deepened old road cut
TR98-P32		Pacific	May	20739.7	17680.7	841.3			74.0	new excavation
TR98-P33		Pacific	May	20544.3	17599.8	820.3			116.0	OB; not sampled
TR98-P34		Pacific	July	20663.7	17673.0	838.2			114.0	new excavation
TR98-SC4		S Canadian	June	19188.9	21004.5	1006.7			176.0	new cut
TR98-SC5		S Canadian	June	18866.0	21688.5	1058.2			34.0	new cut
TR98-SC6		S Canadian	July	18640.2	21881.1	1008.2			158.0	new cut
TR98-SC7		S Canadian	July	18305.4	21778.0	994.5			8.0	new road cut
TR98-SC8		S Canadian	July	18361.7	21937.3	971.4			30.0	new road cut
TR98-SC9		S Canadian	July	18421.3	22070.1	957.3			122.0	new road cut
TR98-SC10		S Canadian	July	18435.2	22093.4	955.0			80.0	new road cut
TR98-SC11		S Canadian	July	18582.5	22274.6	939.0			110.0	new road cut
TR98-SC12		S Canadian	July	18580.4	22349.0	928.9			20.0	new road cut
TR98-SC13		S Canadian	June	18808.1	21165.4	1121.7			130.0	pre-existing road cut
TR98-SC14		S Canadian	June	18476.5	20461.2	1073.4			60.0	pre-existing road cut
TR98-SC15		S Canadian	June	18633.2	20450.8	1051.1			30.0	pre-existing road cut
TR98-SC16		S Canadian	July	18749.0	20487.5	1036.6			76.0	pre-existing road cut
TR98-SC17		S Canadian	July	18855.6	20435.1	1014.1			180.0	pre-existing road cut
TR98-SC18		S Canadian	July	18881.8	20555.0	992.1			37.0	pre-existing road cut
TR98-SC19		S Canadian	July	18244.9	22425.7	885.5			90.0	new road cut
TR98-SC20		S Canadian	July	18470.7	22153.3	947.0			82.0	new cut
TR98-SC21		S Canadian	July	18383.9	22316.5	902.6			62.0	new road cut
TR98-SC22		S Canadian	July	18245.1	22544.8	863.5			56.0	new road cut
TR98-SC23		S Canadian	July	18907.9	20591.4	985.8			220.0	new road cut
TR98-SC24		S Canadian	July	18305.3	22481.1	863.5			58.0	new road cut
TR98-SC25		S Canadian	July	18308.1	22411.1	892.9			110.0	new road cut
TR98-SC26		S Canadian	July	19013.0	19495.9	879.1			36.0	pre-existing road cut
TR98-SC27		S Canadian	July	18979.8	19617.1	870.6			10.0	pre-existing road cut
TR98-SC28		S Canadian	July	19047.1	19746.7	871.7			14.0	pre-existing road cut
TR98-SK1		Schooner	August	17617.9	24552.5	976.2			233.0	
TR98-SK2		Schooner	August	18984.0	23621.5	885.4			90.0	
TR98-SK3		Schooner	August	19031.8	23846.0	834.5			286.0	
TR98-SK4		Schooner	August	19095.5	23769.3	848.5			60.0	
TR98-SK5		Schooner	August	19112.0	23739.1	850.2			90.0	
TR98-SK6		Schooner	August	19178.4	23725.2	837.7			110.0	
TR98-SK7		Schooner	August	19138.0	23695.3	841.4			115.0	
TR98-SK8		Schooner	August	19046.6	23867.7	839.9			240.0	
TR98-SK9		Schooner	August	18912.4	23653.6	895.0			110.0	
TR98-SK10		Schooner	August	19151.3	23669.7	832.5			60.0	
TR98-SK11		Schooner	August	18832.7	23581.9	945.6			75.0	
TR98-SK12		Schooner	August	18890.7	23563.9	930.5			85.0	
TR98-SK13		Schooner	August	18869.2	23633.4	911.5			118.0	
TR98-SK14		Schooner	September	18371.1	23939.8	910.0			360.0	

1998 Brewery Creek Exploration
Drill Hole and Trench Summary

Hole ID	Pre Drill	Zone	Month	Northing	Easting	Elev	Az.	Incl.	Depth	Comments
TR98-SK15		Schooner	September	18535.5	24420.8	876.6			122.0	
TR98-SK16		Schooner	September	18646.6	24372.2	872.1			80.0	
TR98-SK17		Schooner	September	18771.1	24547.3	823.8			160.0	
TR98-SK18		Schooner	September	18797.8	24557.3	817.7			50.0	
TR98-SK19		Schooner	September	18808.3	24526.1	807.1			140.0	
TR98-SK20		Schooner	September	18916.8	24616.3	811.5			185.0	
TR98-SK21		Schooner	September	18759.3	24534.8	825.4			180.0	
TR98-SK22		Schooner	September	18736.6	24599.8	804.1			216.0	
TR98-SK23		Schooner	September	18927.8	24626.4	809.4			106.0	
TR98-SK24		Schooner	September	18477.9	24354.9	891.7			60.0	
TR98-SK25		Schooner	September	18982.4	24642.5	793.3			130.0	
TR98-SK26		Schooner	September	18751.2	24535.7	827.0			23.0	
TR98-SK27		Schooner	September	18317.724	23747.162	898.529			358.0	
TR98-SK28		Schooner	September	18738.386	24366.738	846.825			485.0	
TR98-SK29		Schooner	September	18717.099	24377.873	854.55			185.0	
TR98-SL1		Sleemans	June	15778.7	25030.8	781.4			1070.0	pre-existing road cut
TR98-SL2		Sleemans	June	16562.9	25424.5	614.2			810.0	pre-existing road cut
TR98-SL3		Sleemans	June	16791.4	25011.1	808.9			760.0	pre-existing road cut
TR98-SL4		Sleemans	July	16846.1	24936.6	801.4			386.0	new road cut
TR98-SL5		Sleemans	June	16122.6	25102.8	744.7			70.0	new road cut
TR98-SL6		Sleemans	June	15815.4	25059.1	780.8			483.0	new road cut
TR98-SL7		Sleemans	June	16748.3	25341.6	678.0			370.0	pre-existing road cut
TR98-SL8		Sleemans	June	16793.9	25255.4	729.0			360.0	pre-existing road cut
TR98-SL9		Sleemans	June	15752.4	25279.3	708.0			253.5	new road cut
TR98-SL10		Sleemans	July	17037.7	24785.3	815.6			320.0	new road cut
TR98-SL11		Sleemans	July	16981.1	24766.6	805.3			65.0	new road cut
TR98-SL12		Sleemans	July	16791.4	25011.1	808.9			42.0	pre-existing road cut
TR98-SL13		Sleemans	July	16821.0	25055.8	809.2			18.0	pre-existing road cut
TR98-SL14		Sleemans	July	16760.2	25002.0	807.1			32.0	pre-existing road cut
TR98-SL15		Sleemans	July	16791.5	25010.9	808.8			400.0	pre-existing road cut
TR98-SL16		Sleemans	July	16821.1	24912.3	812.1			24.0	pre-existing road cut
TR98-SL17		Sleemans	August	15745.8	25282.7	707.5			15.0	pre-existing road cut
TR98-SL18		Sleemans	September	15731.293	25312.79	694.983			50.0	deepened TR98-SK9
TR98-SL19		Sleemans	September	15611.467	25274.696	693.459			115.0	new excavation
									15395.5	

	Holes	Meterage		Trenches*	Meterage
May	9	438.5		2	190
June	28	1687		23	6444.5
July	0	0		30	3253
August	6	626		19	2421
September	13	1276		20	3087
October	10	978		0	0
November	14	976		0	0
YTD	80	5981.5		94	15395.5

APPENDIX 1b

1998 SIGNIFICANT RESULTS

1998 Brewery Creek Exploration
Drilling and Trenching Summary: Significant Assays

Hole ID	Pre Drill	Zone	Grade (gpt)	Width (m)	From (m)	To (m)	Comments
RC98-2039	PGX-1	Golden	0.92	12	36	48	includes 1.52 gpt/6m (36-42m)
RC98-2072	PMX-5	Moosehead	1.14	6	2	8	
RC98-2072	PMX-5	Moosehead	1.33	2	14	16	
RC98-2072	PMX-5	Moosehead	0.63	6	18	24	
RC98-2075	PMX-7	Moosehead	0.4	20	18	38	includes 0.52 gpt/8m (24-32)
RC98-2075	PMX-7	Moosehead	1.86	12	76	88	includes 3.0 gpt/6m (76-84) in SLTG
RC98-2078	PMX-6	Moosehead	0.44	10	30	40	
RC98-2118	PEBX-2	East Big Rock	0.91	2	12	14	
RC98-2119	PEBX-1	East Big Rock	1.06	4	6	10	
RC98-2121	PEBX-3	East Big Rock	0.61	6			
RC98-2124	PPX-1	Pacific	0.77	4	12	16	
RC98-2125	PLX-1	Lucky	1.2	18	62	80	includes 2.87 gpt/4m
RC98-2126	PLX-2	Lucky	1.1	10	0	12	
RC98-2126	PLX-2	Lucky	0.78	6	20	26	
RC98-2145		Bohemian	0.6	28	8	36	includes 1.27 gpt/4m (14-18) and 2.3 gpt/2 m (32-34)
RC98-2145		Bohemian	0.65	4	42	46	
RC98-2146		Bohemian	0.76	44	4	48	includes 1.21 gpt/14m (4-18)
RC98-2147		Bohemian	4.68	4	2	6	
RC98-2147		Bohemian	2.18	14	14	28	includes 2.99 gpt/8m (20-28)
RC98-2147		Bohemian	0.78	4	42	46	
RC98-2148		Bohemian	1.2	40	6	46	includes 3.94 gpt/4m (8-12)
RC98-2148		Bohemian	0.89	4	60	64	
RC98-2149	PBOX-7	Bohemian	0.52	6	38	44	
RC98-2150	PBOX-6	Bohemian	1.54	20	26	46	includes 2.06 gpt/2m (26-28) and 3.83 gpt/4m (36-40)
RC98-2151		Bohemian	0.65	2	42	44	
RC98-2152		Bohemian	0.59	6	0	6	
RC98-2152		Bohemian	0.85	18	18	36	includes 1.58 gpt/4m (18-22)
RC98-2185	PBOX-15	Bohemian	4.42	46	32	78	includes 11.24 gpt/10m (38-48), 5.10 gpt/10m (54-64) and 3.10 gpt/4m (74-78)
RC98-2186	PBOX-16	Bohemian	1.19	4	24	28	
RC98-2186	PBOX-16	Bohemian	0.66	12	56	68	
RC98-2186	PBOX-16	Bohemian	0.58	6	112	118	
RC98-2186	PBOX-16	Bohemian	1.51	2	130	132	
RC98-2186	PBOX-16	Bohemian	3.32	2	138	140	
RC98-2191	PBOX-17	Bohemian	2.99	24	20	44	includes 9.0 gpt/6.0m (24-30)
RC98-2192	PBOX-19	Bohemian	0.5	4	2	6	
RC98-2192	PBOX-19	Bohemian	2.56	6	20	26	includes 5.42 gpt/2.0m (20-22)
RC98-2192	PBOX-19	Bohemian	1.48	10	32	42	includes 2.73 gpt/4.4m (34-38)
RC98-2193	PBOX-20	Bohemian	0.91	8	18	26	includes 1.15 gpt/4.0m (18-22)
RC98-2193	PBOX-20	Bohemian	1.26	8	86	94	
RC98-2194	PBOX-18	Bohemian	1.45	34	40	74	includes 2.48 gpt/4.0m (48-52) and 6.17 gpt/2.0m (58-60)
RC98-2195	PBOX-23	Bohemian	0.57	8	60	68	
RC98-2196	PBOX-22	Bohemian	1.97	44	16	60	includes 10.34 gpt/4.0m (22-26) and 2.34 gpt/12.0m (34-46)

1998 Brewery Creek Exploration
Drilling and Trenching Summary: Significant Assays

Hole ID	Pre Drill	Zone	Grade (gpt)	Width (m)	From (m)	To (m)	Comments
RC98-2197	PBOX-21	Bohemian	0.65	4	78	82	
RC98-2198	PSKX-2	Schooner	0.77	12	4	16	includes 1.28 gpt/4.0m (8-12)
RC98-2198	PSKX-2	Schooner	0.79	6	20	26	
RC98-2198	PSKX-2	Schooner	1.53	12	28	40	includes 2.29 gpt/6.0m (32-38)
RC98-2198	PSKX-2	Schooner	2.32	14	72	86	includes 3.04 gpt/10.0m (72-82)
RC98-2199	PSKX-4	Schooner	0.6	4	30	34	
RC98-2205	PBOX-35	Bohemian	0.73	30	0	30	includes 1.65 gpt/8.0m (16-24)
RC98-2206	PBOX-34	Bohemian	0.66	28	0	28	includes 1.15 gpt/4.0m (2-6), 0.91 gpt/4.0m (12-16) and 1.24 gpt/4.0m (24-28)
RC98-2208	PBOX-13	Bohemian	1.68	10	4	14	includes 3.43 gpt/4.0m (4-8)
RC98-2209	PBOX-28	Bohemian	0.57	10	0	10	includes 1.18 gpt/2.0m (8-10)
RC98-2209	PBOX-28	Bohemian	0.96	8	56	64	includes 2.15 gpt/2.0m (60-62)
RC98-2210	PBOX-33	Bohemian	0.58	6	16	22	
RC98-2211	PBOX-29	Bohemian	3.09	2	80	82	sulfide
RC98-2213	PBOX-27	Bohemian	1.62	4	72	76	sulfide
RC98-2214	PBOX-24	Bohemian	2.48	10	26	36	includes 4.77 gpt/4.0m (66-70)
RC98-2215	PBOX-32	Bohemian	1.62	30	58	88	includes 3.57 gpt/4.0m (66-70), 2.98 gpt/4.0m (74-78) and 1.86 gpt/4.0m (80-84); sulfide
RC98-2216	PBOX-31	Bohemian	0.69	4	84	88	
RC98-2217		Bohemian	0.59	8	68	76	
RC98-2217		Bohemian	0.87	4	84	88	
RC98-2218		Bohemian	0.81	6	60	66	
RC98-2237	PBOX-36	Bohemian	0.84	6	28	34	
RC98-2238	PBOX-37	Bohemian	0.51	6	12	18	
RC98-2241	PSKX-7	Schooner	0.98	42	0	42	includes 2.66 gpt/8.0m (30-38)
RC98-2242	PSKX-8	Schooner	0.59	4	12	16	
RC98-2242	PSKX-8	Schooner	0.57	10	30	40	
RC98-2245	PBOX-38	Bohemian	13.3	14	34	48	sulfide
RC98-2246	PBOX-39	Bohemian	2.78	4	50	54	sulfide
TR98-BO15		Bohemian	0.56	19	6	25	includes 1.08 gpt/2.0m (8-10), 1.62 gpt/2.0m (18-20) and 1.62 gpt/1.0m (24-25)
TR98-LG1		LG Gap	1.04	2	58	60	includes 1.55 gpt/0.3m (59.7-60)
TR98-LG1		LG Gap	0.46	6.4	89.6	96	
TR98-LG1		LG Gap	1.11	1.7	92	93.7	along structure
TR98-LG1		LG Gap	1.13	2.1	123.9	126	along structure
TR98-LG1		LG Gap	2.88	2	130	132	along structure
TR98-LG1		LG Gap	0.56	6	142	148	
TR98-LG2		LG Gap	0.55	3	162	165	
TR98-LG3		LG Gap	0.59	6	130	136	
TR98-LG3		LG Gap	0.7	6	148	154	
TR98-LG3		LG Gap	1.03	2	278	280	
TR98-M26		Moosehead	0.49	0.7	10	10.7	
TR98-M27		Moosehead	2.46	8	554	562	thrust gouge (<2m true) - along strike
TR98-MN1		MH-NS	0.78	8	42	50	
TR98-MN1		MH-NS	0.67	4	132	136	

1998 Brewery Creek Exploration
Drilling and Trenching Summary: Significant Assays

Hole ID	Pre Drill	Zone	Grade (gpt)	Width (m)	From (m)	To (m)	Comments
TR98-MN1		MH-NS	22.06	2	260	262	narrow thrust gouge
TR98-P32		Pacific	0.89	24	16	40	includes 1.64 gpt/8m (18-26)
TR98-P34		Pacific	0.49	4	46	50	
TR98-P34		Pacific	0.63	2	54	56	
TR98-P34		Pacific	0.53	20	88	108	includes 0.61 gpt/12m (88-100)
TR98-SC10		S Canadian	0.79	7	72	79	includes 1.05 gpt/4m (72-76)
TR98-SC20		S Canadian	0.51	4	0	4	
TR98-SC20		S Canadian	0.62	4	14	18	
TR98-SC20		S Canadian	0.69	2	24	26	
TR98-SC20		S Canadian	0.89	4	40	44	
TR98-SC22		S Canadian	0.64	4	4	8	
TR98-SC22		S Canadian	0.82	2	28	30	
TR98-SC22		S Canadian	0.57	8	46	54	
TR98-SC25		S Canadian	0.7	16	0	16	includes 1.27 gpt/6m (6-12)
TR98-SC25		S Canadian	1.07	4	32	36	
TR98-SC26		S Canadian	1.64	2	4	6	
TR98-SC5		S Canadian	0.85	4	12	16	
TR98-SC5		S Canadian	0.55	8	22	30	
TR98-SC6		S Canadian	0.82	4	60	64	
TR98-SK3		Schooner	0.5	24	198	222	
TR98-SK3		Schooner	0.48	20	248	268	
TR98-SK5		Schooner	0.9	8	36	44	includes 1.45 gpt/4m (36-40)
TR98-SK6		Schooner	0.56	20	30	50	includes 1.85 gpt/4m (44-48)
TR98-SK7		Schooner	1.27	66	25	91	includes 1.96 gpt/1m (25-26), 1.65 gpt/4m (30-34), 2.92 gpt/12m (61-73) and 2.87 gpt/3m (88-91)
TR98-SK9		Schooner	3.35	2	57	59	
TR98-SK10		Schooner	2.07	50	0	50	includes 5.14 gpt/10m (40-50)
TR98-SK14		Schooner	0.8	16	120	136	includes 1.46 gpt/6m (130-136)
TR98-SK14		Schooner	1.27	5	139	144	
TR98-SK14		Schooner	2.06	2	148	150	
TR98-SK14		Schooner	0.61	5	155	160	includes 0.86 gpt/3m (155-158)
TR98-SK14		Schooner	0.7	8	200	208	includes 1.53 gpt/2m (200-202)
TR98-SK14		Schooner	2.26	22	338	360	includes 3.56 gpt/ 13m (339-352)
TR98-SK17		Schooner	1.77	12	34	46	includes 3.15 gpt/ 5m (36-41)
TR98-SK17		Schooner	1.09	4	106	110	
TR98-SK18		Schooner	0.73	3	22	25	
TR98-SK19		Schooner	0.55	9.3	6	15.3	
TR98-SK20		Schooner	1.32	17.2	128.8	146	includes 2.61 gpt/ 7m (133-140)
TR98-SK20		Schooner	0.51	8	166	174	
TR98-SK21		Schooner	2.47	1.2	58	59.2	
TR98-SK22		Schooner	0.66	17.7	13.8	31.5	includes 1.76 gpt/2m (18-20)
TR98-SK22		Schooner	0.75	2	58	60	
TR98-SK22		Schooner	0.67	2	64	66	
TR98-SK22		Schooner	0.51	2	72	74	
TR98-SK26		Schooner	0.58	9	0	9	
TR98-SK27		Schooner	0.75	6.3	238.7	245	
TR98-SL2		Sleemans	1.64	2.5	16	18.5	
TR98-SL2		Sleemans	1.45	8	545	553	

1998 Brewery Creek Exploration
Drilling and Trenching Summary: Significant Assays

Hole ID	Pre Drill	Zone	Grade (gpt)	Width (m)	From (m)	To (m)	Comments
TR98-SL2		Sleemans	1.61	5	695	700	
TR98-SL4		Sleemans	0.57	3	6	9	
TR98-SL4		Sleemans	0.87	6	19.7	25.7	
TR98-SL4		Sleemans	0.7	2	73	75	
TR98-SL4		Sleemans	0.9	1	74	75	
TR98-SL4		Sleemans	0.7	20	85	105	
TR98-SL4		Sleemans	1.2	2	96	98	
TR98-SL4		Sleemans	0.7	20	85	105	
TR98-SL4		Sleemans	0.57	1.8	209.8	211.6	
TR98-SL6		Sleemans	1.12	10	60	70	includes 1.83 gpt/5m (485-490)
TR98-SL6		Sleemans	0.6	5	375	380	
TR98-SL6		Sleemans	0.64	5	425	430	
TR98-SL7		Sleemans	1.15	4	36	40	
TR98-SL9		Sleemans	1.16	10	60	70	
TR98-SL9		Sleemans	1.31	5	80	85	
TR98-SL11		Sleemans	0.97	14.5	20.5	35	
TR98-SL12		Sleemans	0.87	7	32	39	
TR98-SL13		Sleemans	1.92	18	0	18	includes 2.41 gpt/13m (5-18)
TR98-SL18		Sleemans	1.75	2	20	22	includes QAsPy vnlts @ 16.08 gpt
TR98-SL19		Sleemans	0.96	15	33	48	includes 3.05 gpt/ 3m (36-39)

APPENDIX 2a

APPLICABLE EXPENDITURES FOR ASSESSMENT CREDITS

Applicable Expenditures for Assessment Credits			
Brewery Creek Expenditures			
Description	**Expenditure**		
RC Drilling	$	69,000	
Road Building	$	110,850	
Soil Sampling	$	1,360	
Trenching	$	766,818	
CDN	**$**	**948,028**	**Total**

APPENDIX 2b

TOTAL EXPENDITURES

VICEROY MINERALS CORPORATION - EXPLORATION

Brewery Creek Inside Exploration Project

For the Twelve Months Ending December 31, 1998

MTD Actual	MTD Budget	MTD Variance		YTD Actual	YTD Budget	YTD Variance
			LAND MANAGEMENT			
			LM-Gov't Fee & Licenses	$15,526	$16,560	$1,034
				15,526	16,560	1,034
			ADMINISTRATION			
			Admin-Salaries & Benefits	1,882		(1,882)
			Employee Education Training	186		(186)
61		(61)	Admin-Travel & Lodging	1,993		(1,993)
			Meals & Entertainment	454		(454)
			Admin-Postage Courier & Frt	128		(128)
233		(233)	Admin-Telephone	953		(953)
			Admin-Utilities	325		(325)
			Admin-Off Supplies & Equip Lse	506		(506)
			Office Equip & Supp-Com Maint	77		(77)
			Admin-Depreciation	18,777		(18,777)
			Admin-Miscellaneous Expenses	2		(2)
294		(294)		25,283		(25,283)
			FIELD PROGRAM			
(23,282)	1,380	24,662	FP-Salaries & Benefits	279,057	216,660	(62,397)
30		(30)	FP-Camp Installation & Operation	46,345	35,880	(10,465)
1,208		(1,208)	FP-Camp Inst & Oper-Fld Meals	5,395		(5,395)
2,033		(2,033)	FP-Cmp Inst & Oper-Fld Lodging	8,146		(8,146)
4,188		(4,188)	FP-Transportation-Field Vehicles	66,024	26,910	(39,114)
			FP-Transportation-Helicopter	485		(485)
174		(174)	FP-Transportation-Airfare	21,193	4,140	(17,053)
			FP-Field Equip & Supp/RC Drill	38,660	9,660	(29,000)
			FP-Field Equip & Supp/Diamond		10,350	10,350
			FP-Field Equip & Supp/Trench	4,524	2,760	(1,764)
			FP-Field Equip & Supp/RK Soil		1,380	1,380
1,197		(1,197)	FP-Field Equip & Supp/General	20,099	5,520	(14,579)
6,908	6,210	(698)	FP-Geology-Consultant Fees	149,618	66,240	(83,378)
(11,965)		11,965	FP-Assay/Geochem RC Drilling	33,896	62,790	28,894
			FP-Assay/Geochem Diamond Drilling		24,840	24,840
			FP-Assay/Geochem Trenching	19,656	8,970	(10,686)
			FP-Assay/Geochem RK Soil Geo	216	4,140	3,924
			FP-Geophysical Surveys-Ground	31,677		(31,677)
			FP-Geophysical Airborne-Remote	16,207		(16,207)
			FP-Contr Costs-Road & Drill Pad	133,595	227,700	94,105
64		(64)	FP-Contr Costs-RC Drilling	519,063	731,400	212,337
			FP-Contr Costs-Diamond Drill		207,000	207,000
(4,970)		4,970	FP-Contr Costs-Trenching	270,781	103,500	(167,281)
			FP-Metallurgy		6,900	6,900
			FP-Environmental & Reclamation		20,700	20,700
			FP-Misc Cash Expenses	4,231		(4,231)
(24,415)	7,590	32,005		1,668,868	1,777,440	108,572
	759	759	Management Fees	94,738	179,400	84,662
	759	759		94,738	179,400	84,662
(24,121)	8,349	32,470		1,804,415	1,973,400	168,985

APPENDIX 3a

1998 QUALITY CONTROL PROCEDURES

Memorandum

To: Rick Diment

From: Vivian Park

Re: 1998 Check Assay Procedures

Date: 13 May 1998

The following memo summarizes the procedures that will be adopted to monitor the quality of assay results. Two procedural memos are appended.

Blind Duplicate Procedure

During the sample preparation procedure, one pre-selected interval from each hole will be split twice and both samples submitted for assay. One sample will retain its original identification; the other sample is submitted as a blind duplicate. This procedure is applied to infill and exploration drilling.

VMC Lab Quality Control Procedures

Fire Assay

Samples are processed in batches of 24. Of these, one sample is a replicate, one sample is a blank and one sample is a standard.

If the assay value for the replicate does not match the original, then the entire batch is re-assayed. If the blank sample shows signs of contamination then the entire batch will be re-run using new reagents. If the standard fails to correlate with its range then the entire batch is re-run.

If a sample returns a value greater than 3.0 g/T, then the crucible is removed from the batch to reduce the possibility of contamination.

Wet Lab

Samples are read by the AA spectrometer in batches of 48. A standard is used to calibrate the instrument. After every six samples the calibration is checked.

All samples with a grade exceeding 6.0 g/T are re-assayed and finished gravimetrically.

Monthly External

Each month 35 rejects are selected and trisected. Bondar Clegg, Chemex and VCM analyze the samples in duplicate. The results are submitted to VCM for comparison.

Exploration Drilling External Check Assay Program

Every sample that returns a value of greater than 5.0 g/T will be sent to Chemex for re-analysis.

For every third drill hole that returns an interval of significant results, all samples from that interval will be sent to Chemex for re-analysis.

A new split from the coarse reject will provide the material for re-analysis.

Memorandum

To: Sample Preparation Technicians Cc: J. Smith, S. Saxton, R. Diment

From: V. Park

Re: 1998 Infill/Exploration Drilling – Blind Duplicate Analysis

Date: 8 May 1998

To monitor the quality of assay results received from the lab, a blind duplicate program will be adopted. This procedure will be used for all infill and exploration RC drilling.

One interval from each hole will be split twice and both samples submitted for assay. The interval to be duplicated is selected according to the appended list.

One sample will be labeled with Hole ID, From-To (eg. RC98-2039 14-16); the duplicate sample will be labeled with Hole ID, "D" (eg. RC98-2039 D).

After the assay values are received, the duplicate sample will be re--assigned its correct From-To. All data will then be loaded into the database.

Any questions should be directed toward Jeff Smith, Steve Saxton or Vivian Park.

APPENDIX 3b

1998 CHECK ASSAY LISTING

Check Assay Listing

** includes exploration AND development drilling*

"-1" = not analysed

				VMC		Chemex
Hole ID	*From*	*To*	*Au (gpt)*	*Dup Au (gpt)*	*Blind Au (gpt)*	*Au (gpt)*
RC98-2039	12.0	14.0	0.09	-1	0.14	-1
RC98-2040	14.0	16.0	0.06	-1	0.06	-1
RC98-2041	16.0	18.0	0.75	-1	0.73	-1
RC98-2042	18.0	20.0	0.01	-1	0.02	-1
RC98-2043	18.0	20.0	0.02	-1	0.03	-1
RC98-2044	16.0	18.0	0.14	-1	0.09	-1
RC98-2045	14.0	16.0	0.01	-1	0.03	-1
RC98-2046	12.0	14.0	0	-1	0.14	-1
RC98-2047	10.0	12.0	0.02	-1	0.02	-1
RC98-2048	10.0	12.0	0.02	-1	0.02	-1
RC98-2049	12.0	14.0	0.01	-1	0.04	-1
RC98-2050	14.0	16.0	0.04	-1	0.05	-1
RC98-2051	16.0	18.0	0.02	-1	0.04	-1
RC98-2052	18.0	20.0	0.06	-1	0.05	-1
RC98-2053	18.0	20.0	1.63	-1	1.63	-1
RC98-2054	16.0	18.0	0.08	-1	0.08	-1
RC98-2055	14.0	16.0	0.01	-1	0.02	-1
RC98-2057	10.0	12.0	0.03	-1	0.04	-1
RC98-2058	10.0	12.0	2.93	-1	2.93	-1
RC98-2059	12.0	14.0	0.03	-1	0.02	-1
RC98-2060	14.0	16.0	0.41	-1	0.45	-1
RC98-2061	16.0	18.0	0.02	-1	0.02	-1
RC98-2061	20.0	22.0	0.05	0.04	-1	-1
RC98-2061	38.0	40.0	0.01	0.01	-1	-1
RC98-2061	58.0	60.0	0.16	0.16	-1	-1
RC98-2062	16.0	18.0	0.02	-1	0.07	-1
RC98-2062	18.0	20.0	0.07	0.06	-1	-1
RC98-2062	38.0	40.0	0.02	0.05	-1	-1
RC98-2062	58.0	60.0	0.01	0.01	-1	-1
RC98-2063	18.0	20.0	0.01	0.01	0.01	-1
RC98-2064	16.0	18.0	0.05	-1	0.01	-1
RC98-2064	18.0	20.0	0.03	0.02	-1	-1
RC98-2064	38.0	40.0	0.02	0.02	-1	-1
RC98-2064	58.0	60.0	0.02	0.02	-1	-1
RC98-2065	14.0	16.0	0.02	-1	0.01	-1
RC98-2065	18.0	20.0	0.01	0.01	-1	-1
RC98-2065	38.0	40.0	0.01	0.04	-1	-1
RC98-2065	78.0	80.0	0.13	0.13	-1	-1
RC98-2066	12.0	14.0	0.02	-1	0.02	-1
RC98-2066	18.0	20.0	0.02	0.03	-1	-1
RC98-2067	10.0	12.0	0.07	-1	0.09	-1
RC98-2067	18.0	20.0	0.03	0.01	-1	-1
RC98-2068	10.0	12.0	0.11	-1	0.11	-1
RC98-2068	18.0	20.0	0.2	0.2	-1	-1
RC98-2069	12.0	14.0	0.1	-1	0.11	-1
RC98-2069	18.0	20.0	0.14	0.11	-1	-1
RC98-2069	38.0	40.0	0.01	0.01	-1	-1
RC98-2070	14.0	16.0	0.27	-1	0.25	-1
RC98-2070	18.0	20.0	0.03	0.03	-1	-1
RC98-2070	38.0	40.0	0.01	0.02	-1	-1
RC98-2071	16.0	18.0	0.03	-1	0.04	-1
RC98-2071	18.0	20.0	0.03	0.05	-1	-1
RC98-2071	38.0	40.0	0.56	0.58	-1	-1
RC98-2071	58.0	60.0	1.11	1.1	-1	-1
RC98-2072	18.0	20.0	0.87	0.86	0.86	-1
RC98-2072	38.0	40.0	0.05	0.03	-1	-1
RC98-2073	18.0	20.0	0.54	0.48	0.58	-1
RC98-2073	38.0	40.0	0.03	0.02	-1	-1
RC98-2074	16.0	18.0	0.04	-1	0.04	-1
RC98-2074	38.0	40.0	0.44	0.38	-1	-1
RC98-2074	58.0	60.0	0.12	0.05	-1	-1
RC98-2075	14.0	16.0	0.01	-1	0.04	-1
RC98-2075	18.0	20.0	0.32	0.34	-1	0.51

Check Assay Listing

* includes exploration AND development drilling

"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2075	20.0	22.0	0.21	-1	-1	0.45
RC98-2075	22.0	24.0	0.29	-1	-1	0.5
RC98-2075	24.0	26.0	0.57	-1	-1	0.915
RC98-2075	26.0	28.0	0.55	-1	-1	1.045
RC98-2075	28.0	30.0	0.32	-1	-1	0.49
RC98-2075	30.0	32.0	0.72	-1	-1	1.075
RC98-2075	32.0	34.0	0.31	-1	-1	0.62
RC98-2075	34.0	36.0	0.3	-1	-1	0.465
RC98-2075	36.0	38.0	0.43	-1	-1	0.695
RC98-2075	38.0	40.0	0.05	0.04	-1	-1
RC98-2075	78.0	80.0	2.97	2.88	-1	-1
RC98-2076	12.0	14.0	0.34	-1	0.3	-1
RC98-2076	18.0	20.0	1.66	1.61	-1	-1
RC98-2076	38.0	40.0	0.06	0.08	-1	-1
RC98-2076	58.0	60.0	0.03	0.03	-1	-1
RC98-2077	10.0	12.0	0.41	-1	0.43	-1
RC98-2077	18.0	20.0	0.1	0.09	-1	-1
RC98-2077	38.0	40.0	0.06	0.06	-1	-1
RC98-2078	10.0	12.0	0.03	-1	0.04	-1
RC98-2078	18.0	20.0	0.03	0.02	-1	-1
RC98-2078	38.0	40.0	0.42	0.46	-1	-1
RC98-2079	12.0	14.0	0.02	-1	0.03	-1
RC98-2079	18.0	20.0	0.02	0.02	-1	-1
RC98-2079	38.0	40.0	0.05	0.04	-1	-1
RC98-2080	14.0	16.0	2.04	-1	2.01	-1
RC98-2080	18.0	20.0	0.48	0.48	-1	-1
RC98-2080	38.0	40.0	0.83	0.67	-1	-1
RC98-2080	58.0	60.0	0.08	0.09	-1	-1
RC98-2081	18.0	20.0	0.52	0.5	-1	-1
RC98-2081	38.0	40.0	0.02	0.02	-1	-1
RC98-2081	58.0	60.0	0.73	0.78	-1	-1
RC98-2082	18.0	20.0	0.03	0.01	0.04	-1
RC98-2082	38.0	40.0	1.51	1.5	-1	-1
RC98-2082	58.0	60.0	0.53	0.45	-1	-1
RC98-2083	18.0	20.0	0.01	0.03	0.04	-1
RC98-2083	38.0	40.0	0.03	0.03	-1	-1
RC98-2083	58.0	60.0	0.02	0.04	-1	-1
RC98-2084	16.0	18.0	0.6	-1	0.57	-1
RC98-2084	18.0	20.0	1.01	1.1	-1	-1
RC98-2084	38.0	40.0	0.14	0.13	-1	-1
RC98-2084	58.0	60.0	0.44	0.46	-1	-1
RC98-2085	14.0	16.0	1.83	-1	1.76	-1
RC98-2085	18.0	20.0	0.55	0.58	-1	-1
RC98-2085	38.0	40.0	0.11	0.07	-1	-1
RC98-2086	12.0	14.0	0.05	-1	0.06	-1
RC98-2086	18.0	20.0	0.07	0.03	-1	-1
RC98-2086	38.0	40.0	0.52	0.49	-1	-1
RC98-2087	10.0	12.0	1.14	-1	1.02	-1
RC98-2087	18.0	20.0	0.1	0.12	-1	-1
RC98-2087	38.0	40.0	0.01	0.01	-1	-1
RC98-2088	10.0	12.0	1.91	-1	1.87	-1
RC98-2088	18.0	20.0	0.04	0.02	-1	-1
RC98-2088	38.0	40.0	0.01	0.01	-1	-1
RC98-2089	12.0	14.0	1.19	-1	1.12	-1
RC98-2089	18.0	20.0	0.01	0.01	-1	-1
RC98-2089	36.0	38.0	0.04	0.02	-1	-1
RC98-2090	14.0	16.0	2.32	-1	2.1	-1
RC98-2090	18.0	20.0	0.33	0.36	-1	-1
RC98-2090	38.0	40.0	0.99	1.13	-1	-1
RC98-2090	58.0	60.0	0.02	0.03	-1	-1
RC98-2091	16.0	18.0	0.05	-1	0.03	-1
RC98-2091	18.0	20.0	0.03	0.05	-1	-1
RC98-2091	38.0	40.0	0.21	0.2	-1	-1

Check Assay Listing

* includes exploration AND development drilling

"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2091	58.0	60.0	0.07	0.06	-1	-1
RC98-2092	18.0	20.0	0.24	0.25	0.23	-1
RC98-2092	38.0	40.0	1.01	1.05	-1	-1
RC98-2092	58.0	60.0	0.05	0.13	-1	-1
RC98-2093	18.0	20.0	0.04	0.05	0.04	-1
RC98-2093	38.0	40.0	0.36	0.28	-1	-1
RC98-2093	58.0	60.0	0.9	0.82	-1	-1
RC98-2093	78.0	80.0	0.53	0.53	-1	-1
RC98-2094	16.0	18.0	0.02	-1	0.02	-1
RC98-2094	18.0	20.0	0.04	0.02	-1	-1
RC98-2094	38.0	40.0	0.6	0.64	-1	-1
RC98-2095	14.0	16.0	0.21	-1	0.17	-1
RC98-2095	18.0	20.0	0.04	0.04	-1	-1
RC98-2095	38.0	40.0	0.49	0.48	-1	-1
RC98-2095	58.0	60.0	0.01	0.01	-1	-1
RC98-2096	14.0	16.0	0.01	-1	0.01	-1
RC98-2096	18.0	20.0	0.03	0.02	-1	-1
RC98-2097	10.0	12.0	1.44	-1	1.18	-1
RC98-2097	18.0	20.0	2.71	2.51	-1	-1
RC98-2097	38.0	40.0	0.1	0.11	-1	-1
RC98-2098	10.0	12.0	0.23	-1	0.21	-1
RC98-2098	18.0	20.0	0.03	0.02	-1	-1
RC98-2099	12.0	14.0	1.42	-1	1.46	-1
RC98-2099	18.0	20.0	0.23	0.19	-1	-1
RC98-2099	38.0	40.0	0.03	0.01	-1	-1
RC98-2100	14.0	16.0	0.14	-1	0.14	-1
RC98-2100	18.0	20.0	0.38	0.29	-1	-1
RC98-2100	38.0	40.0	0.08	0.08	-1	-1
RC98-2101	16.0	18.0	0.05	-1	0.1	-1
RC98-2101	18.0	20.0	0.93	1	-1	-1
RC98-2101	38.0	40.0	0.11	0.17	-1	-1
RC98-2101	58.0	60.0	0.06	0.06	-1	-1
RC98-2102	18.0	20.0	0.04	0.02	0.02	-1
RC98-2102	38.0	40.0	0.01	0.41	-1	-1
RC98-2102	58.0	60.0	1.34	1.39	-1	-1
RC98-2103	18.0	20.0	0.01	0.01	0.02	-1
RC98-2103	38.0	40.0	0.01	0.36	-1	-1
RC98-2103	58.0	60.0	0.06	0.1	-1	-1
RC98-2104	16.0	18.0	0.45	-1	0.43	-1
RC98-2104	18.0	20.0	0.07	0.07	-1	-1
RC98-2105	14.0	16.0	0.01	-1	0.01	-1
RC98-2105	18.0	20.0	0.67	0.7	-1	-1
RC98-2105	38.0	40.0	0.01	0.17	-1	-1
RC98-2105	58.0	60.0	0.17	0.14	-1	-1
RC98-2106	12.0	14.0	0.98	-1	0.89	-1
RC98-2106	18.0	20.0	0.02	0.02	-1	-1
RC98-2106	38.0	40.0	1.22	1.11	-1	-1
RC98-2107	10.0	12.0	0.38	-1	0.45	-1
RC98-2107	18.0	20.0	0.02	0.03	-1	-1
RC98-2107	38.0	40.0	0.01	0.02	-1	-1
RC98-2107	58.0	60.0	0.03	0.02	-1	-1
RC98-2108	10.0	12.0	0.01	-1	0.01	-1
RC98-2108	18.0	20.0	0.06	0.02	-1	-1
RC98-2108	38.0	40.0	0.01	0.02	-1	-1
RC98-2108	58.0	60.0	0.01	0.02	-1	-1
RC98-2109	12.0	14.0	0.02	-1	0.02	-1
RC98-2109	18.0	20.0	0.93	0.96	-1	-1
RC98-2109	38.0	40.0	0.02	0.01	-1	-1
RC98-2109	58.0	60.0	0.01	0.02	-1	-1
RC98-2110	14.0	16.0	0.01	-1	0.02	-1
RC98-2110	18.0	20.0	0.03	0.04	-1	-1
RC98-2110	38.0	40.0	0.16	0.16	-1	-1
RC98-2110	58.0	60.0	0.02	0.02	-1	-1

Check Assay Listing

* includes exploration AND development drilling

"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2111	18.0	20.0	0.03	0.03	0.04	-1
RC98-2111	38.0	40.0	0.01	0.01	-1	-1
RC98-2111	58.0	60.0	0.03	0.02	-1	-1
RC98-2112	18.0	20.0	0.05	0.02	0.05	-1
RC98-2112	38.0	40.0	0.01	0.01	-1	-1
RC98-2113	18.0	20.0	0.08	0.08	-1	-1
RC98-2113	38.0	40.0	0.02	0.02	-1	-1
RC98-2114	16.0	18.0	0.04	-1	0.1	-1
RC98-2114	18.0	20.0	0.01	0.02	-1	-1
RC98-2114	38.0	40.0	0.03	0.03	-1	-1
RC98-2114	58.0	60.0	0.03	0.01	-1	-1
RC98-2115	18.0	20.0	0.98	0.95	-1	-1
RC98-2115	38.0	40.0	0.08	0.09	-1	-1
RC98-2116	12.0	14.0	0.02	-1	0.01	-1
RC98-2116	18.0	20.0	0.02	0.01	-1	-1
RC98-2116	38.0	40.0	0.01	0.01	-1	-1
RC98-2116	58.0	60.0	0.01	0.01	-1	-1
RC98-2117	10.0	12.0	0.12	-1	0.1	-1
RC98-2117	18.0	20.0	0.06	0.04	-1	-1
RC98-2117	38.0	40.0	0.02	0.01	-1	-1
RC98-2118	10.0	12.0	0.18	-1	0.16	0.245
RC98-2118	12.0	14.0	0.91	-1	-1	1.39
RC98-2118	14.0	16.0	0.18	-1	-1	0.185
RC98-2118	16.0	18.0	0.21	-1	-1	0.22
RC98-2118	18.0	20.0	0.02	0.02	-1	-1
RC98-2118	38.0	40.0	0.03	0.02	-1	-1
RC98-2119	12.0	14.0	0.05	-1	0.07	-1
RC98-2119	18.0	20.0	0.1	0.07	-1	-1
RC98-2119	38.0	40.0	0.02	0.01	-1	-1
RC98-2119	58.0	60.0	0.02	0.02	-1	-1
RC98-2120	14.0	16.0	0.02	-1	0.04	-1
RC98-2120	18.0	20.0	0.04	0.03	-1	-1
RC98-2120	38.0	40.0	0.01	0.01	-1	-1
RC98-2120	58.0	60.0	0.01	0.03	-1	-1
RC98-2121	16.0	18.0	0.03	-1	0.08	-1
RC98-2121	18.0	20.0	0.03	0.03	-1	-1
RC98-2121	38.0	40.0	0.02	0.02	-1	-1
RC98-2122	18.0	20.0	0.05	0.08	0.08	-1
RC98-2122	38.0	40.0	0.05	0.05	-1	-1
RC98-2122	58.0	60.0	0.04	0.03	-1	-1
RC98-2123	18.0	20.0	0.22	0.22	0.18	-1
RC98-2123	38.0	40.0	0.14	0.13	-1	-1
RC98-2123	58.0	60.0	0.04	0.03	-1	-1
RC98-2124	2.0	4.0	0.13	-1	-1	0.255
RC98-2124	4.0	6.0	0.17	-1	-1	0.315
RC98-2124	6.0	8.0	0.16	-1	-1	0.24
RC98-2124	8.0	10.0	0.21	-1	-1	0.32
RC98-2124	10.0	12.0	0.24	-1	-1	0.44
RC98-2124	12.0	14.0	0.63	-1	-1	1.14
RC98-2124	14.0	16.0	0.91	-1	-1	1.33
RC98-2124	16.0	18.0	0.18	-1	0.2	0.3
RC98-2124	18.0	20.0	0.07	0.08	-1	-1
RC98-2124	38.0	40.0	0.01	0.01	-1	-1
RC98-2124	58.0	60.0	0.02	0.02	-1	-1
RC98-2125	14.0	16.0	0.01	-1	0.03	-1
RC98-2125	18.0	20.0	0.02	0.02	-1	-1
RC98-2125	38.0	40.0	0.01	0.01	-1	-1
RC98-2125	58.0	60.0	0.01	0.09	-1	-1
RC98-2125	78.0	80.0	2.91	2.66	-1	-1
RC98-2125	98.0	100.0	0.01	0.03	-1	-1
RC98-2126	12.0	14.0	0.12	-1	0.12	-1
RC98-2126	18.0	20.0	0.04	0.04	-1	-1
RC98-2126	38.0	40.0	0.03	0.03	-1	-1

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2127	10.0	12.0	0.01	-1	0.01	-1
RC98-2127	18.0	20.0	0.01	0.02	-1	-1
RC98-2127	38.0	40.0	0.04	0.05	-1	-1
RC98-2128	10.0	12.0	0.03	-1	0.04	-1
RC98-2128	18.0	20.0	0.01	0.02	-1	-1
RC98-2128	38.0	40.0	0.01	0.03	-1	-1
RC98-2129	12.0	14.0	0.02	-1	0.02	-1
RC98-2129	18.0	20.0	0.01	0.05	-1	-1
RC98-2129	38.0	40.0	0.03	0.04	-1	-1
RC98-2130	14.0	16.0	0.06	-1	0.05	-1
RC98-2130	18.0	20.0	0.07	0.05	-1	-1
RC98-2131	16.0	18.0	0.01	-1	0.01	-1
RC98-2131	18.0	20.0	0.01	0.01	-1	-1
RC98-2131	38.0	40.0	0.09	0.08	-1	-1
RC98-2131	98.0	100.0	0.01	0.01	-1	-1
RC98-2131	118.0	120.0	0.01	0.01	-1	-1
RC98-2131	138.0	140.0	0.01	0.01	-1	-1
RC98-2132	18.0	20.0	0.02	0.01	0.01	-1
RC98-2132	38.0	40.0	7.72	7.51	-1	-1
RC98-2133	18.0	20.0	0.01	0.01	-1	-1
RC98-2133	38.0	40.0	0.01	0.02	-1	-1
RC98-2134	18.0	20.0	0.43	0.48	-1	-1
RC98-2134	38.0	40.0	0.01	0.01	-1	-1
RC98-2134	58.0	60.0	0.01	0.01	-1	-1
RC98-2134	78.0	80.0	1.79	1.56	-1	-1
RC98-2135	18.0	20.0	0.04	0.02	-1	-1
RC98-2135	38.0	40.0	0.16	0.19	-1	-1
RC98-2135	58.0	60.0	1.31	1.55	-1	-1
RC98-2135	78.0	80.0	0.02	0.03	-1	-1
RC98-2135	98.0	100.0	0.07	0.02	-1	-1
RC98-2136	18.0	20.0	0.05	0.07	-1	-1
RC98-2136	38.0	40.0	0.02	0.01	-1	-1
RC98-2136	58.0	60.0	1.39	1.43	-1	-1
RC98-2137	10.0	12.0	1.5	-1	1.36	-1
RC98-2137	18.0	20.0	0.06	0.06	-1	-1
RC98-2137	38.0	40.0	0.18	0.21	-1	-1
RC98-2137	58.0	60.0	0.47	0.55	-1	-1
RC98-2138	10.0	12.0	0.17	-1	0.03	-1
RC98-2138	18.0	20.0	0.02	0.01	-1	-1
RC98-2138	38.0	40.0	0.01	0.01	-1	-1
RC98-2138	58.0	60.0	1.16	1.18	-1	-1
RC98-2139	12.0	14.0	0.05	-1	0.08	-1
RC98-2139	18.0	20.0	0.01	0.01	-1	-1
RC98-2139	38.0	40.0	2.8	3.18	-1	-1
RC98-2139	58.0	60.0	0.03	0.01	-1	-1
RC98-2140	18.0	20.0	0.32	0.35	-1	-1
RC98-2140	38.0	40.0	1.94	1.86	-1	-1
RC98-2140	58.0	60.0	0.07	0.09	-1	-1
RC98-2141	16.0	18.0	0.01	-1	0.02	-1
RC98-2141	18.0	20.0	0.01	0.01	-1	-1
RC98-2141	38.0	40.0	0.38	0.36	-1	-1
RC98-2142	18.0	20.0	0.05	0.05	0.05	-1
RC98-2143	18.0	20.0	0.07	0.06	0.06	-1
RC98-2143	38.0	40.0	0.05	0.04	-1	-1
RC98-2143	58.0	60.0	0.05	0.04	-1	-1
RC98-2144	16.0	18.0	0.18	-1	0.16	-1
RC98-2144	18.0	20.0	0.04	0.05	-1	-1
RC98-2145	0.0	2.0	0.23	-1	-1	0.265
RC98-2145	2.0	4.0	0.15	-1	-1	0.155
RC98-2145	4.0	6.0	0.14	-1	-1	0.265
RC98-2145	6.0	8.0	0.14	-1	-1	0.215
RC98-2145	8.0	10.0	0.29	-1	-1	0.4
RC98-2145	10.0	12.0	0.43	-1	-1	0.385

Check Assay Listing

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"-1" = not analysed

				VMC		Chemex
Hole ID	From	To	Au (gpt)	Dup Au (gpt)	Blind Au (gpt)	Au (gpt)
RC98-2145	12.0	14.0	0.38	-1	-1	0.49
RC98-2145	14.0	16.0	1.93	-1	2.36	2.57
RC98-2145	16.0	18.0	0.61	-1	-1	1.03
RC98-2145	18.0	20.0	0.04	0.05	-1	0.115
RC98-2145	20.0	22.0	0.24	-1	-1	0.355
RC98-2145	22.0	24.0	0.65	-1	-1	0.765
RC98-2145	24.0	26.0	0.38	-1	-1	0.525
RC98-2145	26.0	28.0	0.04	-1	-1	0.07
RC98-2145	28.0	30.0	0.57	-1	-1	0.76
RC98-2145	30.0	32.0	0.35	-1	-1	0.405
RC98-2145	32.0	34.0	2.3	-1	-1	2.19
RC98-2145	34.0	36.0	0.22	-1	-1	0.34
RC98-2145	36.0	38.0	0.05	-1	-1	0.075
RC98-2145	38.0	40.0	0.07	0.08	-1	0.13
RC98-2145	40.0	42.0	0.07	-1	-1	0.095
RC98-2145	42.0	44.0	0.82	-1	-1	1.305
RC98-2145	44.0	46.0	0.47	-1	-1	0.795
RC98-2145	46.0	48.0	0.15	-1	-1	0.2
RC98-2145	48.0	50.0	0.13	-1	-1	0.165
RC98-2145	50.0	52.0	0.1	-1	-1	0.18
RC98-2145	52.0	54.0	0.19	-1	-1	0.34
RC98-2145	54.0	56.0	0.25	-1	-1	0.44
RC98-2145	56.0	58.0	0.44	-1	-1	1.06
RC98-2145	58.0	60.0	0.09	0.09	-1	-1
RC98-2146	12.0	14.0	0.49	-1	0.47	-1
RC98-2146	18.0	20.0	0.26	0.29	-1	-1
RC98-2146	38.0	40.0	0.46	0.4	-1	-1
RC98-2146	58.0	60.0	0.05	0.06	-1	-1
RC98-2147	10.0	12.0	0.11	-1	0.14	-1
RC98-2147	18.0	20.0	0.55	0.55	-1	-1
RC98-2147	38.0	40.0	0.12	0.14	-1	-1
RC98-2148	0.0	2.0	0.1	-1	-1	0.2
RC98-2148	2.0	4.0	0.21	-1	-1	0.25
RC98-2148	4.0	6.0	0.1	-1	-1	0.35
RC98-2148	6.0	8.0	0.65	-1	-1	0.76
RC98-2148	8.0	10.0	3.63	-1	-1	0.83
RC98-2148	10.0	12.0	4.24	-1	4.24	5.75
RC98-2148	12.0	14.0	0.79	-1	-1	1.025
RC98-2148	14.0	16.0	0.94	-1	-1	1.615
RC98-2148	16.0	18.0	1.94	-1	-1	3.27
RC98-2148	18.0	20.0	0.53	0.44	-1	0.94
RC98-2148	20.0	22.0	0.43	-1	-1	0.83
RC98-2148	22.0	24.0	0.44	-1	-1	0.63
RC98-2148	24.0	26.0	1.62	-1	-1	2.3
RC98-2148	26.0	28.0	1.16	-1	-1	1.745
RC98-2148	28.0	30.0	0.4	-1	-1	0.6
RC98-2148	30.0	32.0	2.33	-1	-1	2.08
RC98-2148	32.0	34.0	0.88	-1	-1	1.375
RC98-2148	34.0	36.0	1.2	-1	-1	1.865
RC98-2148	36.0	38.0	0.68	-1	-1	1.16
RC98-2148	38.0	40.0	0.36	0.38	-1	0.375
RC98-2148	40.0	42.0	0.22	-1	-1	0.295
RC98-2148	42.0	44.0	0.79	-1	-1	0.965
RC98-2148	44.0	46.0	0.87	-1	-1	1.49
RC98-2148	46.0	48.0	0.14	-1	-1	0.38
RC98-2148	58.0	60.0	0.02	0.04	-1	-1
RC98-2148	60.0	62.0	0.62	-1	-1	0.525
RC98-2148	62.0	64.0	1.16	-1	-1	1.15
RC98-2148	64.0	66.0	0.08	-1	-1	0.145
RC98-2148	66.0	68.0	0.4	-1	-1	0.79
RC98-2148	68.0	70.0	0.06	-1	-1	0.105
RC98-2149	12.0	14.0	0.1	-1	0.01	-1
RC98-2149	18.0	20.0	0.13	0.14	-1	-1

Check Assay Listing

* includes exploration AND development drilling

"-1" = not analysed

				VMC		Chemex
Hole ID	From	To	Au (gpt)	Dup Au (gpt)	Blind Au (gpt)	Au (gpt)
RC98-2149	38.0	40.0	0.46	0.51	-1	-1
RC98-2150	14.0	16.0	0.02	-1	0.04	-1
RC98-2150	18.0	20.0	0.03	0.02	-1	-1
RC98-2150	38.0	40.0	3.91	3.95	-1	-1
RC98-2150	58.0	60.0	0.1	0.2	-1	-1
RC98-2151	16.0	18.0	0.12	-1	0.16	-1
RC98-2151	18.0	20.0	0.08	0.07	-1	-1
RC98-2151	38.0	40.0	0.03	0.01	-1	-1
RC98-2151	78.0	80.0	0.04	0.01	-1	-1
RC98-2152	0.0	2.0	0.96	-1	-1	0.28
RC98-2152	2.0	4.0	0.46	-1	-1	0.41
RC98-2152	4.0	6.0	0.36	-1	-1	0.34
RC98-2152	6.0	8.0	0.25	-1	-1	0.275
RC98-2152	8.0	10.0	0.18	-1	-1	0.21
RC98-2152	10.0	12.0	0.08	-1	-1	0.145
RC98-2152	12.0	14.0	0.01	-1	-1	0.07
RC98-2152	14.0	16.0	0.07	-1	-1	0.19
RC98-2152	16.0	18.0	0.22	-1	-1	0.21
RC98-2152	18.0	20.0	0.72	0.73	0.69	1.29
RC98-2152	20.0	22.0	2.44	-1	-1	4.09
RC98-2152	22.0	24.0	0.25	-1	-1	0.65
RC98-2152	24.0	26.0	0.39	-1	-1	0.88
RC98-2152	26.0	28.0	0.96	-1	-1	1.77
RC98-2152	28.0	30.0	0.28	-1	-1	0.495
RC98-2152	30.0	32.0	0.9	-1	-1	1.32
RC98-2152	32.0	34.0	0.21	-1	-1	0.37
RC98-2152	34.0	36.0	1.53	-1	-1	1.505
RC98-2152	36.0	38.0	0.13	-1	-1	0.27
RC98-2152	38.0	40.0	0.02	0.01	-1	-1
RC98-2153	18.0	20.0	0.08	0.08	0.04	-1
RC98-2153	38.0	40.0	0.03	0.04	-1	-1
RC98-2154	18.0	20.0	0.01	0.01	-1	-1
RC98-2154	38.0	40.0	0.04	0.04	-1	-1
RC98-2154	58.0	60.0	4.06	3.89	-1	-1
RC98-2155	14.0	16.0	0.01	-1	0.01	-1
RC98-2155	18.0	20.0	0.01	0.01	-1	-1
RC98-2156	18.0	20.0	0.02	0.02	-1	-1
RC98-2157	18.0	20.0	0.01	0.01	-1	-1
RC98-2158	18.0	20.0	0.11	0.09	-1	-1
RC98-2159	18.0	20.0	0.09	0.08	-1	-1
RC98-2160	16.0	18.0	0.03	-1	0.04	-1
RC98-2160	18.0	20.0	0.03	0.04	-1	-1
RC98-2160	38.0	40.0	0.02	0.01	-1	-1
RC98-2161	18.0	20.0	0.04	0.04	-1	-1
RC98-2161	18.0	20.0	0.04	0.04	-1	-1
RC98-2161	38.0	40.0	4.13	4.07	-1	-1
RC98-2161	38.0	40.0	4.13	4.07	-1	-1
RC98-2161	58.0	60.0	0.01	0.03	-1	-1
RC98-2162	18.0	20.0	0.09	0.08	-1	-1
RC98-2163	18.0	20.0	0.14	0.08	-1	-1
RC98-2163	34.0	36.0	3.67	4.07	-1	-1
RC98-2163	38.0	40.0	0.12	0.16	-1	-1
RC98-2164	16.0	18.0	0.01	-1	0.01	-1
RC98-2164	18.0	20.0	0.01	0.01	-1	-1
RC98-2164	38.0	40.0	0.01	0.01	-1	-1
RC98-2164	58.0	60.0	0.02	0.03	-1	-1
RC98-2165	14.0	16.0	0.01	-1	0.04	-1
RC98-2165	18.0	20.0	0.01	0.02	-1	-1
RC98-2165	38.0	40.0	0.01	0.02	-1	-1
RC98-2165	58.0	60.0	0.01	0.01	-1	-1
RC98-2166	12.0	14.0	5.73	-1	5.48	-1
RC98-2166	18.0	20.0	0.35	0.31	-1	-1
RC98-2166	38.0	40.0	0.03	0.02	-1	-1

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2167	18.0	20.0	0.01	0.01	-1	-1
RC98-2168	10.0	12.0	0.01	-1	0.01	-1
RC98-2168	18.0	20.0	0.29	0.28	-1	-1
RC98-2168	38.0	40.0	1.73	1.5	-1	-1
RC98-2169	12.0	14.0	0.01	-1	0.01	-1
RC98-2169	18.0	20.0	2.15	2.28	-1	-1
RC98-2171	18.0	20.0	0.4	-1	0.15	-1
RC98-2172	18.0	20.0	0.14	0.12	0.15	-1
RC98-2173	18.0	20.0	0.05	0.05	0.04	-1
RC98-2173	38.0	40.0	0.5	0.58	-1	-1
RC98-2174	16.0	18.0	0.01	-1	0.01	-1
RC98-2174	18.0	20.0	0.01	0.01	-1	-1
RC98-2174	38.0	40.0	0.01	0.01	-1	-1
RC98-2174	58.0	60.0	2.64	2.41	-1	-1
RC98-2175	14.0	16.0	0.02	-1	0.03	-1
RC98-2175	18.0	20.0	0.03	0.02	-1	-1
RC98-2175	38.0	40.0	0.01	0.03	-1	-1
RC98-2176	12.0	14.0	0.01	-1	0.01	-1
RC98-2176	18.0	20.0	0.02	0.01	-1	-1
RC98-2176	38.0	40.0	1.24	1.24	-1	-1
RC98-2177	10.0	12.0	0.15	-1	0.15	-1
RC98-2177	18.0	20.0	0.02	0.02	-1	-1
RC98-2178	10.0	12.0	0.07	-1	0.05	-1
RC98-2178	18.0	20.0	0.07	0.08	-1	-1
RC98-2178	38.0	40.0	1.17	1.28	-1	-1
RC98-2178	58.0	60.0	0.17	0.15	-1	-1
RC98-2179	12.0	14.0	1.01	-1	1.01	-1
RC98-2179	18.0	20.0	1.31	1.26	-1	-1
RC98-2180	14.0	16.0	0.03	-1	0.04	-1
RC98-2180	18.0	20.0	0.03	0.06	-1	-1
RC98-2180	38.0	40.0	0.88	0.98	-1	-1
RC98-2180	58.0	60.0	0.01	0.07	-1	-1
RC98-2181	16.0	18.0	0.57	-1	0.53	-1
RC98-2181	18.0	20.0	0.09	0.11	-1	-1
RC98-2182	18.0	20.0	0.01	0.02	0.02	-1
RC98-2183	18.0	20.0	0.76	0.7	0.81	-1
RC98-2183	38.0	40.0	0.1	0.01	-1	-1
RC98-2184	16.0	18.0	1.54	-1	1.68	-1
RC98-2184	18.0	20.0	0.5	0.56	-1	-1
RC98-2185	18.0	20.0	0.17	0.15	-1	-1
RC98-2185	38.0	40.0	10.86	11.27	-1	-1
RC98-2185	58.0	60.0	3.74	3.41	-1	-1
RC98-2185	78.0	80.0	0.13	0.1	-1	-1
RC98-2185	98.0	100.0	0.04	0.03	-1	-1
RC98-2186	18.0	20.0	0.01	0.02	-1	-1
RC98-2186	38.0	40.0	0.16	0.25	-1	-1
RC98-2186	58.0	60.0	0.51	0.49	-1	-1
RC98-2186	78.0	80.0	0.21	0.24	-1	-1
RC98-2186	98.0	100.0	0.11	0.11	-1	-1
RC98-2186	118.0	120.0	0.01	0.02	-1	-1
RC98-2186	138.0	140.0	3.32	2.98	-1	-1
RC98-2187	18.0	20.0	0.04	0.03	-1	-1
RC98-2187	38.0	40.0	0.03	0.03	-1	-1
RC98-2187	58.0	60.0	0.01	0.01	-1	-1
RC98-2187	64.0	66.0	0.02	0.01	-1	-1
RC98-2187	78.0	80.0	0.03	0.02	-1	-1
RC98-2187	98.0	100.0	0.01	0.01	-1	-1
RC98-2187	118.0	120.0	0.03	0.01	-1	-1
RC98-2187	138.0	140.0	0.02	0.02	-1	-1
RC98-2188	10.0	12.0	0.03	-1	0.07	-1
RC98-2188	18.0	20.0	0.04	0.04	-1	-1
RC98-2188	38.0	40.0	0.02	0.02	-1	-1
RC98-2189	12.0	14.0	0.02	-1	0.02	-1

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2189	18.0	20.0	0.02	0.01	-1	-1
RC98-2189	38.0	40.0	0.04	0.02	-1	-1
RC98-2190	14.0	16.0	0.01	-1	0.03	-1
RC98-2190	18.0	20.0	0.01	0.01	-1	-1
RC98-2190	38.0	40.0	0.04	0.01	-1	-1
RC98-2190	58.0	60.0	0.02	0.03	-1	-1
RC98-2190	78.0	80.0	0.03	0.03	-1	-1
RC98-2190	98.0	100.0	0.03	0.04	-1	-1
RC98-2190	118.0	120.0	0.05	0.03	-1	-1
RC98-2191	16.0	18.0	0.33	-1	0.36	-1
RC98-2191	18.0	20.0	0.24	0.23	-1	-1
RC98-2191	38.0	40.0	0.73	0.73	-1	-1
RC98-2191	58.0	60.0	0.24	0.28	-1	-1
RC98-2191	78.0	80.0	0.03	0.04	-1	-1
RC98-2191	98.0	100.0	0.05	0.05	-1	-1
RC98-2193	18.0	20.0	1.02	1.18	-1	-1
RC98-2193	38.0	40.0	0.07	0.09	-1	-1
RC98-2193	58.0	60.0	0.08	0.03	-1	-1
RC98-2193	78.0	80.0	0.05	0.08	-1	-1
RC98-2193	98.0	100.0	0.05	0.06	-1	-1
RC98-2193	118.0	120.0	0.06	0.04	-1	-1
RC98-2194	16.0	18.0	0.59	-1	0.56	-1
RC98-2194	38.0	40.0	0.11	0.12	-1	-1
RC98-2194	58.0	60.0	6.17	6.01	-1	-1
RC98-2194	78.0	80.0	0.06	0.05	-1	-1
RC98-2195	14.0	16.0	0.02	0.03	0.03	-1
RC98-2195	38.0	40.0	0.05	0.06	-1	-1
RC98-2195	58.0	60.0	0.21	0.17	-1	-1
RC98-2195	78.0	80.0	0.02	0.01	-1	-1
RC98-2196	12.0	14.0	0.04	-1	0.05	-1
RC98-2196	38.0	40.0	3.14	2.86	-1	-1
RC98-2196	58.0	60.0	0.31	0.31	-1	-1
RC98-2196	78.0	80.0	0.02	0.03	-1	-1
RC98-2196	98.0	100.0	0.02	0.02	-1	-1
RC98-2197	10.0	12.0	0.02	0.01	0.01	-1
RC98-2197	38.0	40.0	0.01	0.01	-1	-1
RC98-2197	58.0	60.0	0.01	0.01	-1	-1
RC98-2197	78.0	80.0	0.95	0.92	-1	-1
RC98-2197	98.0	100.0	0.04	0.01	-1	-1
RC98-2197	118.0	120.0	0.04	0.04	-1	-1
RC98-2198	12.0	14.0	0.52	0.56	0.56	-1
RC98-2198	38.0	40.0	0.5	0.95	-1	-1
RC98-2198	58.0	60.0	0.04	0.05	-1	-1
RC98-2198	78.0	80.0	2.68	2.17	-1	-1
RC98-2198	98.0	100.0	0.07	0.06	-1	-1
RC98-2199	12.0	14.0	0.17	0.15	0.15	-1
RC98-2199	38.0	40.0	0.03	0.03	-1	-1
RC98-2199	58.0	60.0	0.01	0.02	-1	-1
RC98-2200	38.0	40.0	0.13	0.17	-1	-1
RC98-2200	58.0	60.0	0.18	0.18	-1	-1
RC98-2200	78.0	80.0	0.02	0.04	-1	-1
RC98-2200	98.0	100.0	0.05	0.05	-1	-1
RC98-2201	18.0	20.0	0.02	0.02	-1	-1
RC98-2201	38.0	40.0	0.01	0.03	-1	-1
RC98-2201	58.0	60.0	0.03	0.04	-1	-1
RC98-2201	78.0	80.0	0.02	0.03	-1	-1
RC98-2201	98.0	100.0	0.03	0.07	-1	-1
RC98-2202	12.0	14.0	0.02	-1	0.02	-1
RC98-2202	38.0	40.0	0.03	0.03	-1	-1
RC98-2202	58.0	60.0	0.04	0.04	-1	-1
RC98-2202	78.0	80.0	0.04	0.02	-1	-1
RC98-2202	98.0	100.0	0.04	0.01	-1	-1
RC98-2203	10.0	12.0	0.02	0.01	0.01	-1

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2203	38.0	40.0	0.04	0.03	-1	-1
RC98-2204	20	22	0.23	0.31	0.26	-1
RC98-2204	40	42	0.21	0.22	-1	-1
RC98-2204	60	62	0.03	0.04	-1	-1
RC98-2205	20	22	1.02	0.95	-1	-1
RC98-2205	24	26	0.71	-1	0.73	-1
RC98-2205	40	42	0.04	0.06	-1	-1
RC98-2205	58	60	0.03	0.04	-1	-1
RC98-2206	18	20	0.31	0.34	-1	-1
RC98-2206	28	30	0.05	-1	0.12	-1
RC98-2206	38	40	0.08	0.06	-1	-1
RC98-2206	58	60	0.06	0.07	-1	-1
RC98-2207	18	20	0.05	0.07	-1	-1
RC98-2207	32	34	0.09	-1	0.13	-1
RC98-2207	38	40	0.06	0.13	-1	-1
RC98-2207	58	60	0.11	0.08	-1	-1
RC98-2208	18	20	0.12	0.1	-1	-1
RC98-2208	36	38	0.07	-1	0.09	-1
RC98-2208	38	40	0.07	0.06	-1	-1
RC98-2208	58	60	0.09	0.08	-1	-1
RC98-2209	40	42	0.08	-1	0.07	-1
RC98-2210	44	46	0.03	-1	0.04	-1
RC98-2211	18	20	0.05	0.04	-1	-1
RC98-2211	38	40	0.01	0.01	-1	-1
RC98-2211	48	50	0.03	-1	0.02	-1
RC98-2211	58	60	0.01	0.02	-1	-1
RC98-2211	78	80	0.04	0.04	-1	-1
RC98-2211	98	100	0.12	0.12	-1	-1
RC98-2212	18	20	0.03	0.04	-1	-1
RC98-2212	38	40	0.03	0.04	-1	-1
RC98-2212	52	54	0.01	-1	0.01	-1
RC98-2212	58	60	0.01	0.01	-1	-1
RC98-2213	38	40	0.01	0.01	-1	-1
RC98-2213	56	58	0.02	-1	0.02	-1
RC98-2213	58	60	0.02	0.05	-1	-1
RC98-2213	78	80	0.20	0.21	-1	-1
RC98-2213	98	100	0.01	0.01	-1	-1
RC98-2214	18	20	0.06	0.07	-1	-1
RC98-2214	38	40	0.07	0.12	-1	-1
RC98-2214	58	60	0.24	0.22	-1	-1
RC98-2214	60	62	0.17	-1	0.23	-1
RC98-2214	78	80	0.04	0.03	-1	-1
RC98-2215	18	20	0.02	0.02	-1	-1
RC98-2215	38	40	0.04	0.04	-1	-1
RC98-2215	58	60	0.33	0.35	-1	-1
RC98-2215	64	66	0.78	-1	1.14	-1
RC98-2215	78	80	0.85	0.92	-1	-1
RC98-2216	18	20	0.06	0.07	-1	-1
RC98-2216	38	40	0.08	0.08	-1	-1
RC98-2216	58	60	0.11	0.13	-1	-1
RC98-2216	68	70	0.40	-1	0.36	-1
RC98-2216	78	80	0.15	0.16	-1	-1
RC98-2217	18	20	0.09	0.08	-1	-1
RC98-2217	22	24	0.18	-1	0.22	-1
RC98-2217	38	40	0.16	0.13	-1	-1
RC98-2217	58	60	0.04	0.03	-1	-1
RC98-2217	78	80	0.21	0.19	-1	-1
RC98-2217	98	100	0.06	0.04	-1	-1
RC98-2218	18	20	0.07	0.11	-1	-1
RC98-2218	22	24	0.09	-1	0.09	-1
RC98-2218	38	40	0.14	0.11	-1	-1
RC98-2218	58	60	0.07	0.08	-1	-1
RC98-2218	78	80	0.02	0.04	-1	-1

Check Assay Listing

** includes exploration AND development drilling*

"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2219	18	20	0.15	0.15	-1	-1
RC98-2219	30	32	0.06	-1	0.08	-1
RC98-2219	38	40	0.23	0.25	-1	-1
RC98-2219	58	60	0.11	0.1	-1	-1
RC98-2220	18	20	0.06	0.04	-1	-1
RC98-2220	34	36	0.85	-1	0.69	-1
RC98-2220	38	40	0.11	0.03	-1	-1
RC98-2220	58	60	0.11	0.1	-1	-1
RC98-2221	18	20	0.07	0.06	-1	-1
RC98-2221	38	40	1.90	1.9	0.96	-1
RC98-2221	58	60	0.22	0.26	-1	-1
RC98-2221	78	80	0.05	0.06	-1	-1
RC98-2222	18	20	0.08	0.11	-1	-1
RC98-2222	38	40	0.46	0.38	-1	-1
RC98-2222	42	44	1.18	-1	1.37	-1
RC98-2222	58	60	0.08	0.1	-1	-1
RC98-2223	18	20	0.03	0.04	-1	-1
RC98-2223	38	40	0.11	0.09	-1	-1
RC98-2223	46	48	0.12	-1	0.05	-1
RC98-2223	58	60	0.14	0.16	-1	-1
RC98-2224	18	20	0.02	0.03	-1	-1
RC98-2224	38	40	0.05	0.06	-1	-1
RC98-2224	48	50	0.09	-1	0.14	-1
RC98-2225	18	20	0.49	0.38	-1	-1
RC98-2225	38	40	0.19	0.16	-1	-1
RC98-2225	54	56	0.22	-1	0.33	-1
RC98-2225	58	60	0.08	0.08	-1	-1
RC98-2226	18	20	0.12	0.12	-1	-1
RC98-2226	28	30	0.78	-1	1.09	-1
RC98-2226	38	40	1.40	1.54	-1	-1
RC98-2226	58	60	0.08	0.08	-1	-1
RC98-2227	18	20	1.84	1.76	-1	-1
RC98-2227	32	34	0.57	-1	0.91	-1
RC98-2227	38	40	0.35	0.37	-1	-1
RC98-2227	58	60	0.13	0.13	-1	-1
RC98-2228	16	18	0.06	-1	0.07	-1
RC98-2228	18	20	0.08	0.07	-1	-1
RC98-2228	38	40	0.07	0.11	-1	-1
RC98-2228	58	60	0.49	0.51	-1	-1
RC98-2229	18	20	0.07	0.05	-1	-1
RC98-2229	38	40	2.23	2.13	-1	-1
RC98-2229	44	46	0.21	-1	0.18	-1
RC98-2229	58	60	0.04	0.05	-1	-1
RC98-2230	18	20	0.07	0.04	-1	-1
RC98-2230	36	38	1.86	-1	0.84	-1
RC98-2230	38	40	0.86	0.79	-1	-1
RC98-2230	58	60	0.14	0.1	-1	-1
RC98-2231	18	20	0.12	0.12	-1	-1
RC98-2231	24	26	0.44	-1	0.31	-1
RC98-2231	38	40	0.03	0.02	-1	-1
RC98-2232	18	20	0.14	0.12	-1	-1
RC98-2232	30	32	0.12	-1	0.13	-1
RC98-2232	38	40	0.15	0.18	-1	-1
RC98-2232	58	60	0.05	0.09	-1	-1
RC98-2233	18	20	0.08	0.07	-1	-1
RC98-2233	38	40	0.09	0.05	-1	-1
RC98-2233	42	44	0.05	-1	0.08	-1
RC98-2233	58	60	0.11	0.15	-1	-1
RC98-2234	18	20	0.15	0.22	-1	-1
RC98-2234	38	40	0.36	0.34	-1	-1
RC98-2234	58	60	0.06	0.05	-1	-1
RC98-2234	72	74	0.06	-1	0.04	-1
RC98-2234	78	80	0.07	0.09	-1	-1

Check Assay Listing

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"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2235	18	20	0.03	0.04	-1	-1
RC98-2235	38	40	0.08	0.07	0.49	-1
RC98-2235	58	60	0.07	0.14	-1	-1
RC98-2236	18	20	0.69	0.61	-1	-1
RC98-2236	38	40	0.12	0.09	-1	-1
RC98-2236	40	42	0.12	-1	0.2	-1
RC98-2236	58	60	0.02	0.02	-1	-1
RC98-2237	18	20	0.09	0.11	-1	-1
RC98-2237	38	40	0.03	0.02	-1	-1
RC98-2237	58	60	0.16	0.2	0.36	-1
RC98-2237	78	80	0.17	0.15	-1	-1
RC98-2238	18	20	0.41	0.44	-1	-1
RC98-2238	38	40	0.19	0.17	-1	-1
RC98-2238	56	58	0.01	-1	0.07	-1
RC98-2238	58	60	0.01	0.02	-1	-1
RC98-2239	18	20	0.08	0.12	-1	-1
RC98-2239	38	40	0.01	0.03	-1	-1
RC98-2239	58	60	0.01	0.01	-1	-1
RC98-2240	18	20	0.14	0.11	-1	-1
RC98-2240	38	40	0.14	0.13	-1	-1
RC98-2240	58	60	0.27	0.21	-1	-1
RC98-2241	18	20	0.19	0.24	-1	-1
RC98-2241	38	40	0.24	0.23	-1	-1
RC98-2241	58	60	0.05	0.07	-1	-1
RC98-2241	78	80	0.02	0.03	-1	-1
RC98-2242	18	20	0.05	0.04	-1	-1
RC98-2242	38	40	0.77	0.85	-1	-1
RC98-2242	44	46	0.04	-1	0.03	-1
RC98-2242	78	80	0.05	0.02	-1	-1
RC98-2243	18	20	1.36	1.28	-1	-1
RC98-2243	38	40	0.18	0.09	-1	-1
RC98-2243	42	44	0.07	-1	0.02	-1
RC98-2243	58	60	0.01	0.02	-1	-1
RC98-2244	18	20	0.05	0.04	-1	-1
RC98-2244	38	40	0.03	0.02	-1	-1
RC98-2244	44	46	0.03	-1	0.03	-1
RC98-2245	18	20	0.02	0.03	-1	-1
RC98-2245	38	40	19.52	19.22	16.3	-1
RC98-2245	58	60	0.19	0.19	-1	-1
RC98-2246	18	20	0.23	0.25	-1	-1
RC98-2246	36	38	0.30	-1	0.3	-1
RC98-2246	38	40	0.08	0.07	-1	-1
RC98-2246	58	60	0.27	0.3	-1	-1
RC98-2247	18	20	0.03	0.03	-1	-1
RC98-2247	38	40	0.02	0.03	-1	-1
RC98-2247	58	60	0.02	0.04	-1	-1
RC98-2248	18	20	0.02	0.01	-1	-1
RC98-2248	38	40	0.03	0.04	-1	-1
RC98-2248	58	60	0.04	0.07	-1	-1
RC98-2248	78	80	0.02	0.02	-1	-1
RC98-2249	18	20	0.03	0.01	-1	-1
RC98-2249	38	40	0.05	0.02	-1	-1
RC98-2249	58	60	0.04	0.05	-1	-1
RC98-2250	18	20	0.03	0.01	-1	-1
RC98-2250	38	40	0.01	0.02	-1	-1
RC98-2250	58	60	0.04	0.03	-1	-1
RC98-2251	18	20	1.99	1.91	-1	-1
RC98-2251	38	40	0.03	0.01	-1	-1
RC98-2252	18	20	0.97	1.02	-1	-1
RC98-2252	38	40	0.31	0.32	-1	-1
RC98-2253	18	20	0.03	0.01	-1	-1
RC98-2253	38	40	0.01	0.01	-1	-1
RC98-2254	18	20	0.01	0.03	-1	-1

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
RC98-2254	38	40	0.05	0.03	-1	-1
RC98-2255	18	20	0.19	0.20	-1	-1
RC98-2255	38	40	0.06	0.08	-1	-1
RC98-2256	18	20	0.02	0.02	-1	-1
RC98-2257	18	20	0.05	0.04	-1	-1
TR98-LG1	0.0	0.9	0.09	-1	-1	0.16
TR98-LG1	0.9	2.0	0.04	-1	-1	0.09
TR98-LG1	2.0	4.0	0.01	-1	-1	0.03
TR98-LG1	4.0	6.0	0.01	-1	-1	0.04
TR98-LG1	6.0	7.6	0.01	-1	-1	0.035
TR98-LG1	7.6	9.7	0.01	-1	-1	0.07
TR98-LG1	9.7	12.1	0.02	-1	-1	0.065
TR98-LG1	12.1	14.0	0.01	-1	-1	0.035
TR98-LG1	14.0	16.0	0.01	-1	-1	0.03
TR98-LG1	16.0	18.0	0.01	-1	-1	0.015
TR98-LG1	18.0	20.0	0.01	-1	-1	0.04
TR98-LG1	20.0	22.0	0.01	-1	-1	0.02
TR98-LG1	22.0	24.0	0.02	-1	-1	0.02
TR98-LG1	24.0	25.1	0.01	-1	-1	0.02
TR98-LG1	25.1	26.4	0.01	-1	-1	0.03
TR98-LG1	26.4	28.0	0.01	-1	-1	0.025
TR98-LG1	28.0	29.4	0.01	-1	-1	0.035
TR98-LG1	29.4	30.0	0.04	-1	-1	0.12
TR98-LG1	30.0	31.3	0.01	-1	-1	0.025
TR98-LG1	31.3	33.0	0.03	-1	-1	0.115
TR98-LG1	33.0	34.0	0.01	-1	-1	0.05
TR98-LG1	34.0	36.0	0.03	-1	-1	0.02
TR98-LG1	36.0	38.0	0.02	-1	-1	0.03
TR98-LG1	38.0	40.0	0.01	-1	-1	0.02
TR98-LG1	40.0	42.0	0.01	-1	-1	0.015
TR98-LG1	42.0	44.0	0.03	-1	-1	0.07
TR98-LG1	44.0	45.2	0.01	-1	-1	0.035
TR98-LG1	45.2	47.0	0.01	-1	-1	0.045
TR98-LG1	47.0	49.0	0.11	-1	-1	0.32
TR98-LG1	49.0	50.3	0.02	-1	-1	0.04
TR98-LG1	50.3	52.0	0.02	-1	-1	0.02
TR98-LG1	52.0	54.0	0.04	-1	-1	0.02
TR98-LG1	54.0	56.0	0.1	-1	-1	0.205
TR98-LG1	56.0	58.0	0.1	-1	-1	0.25
TR98-LG1	58.0	59.7	0.95	-1	-1	2.19
TR98-LG1	59.7	60.0	1.55	-1	-1	2.85
TR98-LG1	60.7	61.8	0.13	-1	-1	0.415
TR98-LG1	61.8	64.0	0.05	-1	-1	0.13
TR98-LG1	64.0	66.0	0.32	-1	-1	0.75
TR98-LG1	66.0	68.9	0.61	-1	-1	1.29
TR98-LG1	68.9	70.2	0.12	-1	-1	0.265
TR98-LG1	70.2	72.0	0.01	-1	-1	0.05
TR98-LG1	72.0	73.0	0.01	-1	-1	2.85
TR98-LG1	73.0	74.2	0.01	-1	-1	0.05
TR98-LG1	74.2	75.7	0.02	-1	-1	0.015
TR98-LG1	75.7	78.0	0.01	-1	-1	0.02
TR98-LG1	78.0	80.0	0.01	-1	-1	0.02
TR98-LG1	110.0	112.0	0.01	-1	-1	0.03
TR98-LG1	112.0	114.0	0.01	-1	-1	0.04
TR98-LG1	114.0	115.9	0.13	-1	-1	0.38
TR98-LG1	115.9	118.0	0.01	-1	-1	0.04
TR98-LG1	118.0	120.0	0.01	-1	-1	0.02
TR98-LG1	120.0	122.0	0.01	-1	-1	0.02
TR98-LG1	122.0	123.9	0.01	-1	-1	0.03
TR98-LG1	123.9	126.0	0.42	-1	-1	1.455
TR98-LG1	126.0	128.0	0.12	-1	-1	0.175
TR98-LG1	128.0	130.0	0.06	-1	-1	0.06
TR98-LG1	130.0	132.0	0.41	-1	-1	1.32

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
TR98-LG1	132.0	134.0	0.04	-1	-1	0.09
TR98-LG1	134.0	136.0	0.03	-1	-1	0.1
TR98-LG1	136.0	138.0	0.06	-1	-1	0.085
TR98-LG1	138.0	140.0	0.29	-1	-1	0.64
TR98-LG1	140.0	142.0	0.03	-1	-1	0.05
TR98-LG1	142.0	144.9	0.41	-1	-1	0.93
TR98-LG1	144.9	146.0	0.87	-1	-1	1.425
TR98-LG1	146.0	148.0	0.6	-1	-1	1.48
TR98-LG1	148.0	150.0	0.09	-1	-1	0.23
TR98-LG1	150.0	152.0	0.14	-1	-1	0.38
TR98-LG1	152.0	154.0	0.22	-1	-1	0.505
TR98-LG1	154.0	156.0	0.28	-1	-1	0.55
TR98-M25	18.0	20.0	0.01	0.01	-1	-1
TR98-M25	36.0	38.0	0.03	0.04	-1	-1
TR98-M25	38.0	40.0	0.04	0.01	-1	-1
TR98-M25	78.0	80.0	0.01	0.01	-1	-1
TR98-MN1	0.0	4.0	0.11	-1	-1	0.035
TR98-MN1	4.0	8.0	0.01	-1	-1	0.04
TR98-MN1	8.0	12.0	0.04	-1	-1	0.03
TR98-MN1	12.0	14.0	0.01	-1	-1	0.025
TR98-MN1	14.0	16.0	0.01	-1	-1	0.02
TR98-MN1	16.0	18.0	0.01	-1	-1	0.0025
TR98-MN1	18.0	20.0	0.01	-1	-1	0.01
TR98-MN1	20.0	22.0	0.02	-1	-1	0.015
TR98-MN1	22.0	24.0	0.01	-1	-1	0.015
TR98-MN1	24.0	26.0	0.01	-1	-1	0.02
TR98-MN1	26.0	27.0	0.01	-1	-1	0.01
TR98-MN1	27.0	30.0	0.01	-1	-1	0.03
TR98-MN1	30.0	32.0	0.08	-1	-1	0.04
TR98-MN1	32.0	35.0	0.06	-1	-1	0.05
TR98-MN1	35.0	38.0	0.08	-1	-1	0.065
TR98-MN1	38.0	42.0	0.06	-1	-1	0.045
TR98-MN1	42.0	46.0	0.64	-1	-1	1.085
TR98-MN1	46.0	50.0	0.81	-1	-1	1.23
TR98-MN1	50.0	52.0	0.15	-1	-1	0.215
TR98-MN1	52.0	56.0	0.07	-1	-1	0.105
TR98-MN1	56.0	58.0	0.07	-1	-1	0.015
TR98-MN1	58.0	60.0	0.11	-1	-1	0.05
TR98-MN1	60.0	64.0	0.08	-1	-1	0.015
TR98-MN1	64.0	68.0	0.03	-1	-1	0.01
TR98-MN1	68.0	70.0	0.01	-1	-1	0.01
TR98-MN1	70.0	72.0	0.02	-1	-1	0.025
TR98-MN1	72.0	76.0	0.01	-1	-1	0.015
TR98-MN1	76.0	81.0	0.07	-1	-1	0.065
TR98-MN1	81.0	86.0	0.05	-1	-1	0.075
TR98-MN1	86.0	90.0	0.05	-1	-1	0.17
TR98-MN1	90.0	94.0	0.02	-1	-1	0.0025
TR98-MN1	94.0	98.0	0.02	-1	-1	0.02
TR98-MN1	98.0	102.0	0.01	-1	-1	0.03
TR98-MN1	102.0	105.5	0.01	-1	-1	0.01
TR98-MN1	105.5	106.5	0.01	-1	-1	0.03
TR98-MN1	106.5	108.9	0.01	-1	-1	0.02
TR98-MN1	108.9	109.1	0.04	-1	-1	0.11
TR98-MN1	109.1	110.0	0.05	-1	-1	0.04
TR98-MN1	110.0	116.0	0.03	-1	-1	0.03
TR98-MN1	116.0	117.0	0.02	-1	-1	0.065
TR98-MN1	117.0	118.0	0.06	-1	-1	0.07
TR98-MN1	118.0	120.0	0.05	-1	-1	0.175
TR98-MN1	120.0	122.0	0.04	-1	-1	0.1
TR98-MN1	122.0	124.0	0.13	-1	-1	0.4
TR98-MN1	124.0	128.0	0.01	-1	-1	0.02
TR98-MN1	128.0	130.0	0.16	-1	-1	0.295
TR98-MN1	130.0	132.0	0.22	-1	-1	0.485

Check Assay Listing

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Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
TR98-MN1	132.0	136.0	0.67	-1	-1	1.12
TR98-MN1	136.0	138.0	0.05	-1	-1	0.125
TR98-MN1	138.0	140.0	0.05	-1	-1	0.135
TR98-MN1	140.0	144.0	0.03	-1	-1	0.105
TR98-MN1	144.0	148.0	0.04	-1	-1	0.045
TR98-MN1	148.0	152.0	0.07	-1	-1	0.21
TR98-MN1	152.0	154.0	0.09	-1	-1	0.255
TR98-MN1	154.0	156.0	0.01	-1	-1	0.065
TR98-MN1	156.0	158.0	0.01	-1	-1	0.05
TR98-MN1	158.0	162.0	0.02	-1	-1	0.085
TR98-MN1	162.0	164.0	0.38	-1	-1	0.8
TR98-MN1	164.0	166.0	0.09	-1	-1	0.19
TR98-MN1	166.0	170.0	0.02	-1	-1	0.07
TR98-MN1	170.0	174.0	0.02	-1	-1	0.045
TR98-MN1	174.0	178.0	0.01	-1	-1	0.075
TR98-MN1	178.0	180.0	0.04	-1	-1	0.085
TR98-MN1	180.0	182.0	0.05	-1	-1	0.09
TR98-MN1	182.0	184.0	0.28	-1	-1	0.75
TR98-MN1	184.0	188.0	0.18	-1	-1	0.675
TR98-MN1	188.0	190.0	0.02	-1	-1	0.095
TR98-MN1	190.0	192.0	0.11	-1	-1	0.26
TR98-MN1	192.0	194.0	0.11	-1	-1	0.29
TR98-MN1	194.0	197.0	0.1	-1	-1	0.245
TR98-MN1	197.0	199.0	1	-1	-1	2.57
TR98-MN1	199.0	201.0	0.05	-1	-1	0.1
TR98-MN1	201.0	206.0	0.03	-1	-1	0.09
TR98-MN1	206.0	208.0	0.03	-1	-1	0.03
TR98-MN1	208.0	210.0	0.01	-1	-1	0.035
TR98-MN1	210.0	212.0	0.01	-1	-1	0.04
TR98-MN1	212.0	214.0	0.01	-1	-1	0.035
TR98-MN1	214.0	220.0	0.01	-1	-1	0.035
TR98-MN1	220.0	222.0	0.16	-1	-1	0.675
TR98-MN1	222.0	224.0	0.17	-1	-1	0.395
TR98-MN1	224.0	226.0	0.06	-1	-1	0.16
TR98-MN1	226.0	229.0	0.34	-1	-1	0.62
TR98-MN1	229.0	232.0	0.52	-1	-1	0.95
TR98-MN1	232.0	236.0	0.28	-1	-1	0.61
TR98-MN1	236.0	238.0	0.21	-1	-1	0.39
TR98-MN1	238.0	242.0	0.1	-1	-1	0.14
TR98-MN1	242.0	246.0	0.14	-1	-1	0.415
TR98-MN1	246.0	250.0	0.05	-1	-1	0.145
TR98-MN1	250.0	254.0	0.29	-1	-1	0.63
TR98-MN1	254.0	256.0	0.14	-1	-1	0.435
TR98-MN1	256.0	258.0	0.06	-1	-1	0.175
TR98-MN1	258.0	260.0	0.06	-1	-1	0.09
TR98-MN1	262.0	264.0	0.1	-1	-1	1.095
TR98-SL18	0.0	3.0	0.09	-1	-1	0.01
TR98-SL18	3.0	5.0	0.02	-1	-1	0.01
TR98-SL18	5.0	8.0	0.01	-1	-1	0.015
TR98-SL18	8.0	10.0	0.1	-1	-1	0.13
TR98-SL18	10.0	12.0	0.1	-1	-1	0.125
TR98-SL18	12.0	14.0	0.07	-1	-1	0.09
TR98-SL18	14.0	16.0	0.15	-1	-1	0.14
TR98-SL18	16.0	18.0	0.07	-1	-1	0.1
TR98-SL18	18.0	20.0	0.04	-1	-1	0.055
TR98-SL18	20.0	22.0	1.75	-1	-1	2.14
TR98-SL18	22.0	24.0	0.41	-1	-1	0.465
TR98-SL18	24.0	26.0	0.09	-1	-1	0.04
TR98-SL18	26.0	28.0	0.03	-1	-1	0.03
TR98-SL18	28.0	30.0	0.08	-1	-1	0.025
TR98-SL18	30.0	32.0	0.25	-1	-1	0.245
TR98-SL18	32.0	34.0	0.13	-1	-1	0.135
TR98-SL18	34.0	36.0	0.05	-1	-1	0.07

Check Assay Listing

* includes exploration AND development drilling

"-1" = not analysed

Hole ID	From	To	Au (gpt)	VMC Dup Au (gpt)	VMC Blind Au (gpt)	Chemex Au (gpt)
TR98-SL18	36.0	38.0	0.06	-1	-1	0.05
TR98-SL18	38.0	40.0	0.05	-1	-1	0.03
TR98-SL18	40.0	42.0	0.07	-1	-1	0.02
TR98-SL18	42.0	44.0	0.04	-1	-1	0.035
TR98-SL18	44.0	46.0	0.10	-1	-1	0.11
TR98-SL18	46.0	48.0	0.05	-1	-1	0.075
TR98-SL18	48.0	50.0	0.04	-1	-1	0.04
TR98-SL19	0.0	3.0	0.04	-1	-1	0.045
TR98-SL19	3.0	6.0	0.08	-1	-1	0.03
TR98-SL19	6.0	9.0	0.02	-1	-1	0.025
TR98-SL19	9.0	12.0	0.06	-1	-1	0.075
TR98-SL19	12.0	15.0	0.03	-1	-1	0.055
TR98-SL19	15.0	18.0	0.12	-1	-1	0.13
TR98-SL19	18.0	21.0	0.03	-1	-1	0.05
TR98-SL19	21.0	24.0	0.17	-1	-1	0.21
TR98-SL19	24.0	27.0	0.01	-1	-1	0.035
TR98-SL19	27.0	30.0	0.04	-1	-1	0.04
TR98-SL19	30.0	33.0	0.08	-1	-1	0.09
TR98-SL19	33.0	36.0	0.47	-1	-1	0.52
TR98-SL19	36.0	39.0	3.05	-1	-1	4.21
TR98-SL19	39.0	42.0	0.10	-1	-1	0.125
TR98-SL19	42.0	45.0	0.05	-1	-1	0.07
TR98-SL19	45.0	48.0	1.13	-1	-1	0.96
TR98-SL19	48.0	51.0	0.03	-1	-1	0.045
TR98-SL19	51.0	54.0	0.03	-1	-1	0.03
TR98-SL19	54.0	57.0	0.06	-1	-1	0.07
TR98-SL19	57.0	60.0	0.19	-1	-1	0.165
TR98-SL19	60.0	63.0	0.06	-1	-1	0.08
TR98-SL19	63.0	66.0	0.03	-1	-1	0.04
TR98-SL19	66.0	69.0	0.04	-1	-1	0.02
TR98-SL19	69.0	72.0	0.07	-1	-1	0.06
TR98-SL19	72.0	75.0	0.01	-1	-1	0.02
TR98-SL19	75.0	78.0	0.01	-1	-1	0.01
TR98-SL19	78.0	81.0	0.02	-1	-1	0.015
TR98-SL19	81.0	84.0	0.03	-1	-1	0.015
TR98-SL19	84.0	87.0	0.02	-1	-1	0.01
TR98-SL19	87.0	90.0	0.04	-1	-1	0.01
TR98-SL19	90.0	93.0	0.02	-1	-1	0.015
TR98-SL19	93.0	96.0	0.07	-1	-1	0.045
TR98-SL19	96.0	99.0	0.07	-1	-1	0.085
TR98-SL19	99.0	102.0	0.77	-1	-1	0.81
TR98-SL19	102.0	105.0	0.11	-1	-1	0.1
TR98-SL19	105.0	108.0	0.05	-1	-1	0.04
TR98-SL19	108.0	111.0	0.02	-1	-1	0.025
TR98-SL19	111.0	114.0	0.14	-1	-1	0.145
TR98-SL19	114.0	115.0	0.04	-1	-1	0.04

APPENDIX 3c

SAMPLING PROCEDURE MEMOS

Memorandum

To: Willy Lynch

From: Rick Diment

Date: June 12, 1997

Re: Sampling Procedures, Sample Preparation and Assaying Techniques.
Brewery Creek and Yukon Regional Exploration

The following is a detailed account of all the various sampling procedures, sample preparation and assay techniques currently in use within the Yukon. Sample preparation and analytical procedures are divided into Brewery Creek, on property (Brewery Creek) and off property (Yukon Regional) sections. Since RC drilling is the primary source of assay data used in resource calculations at Brewery Creek a detailed report on RC sampling methodology is also included.

1.0 Sample Collection

1.1 Silt Sampling Stream silt sampling consists of obtaining the fine component of stream silt, usually from several locations within a five metre radius to improve representative sample quality. Notes on the creek size, flow rate, percent fines and sample colour is recorded.

1.2 Soil Sampling Soil sampling consists of "B-Horizon" samples taken below the A-2 leached layer, and below the layer of White River Ash (a recent volcanic event which laid down a thin veneer of volcanic ash over south central Yukon). If a "B-Horizon" sample is unavailable, "A-Horizon", and possibly "C-Horizon" samples are taken, and the respective horizon is recorded. It is felt that sampling these horizons is preferable to not sampling the station. Other soil characteristics which are noted include depth of sample, horizon development, slope angle and direction, organic content, vegetation and surficial and rock chip geology.

1.3 Rock Sampling In outcrop a continuous chip sample is taken consisting of continuous sampling along a straight line orthogonal to the trend or strike of geology, alteration or mineralized structures. Within rubblecrop, felsenmeer, and talus, a "composite grab" sample, consisting of several individual grab samples of similar material is taken, as a true chip sample in this case would be misrepresentative. Also, a composite sample increases the chances that any gold within a mineralized system will be detected, whereas a chip sample taken may "miss" the auriferous zones. Individual "grab" sampling is discouraged. Notes on sample type, width, geology and alteration are recorded for all rock samples.

1.4 Trench Sampling Systematic two metre continuous chip samples are taken along the bottom of a trench wall or outcrop face. Trenches are excavated at least 1.5 meters into bedrock to prevent any surface contamination. Panel or random chip samples are discouraged, as sampling bias is more likely to be introduced. If geology or structure is gently dipping or flat lying vertical, continuous chip samples are also taken in order to provide true mineralized widths as much as possible. A strip log documenting the geology, alteration, rock quality(RQD) and structural measurements is completed for each trench.

1.5RC Drilling See " Reverse Circulation Drill Sampling Methodology; Sample Collection"

1.6 Core Drilling Core is washed and marked out into two meter intervals or smaller (sample intervals are broken at lithological contacts and alteration zones). Sample intervals are marked with duplicate assay tags that are stapled to the core box. One tag is left on the box and the other is put into the sample bag during splitting. Core recovery and rock quality (RQD) is recorded. The core is logged and

photographed. The core is then split longitudinally in half using a diamond rock saw or kitchen knife . The half splits are placed in plastic sample bags with their corresponding assay tags. The other half split is left in the core box and stored in core racks behind the mine camp.

2.0 Sample Preparation

2.1 Off Property Work

All silt, soil and rock samples from off property work are prepared by Chemex Labs in Vancouver. Soil samples from Brewery Creek are also prepared by Chemex.

Silt and soil samples are dried and sieved through a -80(180 microns) mesh screen and the fine fraction retained for analysis.
Rock samples are dried and crushed. A 500 gram sample is subdivided from the main sample using a riffle splitter and pulverized to >90% less than 150 mesh (100 microns). The assay sample is taken directly from pulp.

Coarse rejects and pulps of priority rock and soil samples are sent to the mine site at the end of the calendar year.

2.2 Brewery Creek: On property work

Sample preparation for both trench, RC and core samples are conducted by the mine assay lab.

The mine assay lab follows the same protocol as the rock sample prep procedures used by Chemex. Coarse rejects and pulps are stored on pallets behind the mine camp and in the core logging building respectively. For more detail on sample prep procedures refer to "Reverse Circulation Drill Sampling Methodology; Sample Preparation."

3.0 Assay Procedures

3.1 Off property work

All sample analysis for off property work is conducted by Chemex Labs in Vancouver. Any drill, rock or soil samples from Brewery Creek requiring ICP analysis are also sent to Chemex Labs. Although check assays would be done on higher grade rock samples a routine check assay procedure has not been established for off property reconnaissance samples.

Silt, soil and rock samples are analyzed for Au and 31 other elements using an ICP scan.
Gold; All Au assays are by 30 gram fire assay with an atomic absorption finish. If insufficient sample is found in soil samples coarser material will be pulverized to make up the difference or a 10 gram fire assay will be substituted. Soil samples in permafrost will commonly give an insufficient sample after it is dried since most of the sample consists of ice.
ICP Analysis; A 32 element ICP (inductively coupled argon plasma) scan for all silt, soil and rock samples is also completed. The 32m ICP package is recommended on reconnaissance sampling due to the lower detection limit(10 ppb) it provides for Hg.

3.2 On property work

All trench, RC and core samples are analyzed for Au at the mine assay lab using the 30 gram fire assay atomic absorption finish technique. The rationale for using the in house lab is to take advantage of the cost savings and quicker assay turn around. Comprehensive and routine check assay procedures are conducted by the mine assay lab and the exploration departments.

REVERSE CIRCULATION DRILL SAMPLING METHODOLOGY

1.0 PURPOSE

The purpose of the following memo is to document the sample handling and quality assurance procedures being used at the Brewery Creek Mine for the 1997 reverse circulation drilling program. (Quality assurance is a set of procedures for ensuring that the results of chemical analyses are, and can be shown to be, accurately representative of field conditions. A complete quality assurance program includes both a field component and a laboratory component.)

The 1997 drilling program is being undertaken to confirm current resource estimates for the Golden and Lucky deposits (infill drilling) and to investigate the possibility of additional mineable deposits on the property (exploration drilling). The analytical results from the samples collected and the geological information obtained is used to develop ore resource models and mining plans.

2.0 SAMPLING METHODS AND QUALITY ASSURANCE

2.1 Sample Collection

Samples are collected over two metre intervals as drill progresses downhole. The reverse circulation drill bit, or hammer, chips away at the bedrock, producing rock chips which are forced up the drill tube at the bit face (center sampling) by pressure differentiation. The chips are fed into a cyclone attached to the drill rig, from which the chips drop into a splitter. Three tiered riffle splitters beneath the cyclone create a 50% split and a 12 ½% split of each sample. A rotary wet splitter is used when large volumes of water (>10 gal/min) are encountered.

The 50% split is collected by the drilling contractor in a poly woven 18"x 30" rice bag, marked with the RC hole number and the sample interval, and is left at the drill site for possible sample collection at a later date for additional testing (i.e. metallurgical, leachability, check assays).

The 12 ½ % split is collected by the drilling contractor in a 12"x 20" plastic bag, also marked with actual hole number and the sample interval.

A company representative, the Drill Technician, is present at the drill to monitor the collection of the samples and to record conditions that may effect the integrity of each sample (i.e. changes in drilling method, plugging of the splitter and/or the drill hammer, depth of rod changes, sloughing and/or constriction of the hole). Observations are recorded on a RC Drill Hole Information Form or "Quick Log", which is filed in the exploration office at the end of each 12 hour shift.

The Drill Technician inspects the cyclone and the splitter prior to the commencement of drilling a new hole, to ensure that they are clean. The Drill Technician and the drilling contractors both observe the sample splitter during drilling to ensure that splitter is clean and not plugging up, and that the sample collected is representative of the interval indicated on the sample bag. The material being sampled

generally flows freely through the sample splitter, since it is typically dry and sand to gravel sized. However, intervals of wet clay and silt sized material are also encountered in the drilling, which can plug up the sample splitter. A tiger torch is used to keep sticky material from freezing in the splitter and wooden sticks are used to dislodge clots. Drilling continues during the cleaning of the splitter, until the bottom of the two metre sample interval is reached. If the splitter is still clogged up, drilling is then paused until it is clear.

The 12 ½ % split sample is obtained from the drilling contractor by the Drill Technician, who checks to make sure that the hole number and sample interval are correctly marked on the bag. The bag is then securely tied, stored in the back of the company truck in sequence for delivery to the Brewery Creek assay laboratory.

During the drilling the Drill Technician records the intervals of rock types and extent of weathering (limonite alteration) encountered on the "Quick Log". This information is used by the geologist logging the chips to verify that sample provided is representative of the conditions encountered in the field.

2.2 Sample Shipment

The samples are delivered to the laboratory for analysis by the drill technicians, generally at the end of each 12 hour shift. Pallets in front of the assay laboratory are used to lay out the samples. Samples from each hole are placed on separate pallets, in numerical sequence. Flagging tape and a tyvek shipping tag labeled with EOH (End of Hole) are used to mark the sample collected from the last two metres drilled. As part of the chain of custody procedures the Drill Technician also provides the laboratory with a list of the hole numbers and their depths when the samples are delivered.

Samples are occasionally dropped off at the assay laboratory during shifts. This only occurs if the drill is shutdown for repairs or longer moves that will be of sufficient length in time for the Drill Technician to deliver the samples and return to the drill to inspect the cyclone and approve the drill position prior to commencing the next hole.

2.3 Sample Preparation

Before sample preparation commences the condition and seal of the sample bag is inspected, label information (sample numbering) is reconciled, the sample is logged onto the log/sheet, and a representative fraction of the sample is retrieved for geological logging purposes. A wet/dry form is filled out to record the condition of each sample.

A scoop/tube is used to collect a small unwashed portion of the sample, which is then put into an RC chip container by sample prep personnel at the assay laboratory. Another small portion of the sample is thoroughly washed through a 20 mesh screen and the coarse portion put into another RC chip container. Both chip containers are marked with the RC hole number, sample intervals and either unwashed or washed and delivered to the geologist logging the holes at the exploration building. The screen and the scoop are cleaned prior to retrieving the next sample with fresh rinse water.

Sample prep personnel dry, weigh, and crush the sample, using a jawcrusher, before splitting it two or three times, using a riffle splitter, to attain a sample of about 300-500 grams for pulverizing. All of the coarse reject is put back into the original plastic bag, along with a sample tag and securely

fastened. The coarse rejects are put in rice bags and once or twice a week, the rejects are delivered to the storage yard, 'pallet land', behind the exploration building. The progress of each RC drillhole is kept track of on the logsheet. The sample weights are recorded on the wet/dry form.

The 300-500 gram split is delivered to the assayers, who thoroughly dry it in the oven before pulverizing it. Once pulverized, the assay laboratory will fire assay 15-30 grams of the pulp for gold (Au). The pulp reject, from the 300-500 gram sample is stored at the assay lab for approximately one month before being transferred to the exploration building.

2.4 Field Quality Assurance

The field quality assurance measures that are implemented during the current reverse circulation drilling program include:

- chain of custody procedures;
- a sample labeling and sample location identification scheme;
- Drill Technician preparation of all sampling bags;
- company defined sample collection and shipping procedures; and,
- regular maintenance and cleaning of sample splitters and the cyclone.

3.0 SAMPLE ANALYSIS AND QUALITY ASSURANCE

3.1 Analytical Methods

Analysis for gold is conducted on a fraction of the pulverized RC drill sample using traditional fire assay (FA/AA) methodology, with 100% of all results in excess of 6 grams per tonne gold completely reassayed utilizing fire assay gravimetric finish to determine gold content in grams per tonne or parts per million.

Each fire assay fusion can hold 24 pulps. Of these 24, one of the samples is a replicate, one is a blank and another is a standard. The fused pulps are then sent to the AA (Atomic Absorption) for assay and reassayed gravimetrically and the fused gold is weighed, if required. The results are written out on the Final Assay Report Sheet.

Once the analysis is complete, the assays results are put into an Excel spreadsheet in a consistent format and copied to a disk for the geological personnel to enter in the exploration computer database. The geologists check the digital files received from the assay laboratory to ensure that no errors have occurred in transferring or inputting the data to the database.

Replicate analyses of samples that assayed over one gram per tonne are completed by a third party laboratory at the end of the drill program. The coarse rejects are to be shipped to Chemex in Vancouver, B.C.

3.2 Laboratory Quality Assurance

The laboratory quality assurance measures included:

- replicate analyses of selected samples;
- analysis of blanks;
- analysis of laboratory control standards;
- unscheduled analysis of duplicate samples, collected from the 50% split that is left at the drill site; and
- regular calibration and maintenance of analytical equipment.

A more detailed description of Laboratory Quality Assurance procedures is available from the Brewery Creek assay laboratory.

4.0 SAMPLE STORAGE AND QUALITY ASSURANCE

4.1 Numbering

Samples are put in large rice bags and a tyvek shipping tab is labeled with the number of the enclosed samples. A record of the sample's location is made on a map which is maintained by and stored in the exploration office.

4.2 Location

The coarse reject samples are stored behind the exploration building, in "pallet land". Pickets are used to mark the various pallets with their corresponding drillhole samples. Access to the area is restricted from the main camp by a gate and fence, and from the main access road by a chained access road. The pulverized samples are stored in the exploration building, which is kept locked when not in use.

Memorandum

To: Brewery Creek Exploration Personnel – Geological Assistants Cc: Rick Diment

From: Vivian Park

Re: Bottle Roll Test and External Check Assay Samples

Date: 11 September 1998

Bottle Roll Samples

The following intervals have been selected for bottle roll testing.

1	RC98-2150	36.0	40.0
2	RC98-2150	40.0	46.0
3	RC98-2186	112.0	118.0
4	RC98-2186	62.0	68.0
5	RC98-2185	38.0	44.0
6	RC98-2185	56.0	62.0
7	RC98-2185	70.0	74.0
8	RC98-2185	74.0	78.0
9	RC98-2148	32.0	38.0
10	RC98-2148	60.0	64.0
11	RC98-2147	20.0	28.0
12	RC98-2147	42.0	46.0
13	RC98-2145	42.0	46.0
14	RC98-2152	30.0	36.0

14 composites from 36 samples

Each interval is a composite created by combining the original two-meter samples. The samples will be pulled from the coarse reject storage containers.

Each two-meter sample within the composite interval must be riffle split to **equal portions** (preferably ≥ 500 grams = one full Kraft soil bag). The split samples are then combined to create the composite.

Submit the sample in a plastic bag that is clearly labeled (both sides) with Hole ID and From-To. A tag bearing the same information must be placed within the bag. Submit the samples to the laboratory.

External Check Assay Samples

The following samples will be submitted to Chemex for 30 gram fire assay (AAS finish).

RC98-2185 26.0 82.0 28 samples

Riffle split each sample to 500 grams. Place the sample in a Kraft soil bag clearly marked (both sides) with Hole ID and From-To. Insert a tag bearing the same information.

The samples must be securely packed in plastic pails. A Chemex transmittal form must be enclosed within the lead pail.

Memorandum

To: Sample Preparation Technicians
Cc: Bruce Mutch

From: V. Park

Re: 1998 Infill/Exploration Drilling – Blind Duplicate Analysis

Date: 18 October 1998

Phase 4 RC drilling will be commencing on Thursday 22 October 1998.

The drill site technician will be submitting one blind duplicate sample with each hole. This sample is to be prepared and fire assayed as all other samples. Please report the results on the appropriate assay certificate.

This blind duplicate program supercedes all others that have previously been implemented.

Memorandum

To: Drill Site Technicians Cc: J. Smith, S. Saxton, R. Diment

From: V. Park

Re: RC drill site technician procedures

Date: 10 May 1998

This memo is to be read in conjunction with the *Standard Procedure for Infill Reverse Circulation Drilling, Sampling and Assay Reporting* memo, dated 7 May 1998.

Drill Site Technician Duties

Start of shift

- Meet with your cross shift to discuss the previous shift and exchange information. You *must* communicate with your cross shift.
- Ensure you have all the tools you require for the shift. This includes plastic sample bags, cloth sample bags, felt markers, sample tags, quick log forms, drill hole plan, sieve, hammer, flagging tape, wash bucket, wash water etc.

End of Shift

- Deliver the RC samples to the sample preparation area; fill out the Chain of Custody Form posted there. See attached example.
- Fill the truck with gas; this is a courtesy to your cross shift.
- Drop off the completed RC Drill Hole Information Form at the exploration office; fill out the RC Drilling Progress Form and update the drill plan. See attached examples.
- Meet with your cross shift to discuss the shift and to exchange information.

During the Shift

- Be available for *all* set-ups. You are responsible for ensuring that the rig is positioned over the pin, that the inclination is set correctly, and that the drill is properly aligned. Visit the site before the drill arrives to ensure that the collar and foresight are correctly positioned. Correct any problems.
- Fill out the header information on the RC Drill Hole Information Form. See attached example. You will be provided with a print out of the collar information and a drill plan.
  Note: All orientations are with respect to the mine grid (0° mine=334° true).
  Fill out the Quick Log portion of the form. See attached example.
- You are responsible for inspecting the cyclone to insure its cleanliness prior to drilling a new hole. During drilling, you are required to ensure the cleanliness of the splitter. If you are not satisfied with the cleanliness of the equipment, halt drilling until you are. *It is of primary importance to eliminate the possibility of cross hole and cross sample contamination.*
- Label the plastic sample bags with the Hole ID and From-To (eg. RC98-2039 20-22). The first bag must also show the Pre-drill ID and the inclination (eg. RC98-2039 0-2 PG-1 –55). The last bag must be marked with a piece of flagging and the acronym EOH (eg. RC98-2039 70-72 EOH). Although the drillers' helpers change the sample bags, you are required to ensure that the samples are properly labeled. All errors must be corrected.
- Correct any problems with the splitter to ensure a representative sample. If a sample of insufficient size (<500g) is collected, take a representative portion from the 50% split.

- Ensure that the 50% sample splits, which are retained at the pad, are properly labeled and placed in order.
- Collect all samples for delivery to the lab. If a sample is missed or lost, you are responsible for retrieving it or replacing it with another collected from the 50% split. The samples must be treated with care, as a spilled or ripped sample ceases to be representative. Deliver these to the lab at the end of your shift, unless you have time between moves to do so. Do not keep the drill waiting for your return.

RC Drill Hole Information Form

All information must be legibly recorded. Much of the header information is available on the printouts you received.

Header Information

Hole ID	All holes are labeled sequentially in the order that they were drilled. The first hole this year is RC98-2039.
Pre-drill ID	Record the proposed hole ID. This is available from the collar marker and on the printouts that you have received.
Purpose	Record the purpose for drilling (eg. Infill, Exploration, Geotechnical, Metallurgical).
Drill Site Technician	Record your name. Do not use nicknames.
Length of hole	Record the final depth of the hole.
Zone	Record the zone.
Inclination	Record the inclination. Any variations *must* be recorded.
Section	Record the section ID. Any variations *must* be recorded.
Azimuth	Record the azimuth (mine grid)
Proposed Coordinates	Record the proposed coordinates.
Drilling Method	Record the intervals for each drilling method. Odex: Used for setting the casing. Center sampling: Typical drilling method. Conventional: Rarely used. Tri-cone: Used in very difficult ground.
Depth to water	Record the depth to water only if measured with a water well dipper. This is usually not possible in an inclined hole.
Drill pad	Record the depths of excavation or fill of the drill pad. This information is used to determine the source of the samples at the top of the hole.
Water Injection	Record the intervals where water was injected.
Drill Steel Lost	Record the length of the lost drill string, and describe the equipment lost. If the equipment is recovered later, this sheet must be updated.

Drilling Contractor	Record the contractor (eg. Midnight Sun Drilling).
Start Date	Record the date when drilling commenced.
End Date	Record the date when drilling finished.

Quick Log

Observe and record the following. The drillers and drillers' helpers will assist you with any questions you have regarding the drilling process. Attempt to learn as much about the drill and the drilling process, as it will help you in your duties at the drill site.

Lithology	Record the major lithological intervals, including overburden. Do not attempt to provide more detail than can be determined by detailed logging. If changes occur quickly (eg. 10 cm bands of ARG in LAQM) do not record the individual changes, but make a comment indicating that these changes occurred (eg. 14.6 – 17.2 LAQM <5 10-15 cm bands of ARGG, repeating every .5 – 1 m). If you can clearly see where the small lithological changes occur, be sure to include them.
Water	Record *all* occurrences where water is encountered. You may pass through perched water tables. Occasionally the water encountered while drilling is held back by the drilling process and is observed at rod changes only. Record the depth at which the final water table is encountered. Attempt to estimate the flow of water.
Lithological contamination	Watch for and record any contamination you can see that is caused by sloughing or dirty equipment. If a hole is very wet, you will find that the lithologies are mixed. Usually the less competent sediments slough into the intrusive intervals; this is usually not a cause for concern, but must be noted.
Chemical contamination	Record the depths at which chemical agents were introduced down the hole, as some of these may affect the quality of the assay, or may render the sample unsuitable for metallurgical testing. The introduction of methyl hydrate is common, but make a comment regarding the frequency and location of use.
Drilling difficulties	Record where drilling was difficult; state the reasons why.
Recovery	Record the intervals where recovery was poor; state the reasons why. Indicate the intervals where samples could not be collected.
Deviations from proposed depth	Explain the reasons why a hole was shortened or extended.
Surface spills	Record all surface spills of diesel, gas, lubricants, hydraulic fluid etc. The drilling contractor must file an Incident Report for all spills.
Accidents and Near misses	Record all accidents or potential accidents. The contractor is responsible for filling out his own incident reports.

APPENDIX 4

BREWERY CREEK ROCK CODE

Viceroy Exploration (Canada) Inc.
Brewery Creek Rock Code

Rock Types

Tombstone Suite

LAQM	Limonitic Altered Quartz Monzonite
AQM	Altered Quartz Monzonite
LQM	Limonitic Quartz Monzonite
QM	Quartz Monzonite
LASY	Limonitic Altered Syenite
ASY	Altered Syenite
LSY	Limonitic Syenite
SY	Syenite
LABM	Limonitic Altered Biotite Monzonite
ABM	Altered Biotite Monzonite
LBM	Limonitic Biotite Monzonite
BM	Biotite Monzonite

Where:
L: indicates pervasive limonitic staining
A: biotite is not fresh and black

Others*

OB	Overburden
CV	Colluvium
FT	Fault
QZ	Quartz Vein
SB	Massive Stibnite

*(indicate protolith)

Earn Group

TSS	Tuffaceous sandstone		
TSH	Tuffaceous shale		
CPC	Chert Pebble Conglomerate		
QW	Greywacke		
SS	Sandstone	SSG	Graphitic Sandstone
SH	Shale	SHG	Graphitic Shale
SLT	Siltstone	SLTG	Graphitic Siltstone
ARG	Argillite		
BAR	Barite		
LST	Limestone		
ARGG	Graphitic Argillite		

Road River Group

SST	Steel Formation Siltstone	LSST	Limonitic Steel Formation Siltstone
SSTC	Steel Formation Siltstone - cherty	SSTC	Steel Formation Siltstone - silicified
CH	Chert		
MTUFF	Menzie Creek Tuff		
SGW	Steel Formation Greywacke		
SLST	Steel Formation Limestone		

Rabbitkettle Formation

PHY	Calcareous Phyllite

Codes may be added or modified as necessary, but an explanation must be provided.

Modifiers

Modifier		Examples	
		LITH	Modifiers
=>	indicates protolith	OB	=>LAQM C1 Qe
		FT	=>SST C3
->	gradation	SH	->SLT
		AQM	->AQM
XX:YY	rock ratio	LAQM	80:20 AQM
	(use within similar rock types only)	SS	60:40 SH
+Lm	limonitic fractures	AQM	+Lm P0
Ft	fault or shear	LAQM	Ft
Bx	breccia	CH	Bx
Pf	permafrost	OB	=>LAQM C3 Qe Pf
S1-S4	quartz flooding	LAQM	C1 S3
C1-C3	modal carbonate	LAQM	C3 Qe
P0-P4	pyrite oxidation	LAQM	C1 S3 Sk 5P4
	assign *average* percentage and alteration for the interval - avoid ranges please		
Sk	quartz stockwork	LAQM	C1 S3 Sk
Ck	calcite veining	ARGG	C3 Ck
Qe	quartz eyes	LAQM	Qe
Py	pyrite	ARGG	Py P0 (no longer used - instead use %P* eg. 10P2)
As	arsenopyrite	SS	As
Sb	stibnite	LAQM	10P4 S3 Sk Sb
	attempt to quantify *significant* quantities of arsenopyrite and stibnite		

Alterations

Pyrite Oxidation (attempt to quantify in modifier string and descriptive log)

P0	fresh pyrite
P1	weak tarnish or rust
P2	moderate oxidation
P3	very oxidized; often pitted or corroded; usually retains good crystal shape
P4	completely altered to limonite; may be coated with manganese oxide

Carbonate

C0	no reaction to HCl
C1	weak reaction to HCl - may be audible but not visible
C2	very positive reaction to HCl - may take a few seconds
C3	instananeous and intense reactio to HCl - as to limestone

Silica (secondary)

S0	no secondary quartz
S1	weak silicification or stockwork
S2	moderate silicification or stockwork
S3	strong silicification or stockwork
S4	intense silicification or stockwork

APPENDIX 5a

BOTTLE ROLL TEST RESULTS –1997 COMPOSITES

TO: VIVIAN PARK
FROM: Michael Samuels
CC:
RE:

METALLURGICAL TEST SUMMARY

CONFIDENTIAL

EXPLORATION

1998 RC Drill Program - Reassay Report

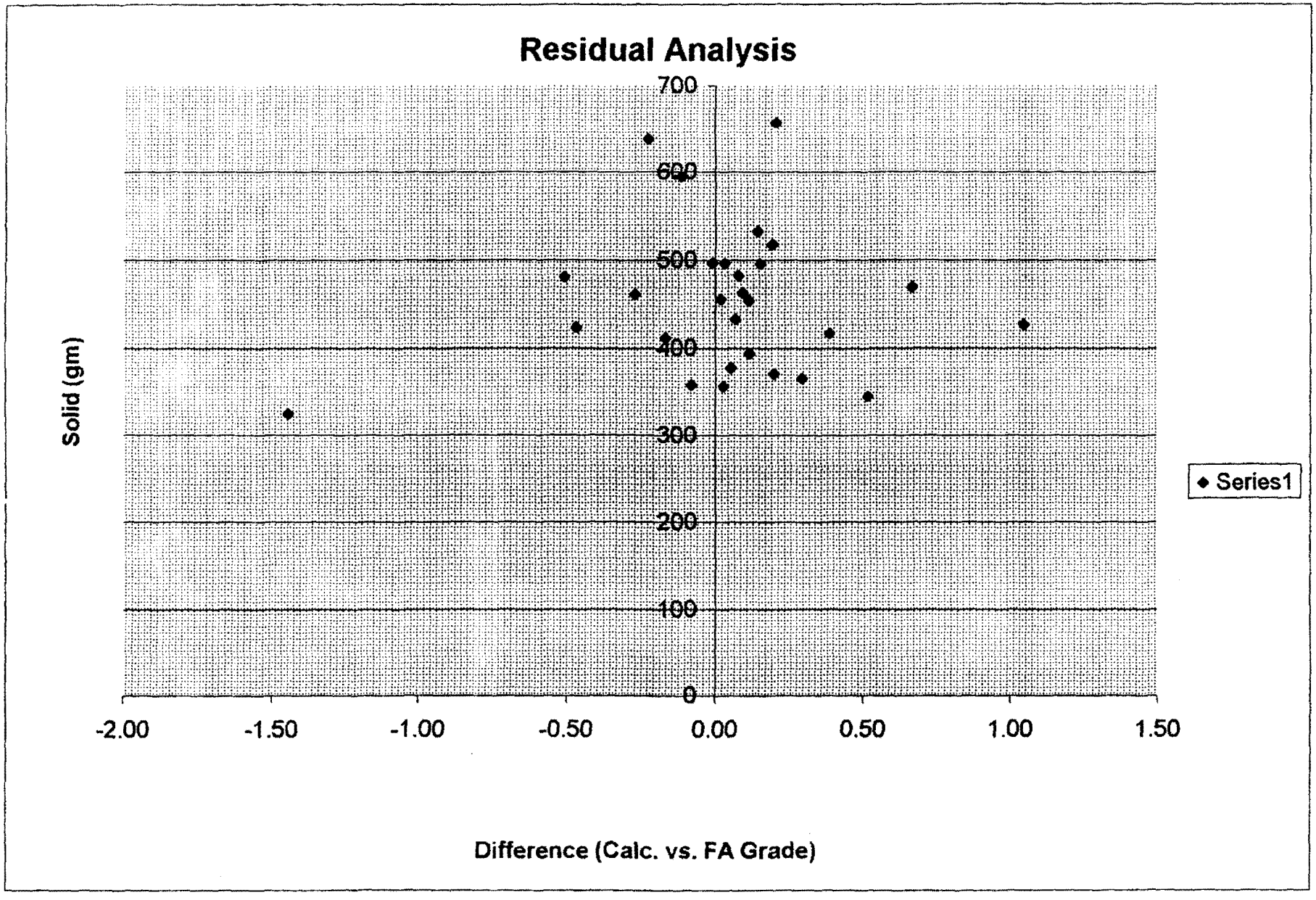
DATE: 16-Sep-98

MTD COUNT 28

DATE	HOLE	FROM	TO	Dupl.	FIRE ASSAY (g/tonne)	SOLUTION Au (g/tonne)	RESIDUE (g/tonne)	CALC. HEAD (g/tonne)	PERCENT RECOVERY (%)	Previous Report
13-Jul-98	1682	94	100		2.13	0.12	1.54	1.66	7.50	x
15-Jul-98	1769	10	14		1.22	0.72	0.57	1.29	55.85	x
13-Jul-98	1770	20	30		1.77	1.27	0.42	1.69	75.18	x
6-Jul-98	1770	42	46		1.39	0.14	1.45	1.59	8.79	x
13-Jul-98	1771	24	26		1.61	0.39	0.72	1.11	34.87	x
8-Jul-98	1771	50	56		3.04	0.08	3.48	3.56	2.23	*
13-Jul-98	1772	30	36		2.43	0.14	2.48	2.62	5.49	x
6-Jul-98	1773	26	30		1.66	0.13	1.74	1.87	6.78	x
15-Jul-98	1773	50	56		0.91	0.07	0.73	0.80	8.73	x
10-Jul-98	1911	6	12		1.73	1.12	1.28	2.40	46.65	*
9-Jul-98	1917	22	28		0.91	0.66	0.27	0.93	71.00	x
13-Jul-98	1963	20	24		1.30	0.25	1.11	1.36	18.10	x
13-Jul-98	1968	4	10		0.94	0.96	0.27	1.23	78.12	*
15-Jul-98	1971	10	16		2.04	1.62	0.58	2.20	73.59	x
13-Jul-98	1972	24	30		1.43	1.11	0.42	1.53	72.47	x
9-Jul-98	1998	16	22		0.48	0.46	0.10	0.56	82.20	x
13-Jul-98	1998	54	60		0.45	0.40	0.19	0.59	68.00	x
13-Jul-98	1998	62	66		1.05	0.51	0.38	0.89	57.10	x
10-Jul-98	1998	94	102		1.31	0.78	0.31	1.09	71.51	x
13-Jul-98	1998	152	156		0.64	0.42	0.25	0.67	62.94	x
8-Jul-98	1999	16	24		1.27	0.92	0.08	1.00	92.03	x
9-Jul-98	1999	40	44		1.21	0.94	0.26	1.20	78.36	x
15-Jul-98	1999	72	76		0.50	0.36	0.15	0.53	71.70	x
10-Jul-98	1999	76	82		3.69	2.13	0.12	2.25	94.67	*
13-Jul-98	2001	60	68		0.46	0.49	0.09	0.58	84.46	x
10-Jul-98	2001	78	84		0.33	0.34	1.04	1.38	24.47	*
10-Jul-98	2001	108	112		0.38	0.30	0.20	0.50	59.73	x
8-Jul-98	2002	68	72		0.78	0.68	0.49	1.17	58.10	x
20-Aug-98	2001	78	80			0.28	0.33	0.61	45.80	
20-Aug-98	2001	80	82			0.42	0.27	0.69	60.78	
20-Aug-98	2001	82	84			0.28	0.08	0.36	77.66	

DIFF	solid	solution	solution/ solid
-0.47	423	847	2.00
0.07	433	866	2.00
-0.08	358	743	2.08
0.20	371	742	2.00
-0.50	481	1084	2.25
0.52	345	690	2.00
0.19	518	1032	1.99
0.21	657	1190	1.81
-0.11	595	1043	1.75
0.67	469	938	2.00
0.02	456	912	2.00
0.06	378	756	2.00
0.29	366	732	2.00
0.16	496	955	1.93
0.10	463	927	2.00
0.08	483	966	2.00
0.14	533	1067	2.00
-0.16	412	825	2.00
-0.22	638	1276	2.00
0.03	497	995	2.00
-0.27	461	924	2.00
-0.01	497	995	2.00
0.03	357	714	2.00
-1.44	324	648	2.00
0.12	394	796	2.02
1.05	427	854	2.00
0.12	454	908	2.00
0.39	417	835	2.00

M. Samuels


Residual Analysis
Solid (gm)
700
600
500
400
300
200
100
0
-2.00
-1.50
-1.00
-0.50
0.00
0.50
1.00
1.50
Difference (Calc. vs. FA Grade)
Series1

METALLURGICAL TEST SUMMARY

CONFIDENTIAL

EXPLORATION

1998 RC Drill Program - Assay Report

DATE: 22-Oct-98

COUNT 15

DATE	HOLE	FROM	TO	Dupl.	FIRE ASSAY (g/tonne)	SOLUTION Au (g/tonne)	RESIDUE (g/tonne)	CALC. HEAD (g/tonne)	PERCENT RECOVERY (%)	48 HR (%)	24 HR (%)
14-Oct-98	2145	42	46		0.73	0.74	0.09	0.83	89.18	98.57	100.94
14-Oct-98	2147	20	28		3.43	3.12	0.43	3.55	87.90	69.77	66.43
14-Oct-98	2147	42	45		0.87	1.35	0.05	1.40	96.44	82.52	67.02
14-Oct-98	2148	32	38		1.16	1.25	0.03	1.28	97.66	89.44	82.51
14-Oct-98	2148	60	64		0.94	0.58	0.26	0.84	69.18	64.78	31.43
14-Oct-98	2150	36	40		4.16	3.97	0.14	4.11	96.59	85.37	82.32
14-Oct-98	2150	40	46		0.77	0.60	0.06	0.66	90.85	88.06	76.80
14-Oct-98	2152	30	36		0.98	0.88	0.24	1.12	78.63	71.63	61.00
14-Oct-98	2185	38	44		10.51	8.22	3.67	11.89	69.13	63.35	58.62
14-Oct-98	2185	38	44	X	10.51	8.27	3.41	11.68	70.79	66.41	64.28
15-Oct-98	2186	62	68		0.60	0.31	0.41	0.72	42.96	24.39	27.07
15-Oct-98	2186	112	118		0.72	0.16	0.68	0.84	18.95	14.30	14.30
15-Oct-98	2185	56	62		3.61	3.26	0.82	4.08	79.88	80.84	70.17
15-Oct-98	2185	70	74		0.92	0.74	0.09	0.83	89.20	86.84	72.49
15-Oct-98	2185	74	78		3.49	1.98	0.81	2.79	70.92	73.70	58.87

M. Hannah

APPENDIX 5b

BOTTLE ROLL TEST RESULTS – 1998

Bottle Roll Test Results - 1998 Drilling

* *tests conducted at VMC on-site metallurgical laboratory*

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2039	20.0	22.0	73.66	GOLDEN
RC98-2039	36.0	38.0	13.33	GOLDEN
RC98-2039	38.0	40.0	14.36	GOLDEN
RC98-2039	40.0	42.0	23.29	GOLDEN
RC98-2039	44.0	46.0	15.36	GOLDEN
RC98-2072	2.0	4.0	83.60	MOOSEHEAD
RC98-2072	6.0	8.0	86.84	MOOSEHEAD
RC98-2072	14.0	16.0	18.16	MOOSEHEAD
RC98-2072	18.0	20.0	38.57	MOOSEHEAD
RC98-2118	12.0	14.0	78.05	E BIG ROCK
RC98-2119	6.0	8.0	89.65	E BIG ROCK
RC98-2121	4.0	6.0	68.77	E BIG ROCK
RC98-2121	6.0	8.0	70.03	E BIG ROCK
RC98-2124	12.0	14.0	91.11	PACIFIC
RC98-2124	14.0	16.0	87.24	PACIFIC
RC98-2125	62.0	64.0	15.51	LUCKY
RC98-2125	64.0	66.0	5.66	LUCKY
RC98-2125	66.0	68.0	5.48	LUCKY
RC98-2125	74.0	76.0	13.31	LUCKY
RC98-2125	76.0	78.0	72.45	LUCKY
RC98-2125	78.0	80.0	5.00	LUCKY
RC98-2126	2.0	4.0	85.98	LUCKY
RC98-2126	4.0	6.0	93.93	LUCKY
RC98-2126	8.0	10.0	82.78	LUCKY
RC98-2126	22.0	24.0	68.55	LUCKY
RC98-2143	54.0	56.0	9.01	BOHEMIAN
RC98-2145	14.0	16.0	72.63	BOHEMIAN
RC98-2145	16.0	18.0	93.39	BOHEMIAN
RC98-2145	22.0	24.0	94.49	BOHEMIAN
RC98-2145	32.0	34.0	89.78	BOHEMIAN
RC98-2145	42.0	44.0	89.71	BOHEMIAN
RC98-2146	4.0	6.0	79.62	BOHEMIAN
RC98-2146	6.0	8.0	87.03	BOHEMIAN
RC98-2146	8.0	10.0	90.22	BOHEMIAN
RC98-2146	10.0	12.0	94.92	BOHEMIAN
RC98-2146	14.0	16.0	92.41	BOHEMIAN
RC98-2146	22.0	24.0	91.90	BOHEMIAN
RC98-2146	24.0	26.0	82.44	BOHEMIAN
RC98-2146	30.0	32.0	34.23	BOHEMIAN
RC98-2146	40.0	42.0	79.98	BOHEMIAN
RC98-2147	2.0	4.0	75.39	BOHEMIAN
RC98-2147	4.0	6.0	82.67	BOHEMIAN
RC98-2147	14.0	16.0	94.72	BOHEMIAN
RC98-2147	16.0	18.0	94.62	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

• tests conducted at VMC on-site metallurgical laboratory

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2147	18.0	20.0	88.13	BOHEMIAN
RC98-2147	20.0	22.0	80.93	BOHEMIAN
RC98-2147	22.0	24.0	84.21	BOHEMIAN
RC98-2147	24.0	26.0	89.39	BOHEMIAN
RC98-2147	26.0	28.0	91.63	BOHEMIAN
RC98-2147	40.0	42.0	51.23	BOHEMIAN
RC98-2147	42.0	44.0	87.72	BOHEMIAN
RC98-2148	6.0	8.0	96.87	BOHEMIAN
RC98-2148	8.0	10.0	93.85	BOHEMIAN
RC98-2148	10.0	12.0	92.44	BOHEMIAN
RC98-2148	12.0	14.0	87.86	BOHEMIAN
RC98-2148	14.0	16.0	93.54	BOHEMIAN
RC98-2148	16.0	18.0	94.91	BOHEMIAN
RC98-2148	24.0	26.0	84.96	BOHEMIAN
RC98-2148	26.0	28.0	91.02	BOHEMIAN
RC98-2148	30.0	32.0	95.79	BOHEMIAN
RC98-2148	32.0	34.0	53.42	BOHEMIAN
RC98-2148	34.0	36.0	96.47	BOHEMIAN
RC98-2148	36.0	38.0	91.41	BOHEMIAN
RC98-2148	42.0	44.0	86.33	BOHEMIAN
RC98-2148	44.0	46.0	79.93	BOHEMIAN
RC98-2148	60.0	62.0	92.69	BOHEMIAN
RC98-2148	62.0	64.0	75.36	BOHEMIAN
RC98-2150	26.0	28.0	94.76	BOHEMIAN
RC98-2150	32.0	34.0	84.57	BOHEMIAN
RC98-2150	34.0	36.0	95.54	BOHEMIAN
RC98-2150	36.0	38.0	95.79	BOHEMIAN
RC98-2150	38.0	40.0	96.35	BOHEMIAN
RC98-2150	40.0	42.0	91.15	BOHEMIAN
RC98-2150	42.0	44.0	93.35	BOHEMIAN
RC98-2151	42.0	44.0	85.33	BOHEMIAN
RC98-2152	0.0	2.0	74.61	BOHEMIAN
RC98-2152	16.0	18.0	79.91	BOHEMIAN
RC98-2152	18.0	20.0	94.63	BOHEMIAN
RC98-2152	20.0	22.0	93.26	BOHEMIAN
RC98-2152	26.0	28.0	93.31	BOHEMIAN
RC98-2152	30.0	32.0	91.96	BOHEMIAN
RC98-2152	34.0	36.0	73.10	BOHEMIAN
RC98-2185	16.0	18.0	61.85	BOHEMIAN
RC98-2185	32.0	34.0	93.20	BOHEMIAN
RC98-2185	34.0	36.0	73.32	BOHEMIAN
RC98-2185	36.0	38.0	29.88	BOHEMIAN
RC98-2185	38.0	40.0	39.05	BOHEMIAN
RC98-2185	40.0	42.0	88.58	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

** tests conducted at VMC on-site metallurgical laboratory*

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2185	42.0	44.0	88.44	BOHEMIAN
RC98-2185	44.0	46.0	83.31	BOHEMIAN
RC98-2185	46.0	48.0	70.52	BOHEMIAN
RC98-2185	48.0	50.0	88.26	BOHEMIAN
RC98-2185	50.0	52.0	77.76	BOHEMIAN
RC98-2185	52.0	54.0	91.37	BOHEMIAN
RC98-2185	54.0	56.0	57.43	BOHEMIAN
RC98-2185	56.0	58.0	85.97	BOHEMIAN
RC98-2185	58.0	60.0	95.12	BOHEMIAN
RC98-2185	60.0	62.0	89.71	BOHEMIAN
RC98-2185	62.0	64.0	72.10	BOHEMIAN
RC98-2185	64.0	66.0	90.46	BOHEMIAN
RC98-2185	66.0	68.0	85.97	BOHEMIAN
RC98-2185	70.0	72.0	94.17	BOHEMIAN
RC98-2185	72.0	74.0	90.09	BOHEMIAN
RC98-2185	74.0	76.0	87.71	BOHEMIAN
RC98-2192	4.0	6.0	39.06	BOHEMIAN
RC98-2192	20.0	22.0	66.24	BOHEMIAN
RC98-2192	22.0	24.0	63.93	BOHEMIAN
RC98-2192	34.0	36.0	73.07	BOHEMIAN
RC98-2192	36.0	38.0	65.32	BOHEMIAN
RC98-2192	40.0	42.0	79.72	BOHEMIAN
RC98-2197	62.0	64.0	20.03	BOHEMIAN
RC98-2197	78.0	80.0	18.53	BOHEMIAN
RC98-2204	24.0	26.0	70.09	BOHEMIAN
RC98-2204	28.0	30.0	92.95	BOHEMIAN
RC98-2204	32.0	34.0	94.04	BOHEMIAN
RC98-2204	38.0	40.0	46.98	BOHEMIAN
RC98-2205	16.0	18.0	36.36	BOHEMIAN
RC98-2205	18.0	20.0	50.11	BOHEMIAN
RC98-2205	20.0	22.0	58.16	BOHEMIAN
RC98-2205	22.0	24.0	62.27	BOHEMIAN
RC98-2205	24.0	26.0	27.99	BOHEMIAN
RC98-2206	2.0	4.0	83.10	BOHEMIAN
RC98-2206	4.0	6.0	70.29	BOHEMIAN
RC98-2206	12.0	14.0	77.20	BOHEMIAN
RC98-2206	14.0	16.0	82.97	BOHEMIAN
RC98-2206	24.0	26.0	21.76	BOHEMIAN
RC98-2206	26.0	28.0	72.49	BOHEMIAN
RC98-2208	4.0	6.0	90.77	BOHEMIAN
RC98-2208	6.0	8.0	96.80	BOHEMIAN
RC98-2209	6.0	8.0	92.81	BOHEMIAN
RC98-2209	58.0	60.0	69.61	BOHEMIAN
RC98-2209	60.0	62.0	14.48	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

• tests conducted at VMC on-site metallurgical laboratory

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2209	62.0	64.0	25.44	BOHEMIAN
RC98-2210	18.0	20.0	75.56	BOHEMIAN
RC98-2213	72.0	74.0	19.24	BOHEMIAN
RC98-2213	74.0	76.0	6.98	BOHEMIAN
RC98-2214	26.0	28.0	5.99	BOHEMIAN
RC98-2214	28.0	30.0	8.38	BOHEMIAN
RC98-2214	32.0	34.0	41.05	BOHEMIAN
RC98-2214	34.0	36.0	19.68	BOHEMIAN
RC98-2214	64.0	66.0	40.57	BOHEMIAN
RC98-2215	46.0	48.0	33.97	BOHEMIAN
RC98-2215	60.0	62.0	15.34	BOHEMIAN
RC98-2215	62.0	64.0	17.44	BOHEMIAN
RC98-2215	64.0	66.0	22.47	BOHEMIAN
RC98-2215	66.0	68.0	8.27	BOHEMIAN
RC98-2215	68.0	70.0	7.83	BOHEMIAN
RC98-2215	70.0	72.0	25.24	BOHEMIAN
RC98-2215	72.0	74.0	11.31	BOHEMIAN
RC98-2215	74.0	76.0	3.62	BOHEMIAN
RC98-2215	76.0	78.0	8.68	BOHEMIAN
RC98-2215	78.0	80.0	35.06	BOHEMIAN
RC98-2215	80.0	82.0	13.63	BOHEMIAN
RC98-2215	82.0	84.0	14.74	BOHEMIAN
RC98-2215	86.0	88.0	41.00	BOHEMIAN
RC98-2216	28.0	30.0	30.08	BOHEMIAN
RC98-2216	84.0	86.0	38.08	BOHEMIAN
RC98-2217	68.0	70.0	74.57	BOHEMIAN
RC98-2217	70.0	72.0	85.61	BOHEMIAN
RC98-2217	74.0	76.0	86.32	BOHEMIAN
RC98-2217	84.0	86.0	63.71	BOHEMIAN
RC98-2218	44.0	46.0	54.66	BOHEMIAN
RC98-2218	60.0	62.0	41.77	BOHEMIAN
RC98-2218	62.0	64.0	20.47	BOHEMIAN
RC98-2219	48.0	50.0	94.02	BOHEMIAN
RC98-2219	50.0	52.0	92.19	BOHEMIAN
RC98-2219	52.0	54.0	93.17	BOHEMIAN
RC98-2220	14.0	16.0	70.17	BOHEMIAN
RC98-2220	34.0	36.0	83.57	BOHEMIAN
RC98-2220	56.0	58.0	90.83	BOHEMIAN
RC98-2221	14.0	16.0	93.49	BOHEMIAN
RC98-2221	34.0	36.0	94.05	BOHEMIAN
RC98-2221	36.0	38.0	90.79	BOHEMIAN
RC98-2221	38.0	40.0	92.38	BOHEMIAN
RC98-2221	42.0	44.0	90.26	BOHEMIAN
RC98-2221	44.0	46.0	91.92	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

* *tests conducted at VMC on-site metallurgical laboratory*

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2221	46.0	48.0	95.45	BOHEMIAN
RC98-2221	48.0	50.0	69.04	BOHEMIAN
RC98-2221	52.0	54.0	89.01	BOHEMIAN
RC98-2221	54.0	56.0	81.35	BOHEMIAN
RC98-2221	56.0	58.0	82.81	BOHEMIAN
RC98-2222	8.0	10.0	92.40	BOHEMIAN
RC98-2222	28.0	30.0	93.30	BOHEMIAN
RC98-2222	30.0	32.0	94.63	BOHEMIAN
RC98-2222	36.0	38.0	93.00	BOHEMIAN
RC98-2222	42.0	44.0	95.35	BOHEMIAN
RC98-2222	44.0	46.0	90.81	BOHEMIAN
RC98-2222	46.0	48.0	92.37	BOHEMIAN
RC98-2223	6.0	8.0	95.27	BOHEMIAN
RC98-2223	30.0	32.0	92.13	BOHEMIAN
RC98-2223	34.0	36.0	96.20	BOHEMIAN
RC98-2223	48.0	50.0	56.35	BOHEMIAN
RC98-2223	50.0	52.0	49.86	BOHEMIAN
RC98-2223	52.0	54.0	39.47	BOHEMIAN
RC98-2223	54.0	56.0	60.68	BOHEMIAN
RC98-2223	70.0	72.0	48.17	BOHEMIAN
RC98-2225	4.0	6.0	86.47	BOHEMIAN
RC98-2225	10.0	12.0	91.74	BOHEMIAN
RC98-2225	14.0	16.0	96.85	BOHEMIAN
RC98-2225	16.0	18.0	89.31	BOHEMIAN
RC98-2225	20.0	22.0	84.25	BOHEMIAN
RC98-2225	22.0	24.0	76.40	BOHEMIAN
RC98-2225	24.0	26.0	69.46	BOHEMIAN
RC98-2225	26.0	28.0	92.51	BOHEMIAN
RC98-2225	32.0	34.0	93.75	BOHEMIAN
RC98-2225	40.0	42.0	89.84	BOHEMIAN
RC98-2225	48.0	50.0	94.32	BOHEMIAN
RC98-2225	50.0	52.0	89.73	BOHEMIAN
RC98-2225	52.0	54.0	65.06	BOHEMIAN
RC98-2225	60.0	62.0	8.55	BOHEMIAN
RC98-2226	8.0	10.0	96.72	BOHEMIAN
RC98-2226	24.0	26.0	90.95	BOHEMIAN
RC98-2226	28.0	30.0	88.12	BOHEMIAN
RC98-2226	30.0	32.0	95.00	BOHEMIAN
RC98-2226	32.0	34.0	92.35	BOHEMIAN
RC98-2226	36.0	38.0	89.19	BOHEMIAN
RC98-2226	38.0	40.0	86.97	BOHEMIAN
RC98-2226	42.0	44.0	68.38	BOHEMIAN
RC98-2226	46.0	48.0	65.98	BOHEMIAN
RC98-2226	50.0	52.0	86.98	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

• tests conducted at VMC on-site metallurgical laboratory

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2227	12.0	14.0	73.23	BOHEMIAN
RC98-2227	14.0	16.0	81.31	BOHEMIAN
RC98-2227	16.0	18.0	83.78	BOHEMIAN
RC98-2227	18.0	20.0	89.80	BOHEMIAN
RC98-2227	20.0	22.0	91.19	BOHEMIAN
RC98-2227	22.0	24.0	95.58	BOHEMIAN
RC98-2227	24.0	26.0	45.44	BOHEMIAN
RC98-2227	26.0	28.0	66.65	BOHEMIAN
RC98-2227	28.0	30.0	69.99	BOHEMIAN
RC98-2227	30.0	32.0	60.42	BOHEMIAN
RC98-2227	32.0	34.0	67.40	BOHEMIAN
RC98-2227	34.0	36.0	75.85	BOHEMIAN
RC98-2227	36.0	38.0	75.13	BOHEMIAN
RC98-2228	56.0	58.0	68.90	BOHEMIAN
RC98-2228	60.0	62.0	17.87	BOHEMIAN
RC98-2228	62.0	64.0	50.70	BOHEMIAN
RC98-2228	66.0	68.0	19.73	BOHEMIAN
RC98-2229	28.0	30.0	91.23	BOHEMIAN
RC98-2229	32.0	34.0	79.61	BOHEMIAN
RC98-2229	34.0	36.0	81.36	BOHEMIAN
RC98-2229	36.0	38.0	61.91	BOHEMIAN
RC98-2229	38.0	40.0	41.46	BOHEMIAN
RC98-2229	40.0	42.0	55.97	BOHEMIAN
RC98-2229	42.0	44.0	45.95	BOHEMIAN
RC98-2230	28.0	30.0	91.36	BOHEMIAN
RC98-2230	30.0	32.0	88.35	BOHEMIAN
RC98-2230	32.0	34.0	86.84	BOHEMIAN
RC98-2230	34.0	36.0	90.15	BOHEMIAN
RC98-2230	36.0	38.0	87.07	BOHEMIAN
RC98-2230	38.0	40.0	63.66	BOHEMIAN
RC98-2230	40.0	42.0	54.10	BOHEMIAN
RC98-2230	42.0	44.0	62.58	BOHEMIAN
RC98-2231	6.0	8.0	88.22	BOHEMIAN
RC98-2231	8.0	10.0	88.65	BOHEMIAN
RC98-2231	22.0	24.0	74.75	BOHEMIAN
RC98-2232	22.0	24.0	86.10	BOHEMIAN
RC98-2232	40.0	42.0	65.31	BOHEMIAN
RC98-2232	42.0	44.0	83.19	BOHEMIAN
RC98-2232	44.0	46.0	80.76	BOHEMIAN
RC98-2232	46.0	48.0	83.92	BOHEMIAN
RC98-2232	48.0	50.0	92.50	BOHEMIAN
RC98-2234	42.0	44.0	51.24	BOHEMIAN
RC98-2234	52.0	54.0	68.09	BOHEMIAN
RC98-2234	74.0	76.0	81.27	BOHEMIAN

Bottle Roll Test Results - 1998 Drilling

• tests conducted at VMC on-site metallurgical laboratory

Hole ID	*From*	*To*	*Recovery (%)*	*Zone*
RC98-2235	36.0	38.0	10.04	BOHEMIAN
RC98-2236	6.0	8.0	82.79	BOHEMIAN
RC98-2236	8.0	10.0	91.89	BOHEMIAN
RC98-2236	10.0	12.0	92.81	BOHEMIAN
RC98-2236	12.0	14.0	91.90	BOHEMIAN
RC98-2236	18.0	20.0	45.04	BOHEMIAN
RC98-2236	44.0	46.0	79.98	BOHEMIAN
RC98-2236	46.0	48.0	81.06	BOHEMIAN
RC98-2237	28.0	30.0	5.61	BOHEMIAN
RC98-2237	30.0	32.0	9.82	BOHEMIAN
RC98-2238	12.0	14.0	86.03	BOHEMIAN
RC98-2240	4.0	6.0	89.99	BOHEMIAN
RC98-2240	6.0	8.0	96.55	BOHEMIAN
RC98-2240	8.0	10.0	89.43	BOHEMIAN
RC98-2240	36.0	38.0	94.49	BOHEMIAN
RC98-2240	42.0	44.0	94.46	BOHEMIAN
RC98-2240	52.0	54.0	66.81	BOHEMIAN
RC98-2240	62.0	64.0	75.67	BOHEMIAN
RC98-2243	18.0	20.0	89.24	BOHEMIAN
RC98-2243	20.0	22.0	86.86	BOHEMIAN
RC98-2243	22.0	24.0	90.12	BOHEMIAN
RC98-2243	24.0	26.0	94.25	BOHEMIAN
RC98-2243	26.0	28.0	81.12	BOHEMIAN
RC98-2245	34.0	36.0	1.75	BOHEMIAN
RC98-2245	36.0	38.0	2.24	BOHEMIAN
RC98-2245	38.0	40.0	3.00	BOHEMIAN
RC98-2245	40.0	42.0	1.54	BOHEMIAN
RC98-2245	42.0	44.0	2.22	BOHEMIAN
RC98-2245	44.0	46.0	3.05	BOHEMIAN
RC98-2245	46.0	48.0	17.14	BOHEMIAN
RC98-2246	30.0	32.0	25.79	BOHEMIAN
RC98-2246	34.0	36.0	12.80	BOHEMIAN
RC98-2246	44.0	46.0	53.72	BOHEMIAN
RC98-2246	48.0	50.0	14.58	BOHEMIAN
RC98-2246	50.0	52.0	7.13	BOHEMIAN
RC98-2246	52.0	54.0	11.12	BOHEMIAN
RC98-2246	54.0	56.0	9.82	BOHEMIAN
RC98-2246	56.0	58.0	12.30	BOHEMIAN
RC98-2247	50.0	52.0	7.33	BOHEMIAN
RC98-2247	52.0	54.0	10.46	BOHEMIAN

APPENDIX 6

1998 ICP RESULTS

AP
19% IS

1998 ICP Results

Hole ID	From	To	VMC	Au Chemex	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn	Cert. #
RC98-2075	18.0	20.0	0.32	0.51	0.4	0.35	4170	170	0.25	6	1.21	4	15	19	34	4.67	5	1	0.11	20	0.55	970	4	0.005	21	260	34	26	16	244	0.005	5	5	37	5	336	A9829302
RC98-2075	20.0	22.0	0.21	0.45	0.2	0.39	4040	130	0.5	1	2.7	1.5	17	20	27	4.74	5	0.5	0.11	20	1.17	1120	1	0.005	22	370	34	24	16	449	0.005	5	5	32	5	218	A9829302
RC98-2075	22.0	24.0	0.29	0.5	0.6	0.36	1760	130	0.5	1	1.44	2.5	13	17	39	4.61	5	2	0.1	30	0.69	575	3	0.005	18	250	38	26	12	311	0.005	5	5	30	5	222	A9829302
RC98-2075	24.0	26.0	0.57	0.915	1.2	0.28	4820	70	0.25	2	0.14	1.5	14	6	29	4.08	5	1	0.08	30	0.08	150	3	0.005	11	150	42	18	3	34	0.005	5	5	17	5	142	A9829302
RC98-2075	26.0	28.0	0.55	1.045	1	0.29	7440	120	0.25	1	0.09	1.5	14	6	22	3.35	5	1	0.09	30	0.09	170	2	0.005	9	170	68	28	5	34	0.005	5	5	19	5	224	A9829302
RC98-2075	28.0	30.0	0.32	0.49	0.2	0.29	4050	150	0.25	1	0.08	1.5	13	5	19	2.7	5	1	0.1	30	0.08	160	4	0.005	9	120	38	20	3	28	0.005	5	5	17	5	260	A9829302
RC98-2075	30.0	32.0	0.72	1.075	0.8	0.27	6000	110	0.25	1	0.07	4	15	5	17	3.85	5	1	0.08	30	0.04	55	2	0.005	11	200	54	30	4	40	0.005	5	5	13	5	304	A9829302
RC98-2075	32.0	34.0	0.31	0.62	0.8	0.43	4620	200	0.25	1	0.11	1	14	10	10	3.96	5	1	0.12	30	0.24	520	2	0.005	14	290	154	22	8	55	0.005	5	5	35	5	212	A9829302
RC98-2075	34.0	36.0	0.3	0.465	0.2	0.45	3340	220	0.25	1	0.08	2	15	10	18	2.39	5	1	0.11	20	0.09	150	3	0.005	14	310	62	28	4	58	0.005	5	5	29	5	148	A9829302
RC98-2075	36.0	38.0	0.43	0.695	1	0.47	5680	6	0.25	2	0.3	3	21	15	32	4.59	5	2	0.12	20	0.13	130	5	0.005	24	350	68	116	5	82	0.005	5	5	29	5	280	A9829302
RC98-2118	10.0	12.0	0.18	0.245	0.8	0.29	140	640	0.25	1	0.19	1.5	5	12	22	1.95	5	10	0.15	10	0.05	190	7	0.005	21	420	48	1	5	77	0.005	5	5	84	5	102	A9829302
RC98-2118	12.0	14.0	0.91	1.39	1.4	1.43	1670	1780	4	2	0.25	14.5	46	123	237	6.43	5	10	0.1	70	0.14	1180	28	0.005	137	1970	56	68	44	124	0.005	5	5	237	5	756	A9829302
RC98-2118	14.0	16.0	0.18	0.185	1	0.60	278	1550	1.5	1	0.13	4.5	20	41	100	3.87	5	9	0.12	10	0.06	330	16	0.005	72	250	36	34	14	38	0.005	5	5	86	5	408	A9829302
RC98-2118	16.0	18.0	0.21	0.22	0.6	0.82	306	2210	2	1	0.18	9	37	132	116	5.65	5	0.5	0.13	40	0.09	810	24	0.005	139	670	38	54	20	69	0.005	5	5	93	5	662	A9829302
RC98-2124	2.0	4.0	0.13	0.255	0.6	0.61	918	750	0.25	1	0.09	0.5	4	21	28	2.05	5	0.5	0.16	5	0.06	615	10	0.005	37	300	22	222	6	54	0.005	5	5	36	5	112	A9829302
RC98-2124	4.0	6.0	0.17	0.315	0.8	0.66	774	760	0.25	1	0.1	0.25	4	26	21	1.49	5	0.5	0.2	5	0.05	240	8	0.005	34	330	24	156	5	66	0.005	5	5	32	5	132	A9829302
RC98-2124	6.0	8.0	0.16	0.24	0.8	0.36	994	550	0.25	1	0.07	0.25	1	18	14	1.56	5	0.5	0.13	5	0.03	215	12	0.005	35	290	18	264	3	60	0.005	5	5	20	5	124	A9829302
RC98-2124	8.0	10.0	0.21	0.32	0.8	0.31	1065	430	0.25	2	0.06	0.25	4	14	23	1.98	5	1	0.1	5	0.02	255	13	0.005	43	320	30	484	3	49	0.005	5	5	20	5	152	A9829302
RC98-2124	10.0	12.0	0.24	0.44	1.2	0.41	1440	450	0.25	1	0.08	0.5	7	11	33	2.65	5	1	0.09	5	0.02	370	16	0.005	64	450	56	728	4	56	0.005	5	5	24	5	214	A9829302
RC98-2124	12.0	14.0	0.63	1.14	3.6	0.32	890	460	0.25	1	0.07	0.25	3	12	15	1.86	5	1	0.11	5	0.02	225	10	0.005	43	350	46	1570	2	54	0.005	5	5	23	5	160	A9829302
RC98-2124	14.0	16.0	0.91	1.33	4.4	0.31	562	670	0.25	1	0.05	0.25	3	12	13	1.31	5	1	0.09	5	0.01	155	7	0.005	31	410	18	1640	0	66	0.005	5	5	25	5	114	A9829302
RC98-2124	16.0	18.0	0.18	0.3	1	0.31	696	920	0.25	1	0.04	0.25	2	13	18	1.74	5	0.5	0.07	5	0.01	170	8	0.005	33	560	8	1855	0	93	0.005	5	5	15	5	130	A9829302
RC98-2145	0.0	2.0	0.23	0.265	2.14	0.79	770	990	0.5	1	0.83	8.5	13	19	42	4.38	5	2	0.15	30	0.26	1115	6	0.005	34	1170	338	162	8	234	0.005	5	5	46	5	610	A9829303
RC98-2145	2.0	4.0	0.15	0.155	1.2	0.80	416	840	0.5	1	0.81	5	10	20	46	3.5	5	1	0.13	20	0.34	795	6	0.005	30	1470	150	140	7	305	0.005	5	5	50	5	364	A9829303
RC98-2145	4.0	6.0	0.14	0.265	1.6	0.75	544	870	0.5	1	0.61	5.5	13	17	35	4.06	5	2	0.11	30	0.19	1315	4	0.005	34	840	220	744	7	128	0.005	5	5	40	5	488	A9829303
RC98-2145	6.0	8.0	0.14	0.215	1.6	0.67	622	920	0.5	2	1.36	5	13	16	31	4.45	5	3	0.11	30	0.18	1590	6	0.005	33	850	240	422	8	132	0.005	5	5	40	5	478	A9829303
RC98-2145	8.0	10.0	0.29	0.4	1.2	0.71	1160	740	0.5	1	1.03	2	12	23	19	3.63	5	3	0.04	30	0.25	1385	3	0.005	18	440	146	72	11	177	0.005	5	5	60	5	244	A9829303
RC98-2145	10.0	12.0	0.43	0.385	0.2	0.60	1105	720	0.5	1	0.73	0.5	11	21	19	2.63	5	4	0.03	30	0.28	1000	4	0.005	13	410	78	44	10	156	0.005	5	5	50	5	176	A9829303
RC98-2145	12.0	14.0	0.38	0.49	0.2	0.62	1460	700	0.5	1	1.2	1.5	10	24	17	3.21	5	4	0.04	30	0.36	1105	3	0.005	16	410	88	46	12	169	0.005	5	5	61	5	206	A9829303
RC98-2145	14.0	16.0	1.93	2.57	0.8	0.47	6030	370	0.5	1	1.76	1	11	24	19	4.04	5	7	0.06	20	0.52	1615	4	0.005	14	190	66	56	13	124	0.005	5	5	58	5	156	A9829303
RC98-2145	16.0	18.0	0.61	1.03	0.2	0.41	1615	520	0.5	1	0.6	0.5	11	18	16	2.75	5	3	0.03	20	0.19	825	1	0.005	13	280	80	36	12	124	0.005	5	5	48	5	164	A9829303
RC98-2145	18.0	20.0	0.04	0.115	0.1	0.43	282	520	0.5	1	1.04	0.5	9	22	16	3	5	3	0.01	10	0.46	800	3	0.005	13	320	68	16	11	84	0.005	5	5	53	5	142	A9829303
RC98-2145	20.0	22.0	0.24	0.355	0.2	0.43	1070	490	0.5	1	1.61	0.5	12	25	15	4.32	5	5	0.03	20	0.43	1485	4	0.005	16	300	60	20	12	97	0.005	5	5	66	5	192	A9829303
RC98-2145	22.0	24.0	0.65	0.765	0.4	0.38	2940	400	0.5	1	2	0.5	12	25	16	3.75	5	5	0.04	10	0.57	1480	3	0.005	15	170	66	36	13	107	0.005	5	5	63	5	164	A9829303
RC98-2145	24.0	26.0	0.38	0.525	1.2	0.49	1670	630	0.5	1	2.75	2	11	24	21	3.84	5	5	0.05	20	0.84	2040	5	0.005	15	260	60	76	12	171	0.005	5	5	58	5	212	A9829303
RC98-2145	26.0	28.0	0.04	0.07	0.1	0.73	356	820	0.5	1	1.07	0.5	10	25	17	3.47	5	0.5	0.01	30	0.48	1050	4	0.005	13	430	56	34	13	167	0.005	5	5	63	5	162	A9829303
RC98-2145	28.0	30.0	0.57	0.76	0.6	0.85	1695	1050	0.5	1	0.82	2.5	11	24	18	3.43	5	3	0.05	30	0.25	1040	2	0.005	17	510	72	44	13	197	0.005	5	5	58	5	218	A9829303
RC98-2145	30.0	32.0	0.35	0.405	4.2	0.64	2390	610	0.5	1	1.49	16	12	21	24	4.7	5	6	0.09	30	0.48	1545	3	0.005	15	340	1500	470	12	194	0.005	5	5	48	5	952	A9829303
RC98-2145	32.0	34.0	2.3	2.19	5.4	0.46	5440	750	0.5	1	0.61	19	14	16	28	5.23	5	6	0.09	40	0.2	5260	3	0.005	24	360	848	798	12	151	0.005	5	5	40	5	1370	A9829303
RC98-2145	34.0	36.0	0.22	0.34	1.2	0.67	1135	760	0.5	1	1.86	10	12	28	29	3.59	5	9	0.06	50	0.58	1780	3	0.005	21	1050	520	222	13	87	0.005	5	5	65	5	724	A9829303
RC98-2145	36.0	38.0	0.05	0.075	0.1	0.50	356	330	1	1	1.33	3	14	30	16	3.95	5	1	0.05	60	0.3	1365	4	0.005	26	1470	76	34	13	59	0.005	5	5	76	5	372	A9829303
RC98-2145	38.0	40.0	0.07	0.13	1.4	0.69	578	280	1.5	1	0.65	6.5	19	26	22	3.85	5	1	0.1	70	0.18	2070	4	0.005	35	1630	510	128	14	48	0.005	5	5	75	5	730	A9829303
RC98-2145	40.0	42.0	0.07	0.095	0.6	0.78	592	510	1.5	1	1.47	5.5	17	35	20	4.6	5	2	0.06	60	0.41	2870	4	0.005	37	1390	190	56	14	88	0.005	5	5	88	5	580	A9829303
RC98-2145	42.0	44.0	0.82	1.305	0.2	0.72	2800	950	1	1	1	4.5	16	26	17	4.66	5	3	0.07	50	0.33	1855	4	0.005	33	990	62	48	13	135	0.005	5	5	68	5	478	A9829303
RC98-2145	44.0	46.0	0.47	0.795	0.1	0.69	1495	1110	1	1	1.61	2	16	30	17	4.12	5	2	0.05	50	0.54	1440	4	0.005	34	880	38	28	13	150	0.005	5	5	70	5	388	A9829303
RC98-2145	46.0	48.0	0.15	0.2	0.1	0.51	826	1080	0.5	1	1.54	2	16	26	16	3.62	5	1	0.06	40	0.46	1170	5	0.005	31	870	48	36	12	149	0.005	5	5	65	5	398	A9829303
RC98-2145	48.0	50.0	0.13	0.165	0.2	0.40	760	590	0.5	1	2.79	1	12	20	18	3.57	5	1	0.08	30	0.98	1125	4	0.005	23	890	38	24	10	224	0.005	5	5	40	5	226	A9829303
RC98-2145	50.0	52.0	0.1	0.18	0.6	0.45	788	440	0.5	1	2.93	7.5	12	19	22	3.84	5	3	0.08	30	1.07	1180	6	0.005	18	860	82	42	9	273	0.005	5	5	36	5	430	A9829303
RC98-2145	52.0	54.0	0.19	0.34	4.6	0.52	1720	200	0.5	2	1.85	17.5	15	16	60	5.06	5	3	0.1	20	0.63	1715	6	0.005	37	1890	1200	524	8	196	0.005	5	5	32	5	830	A9829303
RC98-2145	54.0	56.0	0.25	0.44	1	0.49	1755	130	0.5	1	2.56	7.5	14	13	30	4.72	5	4	0.14	10	0.91	995	7	0.005	33	1310	150	64	6	173	0.005	5	5	26	5	430	A9829303
RC98-2145	56.0	58.0	0.44	1.06	3.2	0.51	1785	80	0.5	1	2.89	35.5	11	15	51	5.23	5	9	0.14	10	1	1045	8	0.005	25	1180	1340	406	6	221	0.005	5	5	29	5	1230	A9829303
RC98-2148	0.0	2.0	0.1	0.2	1.2	0.95	460	1090	0.5	1	0.72	2.5	11	25	28	3.4	5	1	0.13	30	0.25	675	5	0.005	30	1190	120	64	6	145	0.005	5	5	68	5	294	A9829308
RC98-2148	2.0	4.0	0.21	0.25	1.2	0.89	594	1020	0.5	1	0.45	2.5	11	21	23	3.43	5	1	0.11	30	0.22	690	4	0.005	29	730	150	108	6	101	0.005	5	5	50	5	300	A9829308
RC98-2148	4.0	6.0	0.1	0.35	3.8	0.73	1170	1090	1	16	1.32	4.5	16	27	25	4.56	5	3	0.09	30	0.11	1435	5	0.005	41	1430	192	66	8	138	0.005	5	5	54	5	384	A9829308
RC98-2148	6.0	8.0	0.65	0.76	2	0.58	1865	1010	0.5	2	3.02	2.5	16	23	23	4.57	5	7	0.09	30	0.25	2270	5	0.005	31	950	278	114	10	214	0.005	5	5	51	5	338	A9829308
RC98-2148	8.0	10.0	3.63	0.83	2.2	0.60	1960	1030	0.5	1	3.31	2.5	15	24	24	4.64	5	8	0.09	30	0.27	2370	5	0.005	32	1060	290	126	10	228	0.005	5	5	52	5	346	A9829308
RC98-2148	10.0	12.0	4.24	5.75	3.8	0.34	7860	350	0.5	1	0.44	12.5	15	15	30	4.83	5	11	0.07	20	0.06	2240	3	0.005	22	190	642	228	10	150	0.005	5	5	38	5	792	A9829308
RC98-2148	12.0	14.0	0.79	1.025	1	0.26	2260	300	0.25	1	3.65	2.5	11	13	18	3.53	5	6	0.06	10	0.38	2140	3	0.005	13	140	144	84	9	140	0.005	5	5	35	5	332	A9829308
RC98-2148	14.0	16.0	0.94	1.615	1.2	0.28	2400	320	0.25	1	3.38	2.5	11	14	16	3.54	5	6	0.06	10	0.36	2080	4	0.005	13	170	130	70	9	152	0.005	5	5	35	5	314	A9829308
RC98-2148	16.0	18.0	1.94	3.27	3.8	0.23	5600	400	0.5	1	1.53	16	13	15	33	4.33	5	10	0.06	20	0.24	1895	3	0.005	13	190	1080	424	11	155	0.005	5	5	37	5	890	A9829308
RC98-2148	18.0	20.0	0.53	0.94	3.6	0.44	2330	790	0.5	1	2.46	5	11	21	23	3.48	5	6	0.05	30	0.29	1275	4	0.005	13	510	474	132	11	171	0.005	5	5	47	5	404	A9829308
RC98-2148	20.0	22.0	0.43	0.83	0.8	0.54	1495	1270	0.5	1	1.91	14	12	20	20	3.32	5	4	0.06	30	0.23	1235	5	0.005	14	650	220	80	12	204	0.005	5	5	49	5	778	A9829308
RC98-2148	22.0	24.0	0.44	0.63	4.2	0.60	2380	850	0.5	1	0.82	17.5	17	16	35	4.91	5	5	0.07	40	0.21	2280	4	0.005	33	480	970	490	13	173	0.005	5	5	45	5	1185	A9829308
RC98-2148	24.0	26.0	1.62	2.3	4.2	0.88	3790	1080	0.5	1	0.68	17.5	17	19	38	5.06	5	6	0.07	50	0.08	2790	4	0.005	47	890	754	390	14	199	0.005	5	5	50	5	1030	A9829308
RC98-2148	26.0	28.0	1.16	1.745	5	0.47	3550	1070	0.5	4	0.37	19	19	15	35	5.78	5	7	0.11	40	0.11	5620	4	0.005	28	490	776	328	12	147	0.005	5	5	37	5	1370	A9829308
RC98-2148	28.0	30.0	0.4	0.6	2	0.40	2580	730	0.5	2	1.72	6.5	14	14	22	4.07	5	4	0.08	30	0.35	2690	4	0.005	19	400	224	168	9	161	0.005	5	5	30	5	506	A9829308
RC98-2148	30.0	32.0	2.33	2.08	4.6	0.37	3430	740	0.5	1	1.54	5	14	13	31	4.05	5	7	0.08	20	0.36	2490	4	0.005	18	380	490	196	9	164	0.005	5	5	31	5	398	A9829308
RC98-2148	32.0	34.0	0.88	1.375	2	0.38	2960	400	0.5	1	2.07	3.5	16	20	23	4.2	5	5	0.07	20	0.14	1975	4	0.005	22	210	328	116	12	103	0.005	5	5	47	5	354	A9829308
RC98-2148	34.0	36.0	1.2	1.865	1.2	0.33	3410	640	0.5	1	1.52	2.5	19	22	22	5.02	5	5	0.08	30	0.09	2620	5	0.005	26	230	142	78	13	90	0.005	5	5	48	5	376	A9829308
RC98-2148	36.0	38.0	0.68	1.16	2.8	0.33	3120	860	0.25	1	1.37	13.5	17	11	44	5.08	5	4	0.08	20	0.54	3680	6	0.005	24	790	158	888	9	170	0.005	5	5	20	5	658	A9829308
RC98-2148	38.0	40.0	0.36	0.375	4.8	0.53	1560	940	0.5	1	2.35	6	20	18	26	4.79	5	4	0.1	30	0.4	2730	5	0.005	25	920	854	742	9	197	0.005	5	5	35	5	596	A9829308
RC98-2148	40.0	42.0	0.22	0.295	0.6	0.47	1255	650	0.5	1	2.72	2	15	18	20	3.77	5	2	0.08	30	0.46	1750	4	0.005	21	560	106	60	9	206	0.005	5	5	35	5	326	A9829308
RC98-2148	42.0	44.0	0.79	0.965	1	0.42	2420	560	0.5	1	2.03	2.5	13	20	19	3.52	5	3	0.07	20	0.49	1635	4	0.005	18	400	254	1300	10	198	0.005	5	5	42	5	318	A9829308
RC98-2148	44.0	46.0	0.87	1.49	4.4	0.61	2950	990	0.5	1	1.43	19.5	17	22	44	4.96	5	11	0.08	30	0.35	2220	4	0.005	30	350	1080	820	11	168	0.005	5	5	46	5	1055	A9829308
RC98-2148	46.0	48.0	0.14	0.38	1	0.68	1330	940	0.5	1	2.79	6	15	23	23	4.17	5	4	0.12	40	0.73	1585	6	0.005	28	900	280	144	10	220	0.005	5	5	44	5	488	A9829308
RC98-2148	60.0	62.0	0.62	0.525	2	0.96	992	1460	1	1	1.57	8.5	19	31	36	4.02	5	2	0.19	40	0.37	1625	9	0.005	76	2440	220	96	10	399	0.005	5	5	87	5	626	A9829308
RC98-2148	62.0	64.0	1.16	1.15	1.2	0.87	2330	580	1	2	3.05	5	23	24	20	5.15	5	1	0.16	40	0.57	2220	6	0.005	47	1470	120	58	14	226	0.005	5	5	59	5	564	A9829308
RC98-2148	64.0	66.0	0.08	0.145	1.8	0.74	500	350	0.5	1	3.52	5.5	19	23	22	4.96	5	3	0.15	30	0.75	2260	6	0.005	35	1430	238	40	12	216	0.005	5	5	48	5	546	A9829308

																			1998 ICP Results																			
Hole ID	From	To	VMC	Au Chemex	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn	Cert. #
RC98-2148	66.0	68.0	0.4	0.79	1.8	0.66	1410	970	0.5	2	2.85	5	19	22	29	4.6	5	3	0.13	40	0.65	1890	7	0.005	46	1580	98	70	11	305	0.005	5	5	62	5	466	A9829308
RC98-2148	68.0	70.0	0.06	0.105	4.8	0.82	150	1430	1	1	1.34	6.5	1	113	82	1.17	5	12	0.24	10	0.15	130	9	0.005	82	5700	24	34	4	479	0.005	5	5	522	5	184	A9829308
RC98-2152	0.0	2.0	0.96	0.28	1.2	1.13	427	590	1	1	2.7	2	12	22	31	3.77	5	0.5	0.23	30	0.84	960	6	0.005	26	1060	120	54	8	282	0.005	5	5	44	5	272	A9829301
RC98-2152	2.0	4.0	0.46	0.41	1	1.38	412	1040	0.5	2	0.78	2	10	29	23	3.06	5	0.5	0.12	20	0.4	685	5	0.005	30	750	98	54	7	104	0.01	5	5	67	5	220	A9829301
RC98-2152	4.0	6.0	0.36	0.34	0.8	1.21	386	920	0.5	1	0.62	1.5	10	27	21	2.92	5	1	0.1	20	0.35	620	4	0.005	27	690	76	42	6	87	0.01	5	5	64	5	202	A9829301
RC98-2152	6.0	8.0	0.25	0.275	0.4	1.29	488	2700	1.5	2	0.96	1	11	30	18	3.37	5	1	0.2	30	0.43	805	4	0.01	22	1000	82	24	10	96	0.03	5	5	76	5	196	A9829301
RC98-2152	8.0	10.0	0.18	0.21	0.4	1.55	512	3030	2	1	1.47	0.5	12	31	18	3.66	5	0.5	0.27	40	0.52	815	2	0.01	19	1210	68	24	11	110	0.03	5	5	82	5	170	A9829301
RC98-2152	10.0	12.0	0.08	0.145	0.2	1.81	416	2980	2	1	2.16	0.25	12	34	17	3.32	5	0.5	0.35	40	0.78	855	3	0.01	14	1300	54	16	11	117	0.08	5	5	85	5	154	A9829301
RC98-2152	12.0	14.0	0.01	0.07	0.6	1.55	268	2100	2	1	2.46	1.5	12	32	18	3.29	5	0.5	0.24	60	0.52	880	2	0.01	18	1440	102	20	12	93	0.02	5	5	89	5	248	A9829301
RC98-2152	14.0	16.0	0.07	0.19	1.6	1.12	982	710	2	1	3.23	0.5	16	29	21	3.85	5	1	0.16	80	0.45	1265	3	0.005	22	1610	214	40	14	89	0.005	5	5	91	5	272	A9829301
RC98-2152	16.0	18.0	0.22	0.21	0.8	0.98	672	560	1.5	2	2.46	0.5	15	29	20	3.88	5	1	0.14	60	0.35	1315	3	0.005	21	1520	130	40	14	86	0.005	5	5	91	5	224	A9829301
RC98-2152	18.0	20.0	0.72	1.29	0.8	0.66	2860	840	1	1	3.87	0.25	13	25	18	5.75	5	4	0.09	50	0.58	2910	3	0.005	22	1170	54	270	14	208	0.005	5	5	73	5	196	A9829301
RC98-2152	20.0	22.0	2.44	4.09	1.8	0.57	5981	920	0.5	1	2.51	0.5	16	20	20	6.54	5	7	0.07	40	0.41	3440	6	0.005	47	990	48	254	14	140	0.005	5	5	64	5	240	A9829301
RC98-2152	22.0	24.0	0.25	0.65	0.4	0.76	1010	1070	0.5	1	1.33	1	15	21	15	3.83	5	1	0.04	30	0.17	1600	6	0.005	40	740	44	52	12	189	0.005	5	5	68	5	272	A9829301
RC98-2152	24.0	26.0	0.39	0.88	0.6	0.64	1650	850	0.5	1	1.08	1	15	24	17	4.79	5	7	0.06	30	0.24	2310	4	0.005	28	510	56	74	13	152	0.005	5	5	77	5	252	A9829301
RC98-2152	26.0	28.0	0.96	1.77	1	0.61	2890	760	0.5	2	2.1	0.25	14	21	17	4.49	5	4	0.09	30	0.46	2700	4	0.005	21	650	74	60	13	211	0.005	5	5	56	5	206	A9829301
RC98-2152	28.0	30.0	0.28	0.495	0.8	0.55	1810	580	0.5	1	1.91	0.5	16	19	26	4.89	5	3	0.09	30	0.38	2450	2	0.005	22	950	72	44	13	174	0.005	5	5	57	5	190	A9829301
RC98-2152	30.0	32.0	0.9	1.32	1	0.49	3590	840	0.5	1	1.3	0.25	18	17	20	5.36	5	3	0.09	30	0.23	3760	5	0.005	38	1020	74	66	15	185	0.005	5	5	53	5	274	A9829301
RC98-2152	32.0	34.0	0.21	0.37	2.2	0.49	1325	150	0.5	1	1.46	2	13	10	32	4.81	5	0.5	0.12	20	0.55	2180	9	0.005	47	1840	70	46	9	247	0.005	5	5	52	5	238	A9829301
RC98-2152	34.0	36.0	1.53	1.505	0.8	0.59	2620	380	0.5	1	2.87	0.5	13	11	16	3.82	5	1	0.14	10	0.8	1990	4	0.005	23	1140	74	30	9	288	0.005	5	5	35	5	268	A9829301
RC98-2152	36.0	38.0	0.13	0.27	2.6	0.70	1010	180	1	1	3.1	3.5	10	28	58	3.68	5	4	0.18	10	1.04	1115	15	0.005	69	1980	268	48	7	370	0.005	5	5	190	5	410	A9829301
TR98-LG1	0.0	0.9	0.09	0.16	0.8	1.06	100	740	2	1	0.05	1	31	11	128	5.67	5	1	0.18	20	0.07	860	1	0.005	92	1200	22	18	9	150	0.005	5	5	16	5	264	A9829304
TR98-LG1	0.9	2.0	0.04	0.09	0.4	0.81	72	430	1	1	0.06	0.5	27	12	95	5.82	5	0.05	0.17	20	0.1	905	2	0.005	85	950	22	10	8	52	0.005	5	5	23	5	194	A9829304
TR98-LG1	2.0	4.0	0.01	0.03	0.4	0.61	50	500	0.5	1	0.1	0.25	19	9	75	3.06	5	0.05	0.3	20	0.07	360	3	0.01	48	740	14	10	6	94	0.005	5	5	16	5	158	A9829304
TR98-LG1	4.0	6.0	0.01	0.04	0.8	0.50	56	410	0.5	1	0.14	0.5	22	7	94	3.88	5	0.05	0.2	20	0.07	635	0.5	0.005	65	610	18	10	7	57	0.005	5	5	12	5	232	A9829304
TR98-LG1	6.0	7.6	0.01	0.035	0.2	44.00	50	610	0.5	1	4.49	0.5	17	8	51	3.89	5	0.05	0.18	10	1.18	1465	4	0.005	44	340	14	12	6	100	0.005	5	5	11	5	138	A9829304
TR98-LG1	7.6	9.7	0.01	0.07	0.8	0.57	206	1140	1	1	0.29	2	51	9	75	5.71	5	1	0.19	20	0.16	3270	4	0.005	162	650	26	28	9	49	0.005	5	5	45	5	376	A9829304
TR98-LG1	9.7	12.1	0.02	0.065	0.4	0.62	162	1220	0.5	1	0.67	1.5	37	7	82	4.84	5	0.05	0.17	10	0.24	1690	5	0.005	115	540	24	20	8	47	0.005	5	5	18	5	330	A9829304
TR98-LG1	12.1	14.0	0.01	0.035	0.2	0.67	102	620	0.5	1	0.13	0.5	29	7	65	3.38	5	0.05	0.23	10	0.09	985	5	0.005	83	360	22	12	6	42	0.005	5	5	15	5	288	A9829304
TR98-LG1	14.0	16.0	0.01	0.03	0.1	0.56	122	520	0.5	1	0.06	0.25	15	6	58	3.15	5	0.05	0.21	10	0.07	900	0.5	0.005	34	270	10	10	6	33	0.005	5	5	9	5	192	A9829304
TR98-LG1	16.0	18.0	0.01	0.015	0.1	0.48	50	400	0.5	1	0.1	0.25	18	5	45	4.02	5	0.05	0.19	30	0.08	980	1	0.005	4	230	10	8	8	35	0.005	5	5	7	5	126	A9829304
TR98-LG1	18.0	20.0	0.01	0.04	0.1	0.52	58	860	0.5	1	0.78	0.25	12	6	43	3.34	5	0.05	0.21	20	0.35	1255	3	0.005	26	200	6	8	6	51	0.005	5	5	7	5	80	A9829304
TR98-LG1	20.0	22.0	0.01	0.02	0.1	0.55	28	480	0.5	1	0.12	0.25	15	7	54	3.23	5	0.05	0.21	20	0.09	845	0.5	0.005	33	170	10	6	7	31	0.005	5	5	7	5	62	A9829304
TR98-LG1	22.0	24.0	0.02	0.02	0.1	0.50	24	540	0.5	1	0.06	0.25	16	4	52	3.29	5	0.05	0.21	10	0.07	780	1	0.005	33	180	10	10	6	31	0.005	5	5	7	5	58	A9829304
TR98-LG1	24.0	25.1	0.01	0.02	0.2	0.48	94	2870	0.5	1	0.21	0.25	19	5	53	2.36	5	0.05	0.18	10	0.09	735	1	0.005	45	370	24	12	5	55	0.005	5	5	10	5	102	A9829304
TR98-LG1	25.1	26.4	0.01	0.03	0.2	0.56	228	3500	0.5	1	0.27	0.25	23	7	63	3.43	5	0.05	0.17	20	0.11	870	5	0.005	74	680	30	20	5	101	0.005	5	5	15	5	100	A9829304
TR98-LG1	26.4	28.0	0.01	0.025	0.2	0.54	70	710	0.5	1	2.72	0.25	12	6	35	2.66	5	0.05	0.22	20	1.01	1055	3	0.005	29	190	16	14	6	74	0.005	5	5	10	5	60	A9829304
TR98-LG1	28.0	29.4	0.01	0.035	0.2	0.56	36	460	0.5	1	0.04	0.25	11	6	62	3.31	5	0.05	0.22	10	0.07	795	2	0.005	24	220	12	20	6	27	0.005	5	5	8	5	70	A9829304
TR98-LG1	29.4	30.0	0.04	0.12	0.2	0.71	450	2460	0.5	1	0.09	1	19	11	91	13	5	0.05	0.08	10	0.14	4690	14	0.005	99	830	22	38	11	26	0.005	5	5	35	5	630	A9829304
TR98-LG1	30.0	31.3	0.01	0.025	0.2	0.42	150	750	0.5	1	0.12	0.25	15	4	42	2.55	5	0.05	0.19	30	0.06	615	8	0.005	56	250	26	10	6	39	0.005	5	5	13	5	106	A9829304
TR98-LG1	31.3	33.0	0.03	0.115	0.8	0.40	418	2310	0.5	1	0.17	0.25	17	4	42	2.83	5	0.05	0.14	20	0.07	610	14	0.005	77	450	30	16	5	67	0.005	5	5	19	5	150	A9829304
TR98-LG1	33.0	34.0	0.01	0.05	0.1	0.62	174	1020	0.5	1	0.29	0.25	12	9	43	3.21	5	0.05	0.19	20	0.19	1015	0.5	0.005	25	220	10	6	6	39	0.005	5	5	14	5	70	A9829304
TR98-LG1	34.0	36.0	0.03	0.02	0.1	0.54	146	1460	0.5	1	1.25	0.25	12	6	50	3.6	5	0.05	0.22	10	0.38	1095	3	0.005	25	230	6	4	5	49	0.005	5	5	10	5	76	A9829304
TR98-LG1	36.0	38.0	0.02	0.03	0.1	0.69	102	550	0.5	1	0.23	0.25	18	9	63	3.31	5	0.05	0.21	10	0.16	1120	1	0.005	36	230	12	8	7	32	0.005	5	5	11	5	74	A9829304
TR98-LG1	38.0	40.0	0.01	0.02	0.1	0.50	136	450	0.5	1	1.4	0.25	11	6	30	2.62	5	0.05	0.22	10	0.34	1105	0.5	0.005	20	190	6	2	6	39	0.005	5	5	6	5	40	A9829304
TR98-LG1	40.0	42.0	0.01	0.015	0.1	0.43	94	320	0.5	1	0.16	0.25	12	5	41	2.47	5	0.05	0.19	5	0.07	610	0.5	0.005	23	210	12	6	5	22	0.005	5	5	6	5	72	A9829304
TR98-LG1	42.0	44.0	0.03	0.07	0.2	0.53	656	560	0.5	1	0.12	0.25	22	7	66	3.5	5	0.05	0.23	10	0.07	1195	1	0.005	37	370	12	8	7	44	0.005	5	5	9	5	116	A9829304
TR98-LG1	44.0	45.2	0.01	0.035	0.1	0.42	102	490	0.5	1	0.12	0.25	14	8	64	4.14	5	0.05	0.17	10	0.11	830	1	0.005	30	450	10	14	8	49	0.005	5	5	17	5	102	A9829304
TR98-LG1	45.2	47.0	0.01	0.045	0.2	0.68	290	550	0.5	1	0.36	0.5	24	11	145	4.9	5	1	0.24	30	0.06	870	0.5	0.005	63	2070	18	10	8	132	0.005	5	5	25	5	220	A9829304
TR98-LG1	47.0	49.0	0.11	0.32	1.6	0.63	698	1240	0.5	1	0.37	1.5	14	13	141	4.61	5	2	0.22	20	0.04	135	5	0.005	57	3270	22	16	8	323	0.005	5	5	47	5	240	A9829304
TR98-LG1	49.0	50.3	0.02	0.04	0.2	0.53	136	620	1	1	0.78	0.5	22	7	49	4.62	5	1	0.18	30	0.34	660	10	0.005	75	1150	38	12	7	80	0.005	5	5	23	5	128	A9829304
TR98-LG1	50.3	52.0	0.02	0.02	0.1	0.41	20	610	0.5	1	8.89	0.25	10	8	32	2.83	5	0.05	0.19	10	3.65	740	0.5	0.01	30	200	16	4	5	209	0.005	5	5	19	5	56	A9829304
TR98-LG1	52.0	54.0	0.04	0.02	0.1	0.47	38	520	0.5	2	8.19	0.25	10	8	42	2.28	5	0.05	0.21	10	3.81	585	1	0.01	22	170	14	6	5	150	0.005	5	5	9	5	24	A9829304
TR98-LG1	54.0	56.0	0.1	0.205	0.2	0.63	510	820	0.5	1	4.36	0.25	16	9	58	2.64	5	0.05	0.27	10	1.83	790	4	0.005	31	280	12	6	5	128	0.005	5	5	10	5	68	A9829304
TR98-LG1	56.0	58.0	0.1	0.25	0.4	0.76	990	640	0.5	2	0.09	0.25	18	11	113	3.98	5	1	0.31	20	0.08	145	4	0.005	37	560	12	10	6	129	0.005	5	5	15	5	118	A9829304
TR98-LG1	58.0	59.7	0.95	2.19	2.2	0.62	2170	1360	0.5	1	0.12	0.25	24	17	92	4.22	5	7	0.26	10	0.06	1235	1	0.005	58	760	16	24	6	300	0.005	5	5	33	5	180	A9829304
TR98-LG1	59.7	60.0	1.55	2.85	0.8	0.66	5900	1280	1.5	1	0.22	0.25	46	9	140	5.07	5	4	0.23	10	0.08	3270	2	0.005	95	520	14	32	7	170	0.005	5	5	16	5	200	A9829304
TR98-LG1	60.7	61.8	0.13	0.415	0.8	0.69	1285	960	1	1	0.18	0.25	15	13	88	3.05	5	1	0.25	10	0.07	400	1	0.005	44	1270	16	16	5	283	0.005	5	5	20	5	130	A9829304
TR98-LG1	61.8	64.0	0.05	0.13	0.8	0.48	1615	460	0.5	1	0.15	0.25	25	8	105	4.4	5	1	0.18	10	0.08	580	9	0.005	82	620	18	16	7	69	0.005	5	5	27	5	182	A9829304
TR98-LG1	64.0	66.0	0.32	0.75	0.2	0.61	2910	740	1	1	1.14	0.25	18	10	77	4.26	5	0.05	0.23	10	0.59	1155	0.5	0.005	45	570	12	14	7	97	0.005	5	5	14	5	112	A9829304
TR98-LG1	66.0	68.9	0.61	1.29	2	0.64	4120	1650	1	1	0.6	0.25	29	14	120	5.25	5	5	0.2	10	0.24	1280	4	0.005	93	1250	20	22	9	199	0.005	5	5	40	5	246	A9829304
TR98-LG1	68.9	70.2	0.12	0.265	1	0.60	3170	860	1	1	0.56	0.25	17	12	81	4.45	5	1	0.22	20	0.23	835	3	0.005	62	1240	14	20	7	138	0.005	5	5	25	5	162	A9829304
TR98-LG1	70.2	72.0	0.01	0.05	0.6	0.58	1045	790	0.5	1	0.09	0.25	13	12	82	3.76	5	1	0.28	10	0.07	110	1	0.005	39	750	20	18	6	175	0.005	5	5	29	5	146	A9829304
TR98-LG1	72.0	73.0	0.01	2.85	0.1	0.38	722	470	0.5	1	0.11	0.25	22	6	85	2.72	5	0.05	0.16	5	0.04	225	0.5	0.005	40	690	14	8	6	82	0.005	5	5	8	5	102	A9829304
TR98-LG1	73.0	74.2	0.01	0.05	0.4	0.51	1490	640	1	1	0.11	0.25	28	9	118	3.51	5	0.05	0.14	5	0.05	1020	1	0.005	67	680	14	8	8	69	0.005	5	5	13	5	170	A9829304
TR98-LG1	74.2	75.7	0.02	0.015	0.1	0.76	438	390	1.5	1	1.73	0.25	23	10	112	3.16	5	0.05	0.22	5	0.77	825	1	0.005	57	560	14	8	8	63	0.005	5	5	13	5	164	A9829304
TR98-LG1	75.7	78.0	0.01	0.02	0.1	0.50	148	950	0.5	2	4.91	0.25	16	9	34	3.06	5	0.05	0.22	10	2.53	645	3	0.01	55	310	22	10	6	149	0.005	5	5	13	5	106	A9829304
TR98-LG1	78.0	80.0	0.01	0.02	0.1	0.44	422	510	0.5	1	5.04	0.25	20	8	39	3.68	5	0.05	0.18	10	2.1	1415	5	0.005	73	330	16	18	6	225	0.005	5	5	13	5	128	A9829304
TR98-LG1	110.0	112.0	0.01	0.03	0.2	0.44	92	410	0.5	1	5.31	0.25	15	12	37	2.54	5	1	0.19	5	2.38	710	2	0.005	60	240	16	8	5	82	0.005	5	5	12	5	120	A9829304
TR98-LG1	112.0	114.0	0.01	0.04	0.6	0.44	222	610	0.5	1	5.05	0.25	15	10	39	2.42	5	1	0.17	5	1.65	1415	1	0.005	54	460	14	14	6	75	0.005	5	5	13	5	96	A9829304
TR98-LG1	114.0	115.9	0.13	0.38	0.2	0.35	890	550	0.5	2	6.53	0.25	16	8	43	3.18	5	1	0.13	10	1.02	1045	2	0.005	51	330	8	24	7	59	0.005	5	5	11	5	100	A9829304
TR98-LG1	115.9	118.0	0.01	0.04	0.1	0.50	272	400	0.5	1	4.5	0.25	22	10	66	3.03	5	1	0.19	5	1.16	850	2	0.005	60	260	10	12	7	96	0.005	5	5	13	5	116	A9829304
TR98-LG1	118.0	120.0	0.01	0.02	0.1	0.51	96	430	0.5	1	3.41	0.25	17	10	67	2.22	5	0.05	0.2	5	1.16	570	0.5	0.005	40	150	4	14	6	89	0.005	5	5	10	5	94	A9829304
TR98-LG1	120.0	122.0	0.01	0.02	0.1	0.50	202	520	0.25	1	3.12	0.25	16	9	42	4.5	5	0.05	0.19	5	0.87	720	0.5	0.005	43	240	10	10	6	84	0.005	5	5	9	5	74	A9829304
TR98-LG1	122.0	123.9	0.01	0.03	0.1	0.68	508	1230	0.5	1	1.34	0.25	18	11	90	3.16	5	4	0.23	5	0.5	1085	1	0.005	57	450	10	10	8	44	0.005	5	5	11	5	116	A9829304
TR98-LG1	123.9	126.0	0.42	1.455	1	0.64	2280	690	0.5	1	1.28	0.5	22	15	74	3.27	5	2	0.22	10	0.61	690	4	0.005	106	490	22	26	7	79	0.005	5	5	23	5	184	A9829304
TR98-LG1	126.0	128.0	0.12	0.175	0.4	0.44	402	52	0.5	1	2.36	0.5	13	11	52	3.07	5	2	0.18	10	1.27	755	4	0.005	62	270	20	12	6	62	0.005	5	5	16	5	154	A9829304
TR98-LG1	128.0	130.0	0.06	0.06	0.4	0.48	58	450	0.5	1	3.03	0.5	12	13	45	2.89	5	6	0.17	10	1.56	630	2	0.005	45	300	14	6	6	58	0.005	5	5	14	5	84	A9829304

Al 19 FS

1998 ICP Results

Hole ID	From	To	VMC	Au Chemex	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn	Cert. #
TR98-LG1	130.0	132.0	0.41	1.32	1	0.64	2800	2530	0.5	1	0.22	1.5	22	15	71	5.46	5	0.05	0.2	10	0.13	1740	6	0.005	101	370	24	32	7	54	0.005	5	5	25	5	304	A9829304
TR98-LG1	132.0	134.0	0.04	0.09	0.4	0.79	964	790	0.5	1	0.08	0.5	19	14	49	4.49	5	0.05	0.3	10	0.1	1055	4	0.005	75	230	22	24	9	32	0.005	5	5	22	5	190	A9829304
TR98-LG1	134.0	136.0	0.03	0.1	1	0.79	1370	1560	0.5	1	0.24	0.5	24	15	90	4.63	5	0.05	0.25	10	0.15	1385	3	0.005	78	550	16	16	9	61	0.005	5	5	20	5	198	A9829304
TR98-LG1	136.0	138.0	0.06	0.085	0.6	0.78	774	720	0.5	1	0.75	0.25	16	14	88	2.2	5	0.05	0.26	10	0.3	645	0.5	0.005	43	860	16	14	7	73	0.005	5	5	15	5	128	A9829304
TR98-LG1	138.0	140.0	0.29	0.64	1.6	1.10	2260	3150	0.5	1	0.45	0.5	26	24	126	3.95	5	3	0.31	10	0.1	455	3	0.005	84	2680	18	20	7	316	0.005	5	5	34	5	206	A9829304
TR98-LG1	140.0	142.0	0.03	0.05	1.6	0.82	568	630	0.5	1	0.6	0.25	21	20	114	2.98	5	1	0.27	5	0.09	860	0.5	0.005	77	2490	18	12	7	155	0.005	5	5	25	5	194	A9829304
TR98-LG1	142.0	144.9	0.41	0.93	1.8	0.98	2030	1960	0.5	1	0.44	0.25	28	22	135	3.38	5	3	0.31	10	0.09	1245	1	0.005	74	2120	20	24	9	202	0.005	5	5	33	5	240	A9829304
TR98-LG1	144.9	146.0	0.87	1.425	0.6	0.76	2740	1120	0.5	2	0.13	0.25	13	11	58	2.55	5	1	0.25	5	0.09	1635	1	0.005	29	430	10	24	9	65	0.005	5	5	16	5	86	A9829304
TR98-LG1	146.0	148.0	0.6	1.48	2.2	0.73	2100	3170	0.5	1	0.21	0.5	21	17	109	4.69	5	6	0.17	10	0.07	765	10	0.005	75	1510	34	82	9	186	0.005	5	5	30	5	188	A9829304
TR98-LG1	148.0	150.0	0.09	0.23	0.6	0.82	1015	1100	1	1	0.34	0.5	21	15	109	3.06	5	1	0.21	10	0.12	1850	3	0.005	70	1500	14	110	11	100	0.005	5	5	25	5	174	A9829304
TR98-LG1	150.0	152.0	0.14	0.38	1.4	0.56	688	1530	0.5	1	0.41	0.25	25	13	95	2.26	5	1	0.15	10	0.13	760	1	0.005	72	1190	14	20	8	91	0.005	5	5	28	5	202	A9829304
TR98-LG1	152.0	154.0	0.22	0.505	0.6	0.53	812	850	0.5	1	1.65	0.5	17	11	55	3.13	5	1	0.14	5	0.48	1445	4	0.005	56	660	14	20	9	91	0.005	5	5	31	5	172	A9829304
TR98-LG1	154.0	156.0	0.28	0.55	0.6	0.64	642	1000	0.5	1	1.71	0.5	19	14	43	3.32	5	0.05	0.16	10	0.67	1365	4	0.005	58	780	16	14	8	102	0.005	5	5	33	5	158	A9829304
TR98-MN1	0.0	4.0	0.11	0.035	1.2	0.88	58	1910	0.5	1	0.45	1	12	22	101	3.27	5	1	0.26	20	0.06	155	8	0.01	51	2900	24	14	5	333	0.005	5	5	50	5	392	A9829310
TR98-MN1	4.0	8.0	0.01	0.04	0.8	0.74	46	900	0.5	1	0.46	6	38	16	124	4.45	5	0.5	0.21	20	0.06	1660	8	0.005	103	2570	14	16	6	175	0.005	5	5	43	5	436	A9829310
TR98-MN1	8.0	12.0	0.04	0.03	0.8	0.70	48	760	0.5	1	0.3	1.5	20	14	118	4.17	5	0.5	0.23	20	0.06	165	8	0.005	63	1950	16	12	6	191	0.005	5	5	25	5	296	A9829310
TR98-MN1	12.0	14.0	0.01	0.025	0.4	0.65	58	680	1	1	0.18	0.5	16	12	75	3.87	5	0.5	0.27	20	0.09	125	10	0.005	57	830	12	14	6	93	0.005	5	5	14	5	188	A9829310
TR98-MN1	14.0	16.0	0.01	0.02	0.2	0.75	92	840	1.5	1	0.2	1	23	11	69	4.54	5	0.5	0.24	30	0.1	165	15	0.005	68	1020	18	22	7	95	0.005	5	5	15	5	274	A9829310
TR98-MN1	16.0	18.0	0.01	0.0025	0.1	0.38	8	600	1	1	6.43	1	9	8	26	2.72	5	0.5	16	10	3.5	715	4	0.01	22	240	10	2	4	149	0.005	5	5	8	5	48	A9829310
TR98-MN1	18.0	20.0	0.01	0.01	0.1	0.37	6	490	1	1	7.18	1	10	8	36	2.48	5	0.5	0.16	10	3.28	530	3	0.01	23	210	14	6	5	161	0.005	5	5	7	5	58	A9829310
TR98-MN1	20.0	22.0	0.02	0.015	0.1	0.32	8	450	1	2	7.28	1	12	9	45	2.61	5	0.5	0.15	5	3	580	3	0.01	28	150	8	6	4	156	0.005	5	5	5	5	62	A9829310
TR98-MN1	22.0	24.0	0.01	0.015	0.1	0.37	22	420	0.5	1	6.3	1	14	7	48	2.66	5	0.5	0.16	10	2.7	680	2	0.01	29	200	2	6	4	114	0.005	5	5	6	5	64	A9829310
TR98-MN1	24.0	26.0	0.01	0.02	0.2	0.46	16	620	0.5	1	1.25	1	14	8	54	3.27	5	0.5	0.21	20	0.62	715	4	0.005	34	320	4	8	5	76	0.005	5	5	7	5	74	A9829310
TR98-MN1	26.0	27.0	0.01	0.01	0.4	0.48	28	1250	1	1	0.07	1	8	12	42	2.21	5	0.5	0.3	10	0.06	90	4	0.005	15	250	10	4	3	67	0.005	5	5	7	5	54	A9829310
TR98-MN1	27.0	30.0	0.01	0.03	0.6	0.57	94	1730	0.5	1	0.11	0.5	27	15	87	4.92	5	1	0.13	10	0.08	1175	7	0.005	70	860	18	8	8	94	0.005	5	5	31	5	186	A9829310
TR98-MN1	30.0	32.0	0.08	0.04	0.8	0.68	90	620	1	1	0.2	2.5	30	14	91	6.04	5	1	0.17	20	0.09	1475	10	0.005	103	1350	20	16	9	132	0.005	5	5	40	5	256	A9829310
TR98-MN1	32.0	35.0	0.06	0.05	0.8	0.70	96	1140	11	1	0.08	1	28	13	91	4.78	5	0.5	0.2	10	0.07	1225	5	0.005	85	660	14	14	8	53	0.005	5	5	31	5	246	A9829310
TR98-MN1	35.0	38.0	0.08	0.065	1	0.59	180	1280	1	1	0.17	0.5	28	15	75	5.27	5	1	0.14	20	0.08	1595	10	0.005	100	1080	26	14	9	85	0.005	5	5	43	5	236	A9829310
TR98-MN1	38.0	42.0	0.06	0.045	0.6	0.49	224	680	0.5	1	1.54	1	20	11	42	3.14	5	1	0.18	10	0.5	2040	4	0.005	64	280	10	22	8	43	0.005	5	5	13	5	106	A9829310
TR98-MN1	42.0	46.0	0.64	1.085	0.2	0.45	1460	680	0.5	1	4.67	1	18	13	41	2.79	5	0.5	0.16	10	1.03	1345	5	0.005	34	270	8	10	7	213	0.005	5	5	12	5	52	A9829310
TR98-MN1	46.0	50.0	0.81	1.23	0.2	0.50	1470	300	0.5	1	6.04	1	17	12	44	2.57	5	0.5	0.19	5	1.46	1035	1	0.005	28	160	8	10	6	215	0.005	5	5	9	5	50	A9829310
TR98-MN1	50.0	52.0	0.15	0.215	0.6	0.38	734	390	0.5	1	4.45	1	25	9	41	2.36	5	1	0.15	10	0.97	550	4	0.005	66	180	18	10	5	182	0.005	5	5	12	5	144	A9829310
TR98-MN1	52.0	56.0	0.07	0.105	0.4	0.44	532	350	0.5	1	3.16	1	27	12	47	3.61	5	0.5	0.11	5	0.42	1215	6	0.005	87	300	26	16	6	91	0.005	5	5	17	5	170	A9829310
TR98-MN1	56.0	58.0	0.07	0.015	0.2	0.48	138	660	0.5	1	0.16	1	22	13	58	4.17	5	0.5	0.16	10	0.09	990	5	0.005	72	310	22	14	9	32	0.005	5	5	19	5	150	A9829310
TR98-MN1	58.0	60.0	0.11	0.05	0.4	0.54	500	1350	0.5	1	0.22	2	27	14	55	6.41	5	1	0.13	10	0.09	1765	11	0.005	68	400	24	26	9	46	0.005	5	5	21	5	488	A9829310
TR98-MN1	60.0	64.0	0.08	0.015	0.1	0.57	40	480	0.5	2	5.42	1	12	9	42	2.27	5	0.5	0.22	5	0.38	710	3	0.005	28	140	10	6	6	70	0.005	5	5	8	5	76	A9829310
TR98-MN1	64.0	68.0	0.03	0.01	0.2	0.54	20	560	0.5	1	1.27	1	13	9	41	2.94	5	0.5	0.21	5	0.39	585	3	0.005	32	130	6	2	6	36	0.005	5	5	8	5	82	A9829310
TR98-MN1	68.0	70.0	0.01	0.01	0.1	0.62	16	550	0.5	1	0.97	1	13	12	49	3.39	5	0.5	0.22	5	0.2	795	3	0.005	34	240	6	8	7	38	0.005	5	5	9	5	92	A9829310
TR98-MN1	70.0	72.0	0.02	0.025	0.6	0.68	194	1040	1	1	0.24	1	16	15	82	7.32	5	2	0.11	10	0.13	1915	5	0.005	64	390	18	14	13	29	0.005	5	5	28	5	1135	A9829310
TR98-MN1	72.0	76.0	0.01	0.015	1.2	0.61	32	670	0.5	1	0.43	1	18	11	52	3.56	5	0.5	0.15	10	0.18	1085	3	0.005	42	230	14	12	10	31	0.005	5	5	15	5	146	A9829310
TR98-MN1	76.0	81.0	0.07	0.065	0.8	0.82	320	770	1	1	0.1	1	21	18	48	4.22	5	1	0.17	10	0.15	1430	5	0.005	53	310	18	12	11	31	0.005	5	5	20	5	134	A9829310
TR98-MN1	81.0	86.0	0.05	0.075	0.2	1.10	318	430	0.5	1	0.16	1	22	21	48	3.2	5	0.5	0.16	10	0.23	770	4	0.005	48	250	14	8	6	27	0.005	5	5	28	5	134	A9829310
TR98-MN1	86.0	90.0	0.05	0.17	0.8	0.68	586	690	0.5	1	0.23	0.5	22	18	85	3.35	5	1	0.17	10	0.16	990	8	0.005	79	380	18	12	8	48	0.005	5	5	24	5	260	A9829310
TR98-MN1	90.0	94.0	0.02	0.0025	0.6	0.43	28	800	0.5	1	1.51	1	16	9	37	3.76	5	0.5	0.13	10	0.63	1475	4	0.005	57	380	14	8	6	26	0.005	5	5	13	5	148	A9829310
TR98-MN1	94.0	98.0	0.02	0.02	1	0.29	38	500	0.5	1	0.67	1	24	9	61	3.93	5	1	0.13	10	0.26	1245	5	0.005	91	300	18	10	8	25	0.005	5	5	13	5	196	A9829310
TR98-MN1	98.0	102.0	0.01	0.03	0.6	0.30	52	510	0.5	2	0.17	1	31	11	81	4.29	5	0.5	0.11	5	0.08	1420	3	0.005	104	360	18	10	9	25	0.005	5	5	15	5	208	A9829310
TR98-MN1	102.0	105.5	0.01	0.01	0.1	0.35	26	390	0.5	1	0.55	1	17	7	46	2.35	5	0.5	0.15	5	0.19	790	1	0.005	36	200	6	8	6	17	0.005	5	5	6	5	82	A9829310
TR98-MN1	105.5	108.5	0.01	0.03	0.2	0.34	132	680	0.5	1	0.34	1	20	8	90	4.75	5	0.5	0.11	5	0.11	2170	7	0.005	88	450	8	18	9	24	0.005	5	5	9	5	214	A9829310
TR98-MN1	108.5	108.9	0.01	0.02	0.2	0.26	54	610	0.5	1	1.84	1	15	8	53	3.27	5	0.5	0.11	5	0.44	1140	4	0.005	44	290	12	4	8	41	0.005	5	5	16	5	124	A9829310
TR98-MN1	108.9	109.1	0.04	0.11	0.2	0.09	70	530	1	2	0.3	1	6	1	22	2.34	5	0.5	0.01	5	0.03	470	2	0.005	50	110	2	1	3	21	0.005	5	5	45	5	48	A9829310
TR98-MN1	109.1	110.0	0.05	0.04	0.8	0.27	88	670	0.5	1	0.17	1	22	7	147	4.01	5	1	0.1	5	0.04	1710	5	0.005	95	610	20	8	8	41	0.005	5	5	47	5	212	A9829310
TR98-MN1	110.0	116.0	0.03	0.03	1	0.27	160	720	0.5	1	0.49	0.5	22	7	89	6.49	5	0.5	0.1	5	0.15	3030	7	0.005	95	630	22	10	7	42	0.005	5	5	33	5	304	A9829310
TR98-MN1	116.0	117.0	0.02	0.065	1.6	0.40	374	1210	0.5	1	0.33	2.5	21	12	162	12.9	5	0.5	0.08	10	0.12	6990	5	0.005	120	580	18	14	14	38	0.005	5	5	121	5	562	A9829310
TR98-MN1	117.0	118.0	0.06	0.07	1.8	0.34	148	1520	0.5	1	0.88	1.5	21	8	77	5.61	5	1	0.12	10	0.2	2670	4	0.005	123	380	14	8	8	48	0.005	5	5	58	5	250	A9829310
TR98-MN1	118.0	120.0	0.05	0.175	2.6	0.34	262	1780	0.5	1	0.74	3	22	9	81	8.84	5	0.5	0.08	10	0.12	3650	4	0.005	193	480	10	10	10	60	0.005	5	5	151	5	250	A9829310
TR98-MN1	120.0	122.0	0.04	0.1	1	0.33	148	760	0.5	1	4.03	1	23	9	66	3.91	5	0.5	0.1	5	0.71	1995	4	0.005	57	330	16	4	4	95	0.005	5	5	13	5	142	A9829310
TR98-MN1	122.0	124.0	0.13	0.4	1.8	0.39	690	1510	0.5	1	0.09	1	39	10	74	6.95	5	0.5	0.1	5	0.06	3390	6	0.005	111	600	22	14	14	77	0.005	5	5	20	5	322	A9829310
TR98-MN1	124.0	128.0	0.01	0.02	0.8	0.35	40	990	0.5	1	2.13	1	16	10	46	2.92	5	0.5	0.14	5	0.79	1150	4	0.005	69	230	16	6	6	44	0.005	5	5	13	5	172	A9829310
TR98-MN1	128.0	130.0	0.16	0.295	0.8	0.35	288	930	0.5	1	0.66	1	27	14	63	4.15	5	2	0.12	5	0.18	1575	5	0.005	99	320	24	12	12	51	0.005	5	5	18	5	200	A9829310
TR98-MN1	130.0	132.0	0.22	0.485	0.6	0.35	470	620	0.5	1	0.21	1	34	12	90	3.76	5	1	0.12	5	0.07	1810	4	0.005	95	240	18	12	12	34	0.005	5	5	18	5	208	A9829310
TR98-MN1	132.0	136.0	0.67	1.12	0.6	0.31	868	620	0.5	1	0.26	1	20	10	81	5.42	5	0.5	0.11	5	0.09	2630	3	0.005	54	260	8	8	8	30	0.005	5	5	17	5	194	A9829310
TR98-MN1	136.0	138.0	0.05	0.125	0.2	0.32	192	480	0.5	1	0.96	1	25	8	56	2.66	5	1	0.1	5	0.22	1205	1	0.005	50	140	8	6	6	39	0.005	5	5	11	5	218	A9829310
TR98-MN1	138.0	140.0	0.05	0.135	0.6	0.32	604	510	0.5	2	0.06	3	37	8	74	5.41	5	4	0.09	5	0.05	2050	4	0.005	93	240	24	12	12	19	0.005	5	5	18	5	824	A9829310
TR98-MN1	140.0	144.0	0.03	0.105	0.1	0.37	150	300	0.5	2	0.07	1	24	7	32	4.04	5	0.5	0.1	5	0.07	1350	2	0.005	50	180	18	6	6	11	0.005	5	5	12	5	166	A9829310
TR98-MN1	144.0	148.0	0.04	0.045	0.2	0.44	92	450	0.5	2	1.29	1	18	10	37	3.07	5	1	0.11	5	0.44	970	2	0.005	52	140	14	8	8	27	0.005	5	5	14	5	152	A9829310
TR98-MN1	148.0	152.0	0.07	0.21	0.2	0.27	544	740	0.5	1	3.81	1	22	8	37	3.51	5	0.5	0.1	5	1.27	1645	5	0.005	58	200	16	10	10	67	0.005	5	5	13	5	176	A9829310
TR98-MN1	152.0	154.0	0.09	0.255	0.8	0.34	434	870	0.5	1	0.21	1	19	7	86	2.9	5	1	0.15	5	0.04	445	5	0.005	65	850	8	12	12	102	0.005	5	5	25	5	218	A9829310
TR98-MN1	154.0	156.0	0.01	0.065	0.6	0.39	148	810	1	1	0.19	0.5	28	8	85	3.49	5	0.5	0.14	5	0.09	1570	4	0.005	64	370	10	8	8	48	0.005	5	5	11	5	176	A9829310
TR98-MN1	156.0	158.0	0.01	0.05	0.4	0.39	216	720	0.5	1	0.63	0.5	22	8	60	3.47	5	0.5	0.17	5	0.22	1070	6	0.005	67	520	18	12	12	61	0.005	5	5	16	5	194	A9829310
TR98-MN1	158.0	162.0	0.02	0.085	0.6	0.34	174	1000	0.5	1	0.29	1	22	8	53	4.41	5	0.5	0.14	5	0.11	1760	5	0.005	72	660	14	14	14	57	0.005	5	5	43	5	182	A9829310
TR98-MN1	162.0	164.0	0.38	0.8	0.8	0.42	888	1630	0.5	1	0.14	1	26	14	74	4.51	5	3	0.13	5	0.08	1710	1	0.005	65	780	16	14	14	88	0.005	5	5	28	5	192	A9829310
TR98-MN1	164.0	166.0	0.09	0.19	0.6	0.27	934	790	0.5	1	0.35	0.5	25	8	73	4.67	5	1	0.11	5	0.1	760	5	0.005	78	590	18	10	10	58	0.005	5	5	50	5	282	A9829310
TR98-MN1	166.0	170.0	0.02	0.07	0.8	0.34	410	880	0.5	1	0.29	0.5	23	8	62	4.05	5	1	0.14	5	0.07	635	12	0.005	82	1080	22	12	12	79	0.005	5	5	33	5	254	A9829310
TR98-MN1	170.0	174.0	0.02	0.045	1	0.41	246	1110	0.5	1	0.26	1	22	9	69	3.47	5	1	0.16	5	0.08	490	7	0.005	76	880	20	12	12	69	0.005	5	5	40	5	340	A9829310
TR98-MN1	174.0	178.0	0.01	0.075	0.6	0.32	264	1500	0.5	1	0.34	0.05	28	7	74	4	5	0.5	0.13	5	0.14	1595	4	0.005	70	390	16	10	10	41	0.005	5	5	18	5	256	A9829310
TR98-MN1	178.0	180.0	0.04	0.085	0.8	0.27	240	1060	0.5	1	0.07	0.05	36	8	74	4.26	5	3	0.1	5	0.04	3180	5	0.005	86	510	16	18	18	35	0.005	5	5	15	5	272	A9829310
TR98-MN1	180.0	182.0	0.05	0.09	1	0.33	312	840	1	1	0.07	0.05	50	8	97	6.11	5	0.5	0.1	5	0.05	2510	5	0.005	113	720	12	22	22	37	0.005	5	5	16	5	364	A9829310
TR98-MN1	182.0	184.0	0.28	0.75	1	0.32	1435	950	0.5	1	0.21	2	22	8	82	5.7	5	2	0.1	5	0.05	1600	4	0.005	63	1110	10	14	14	70	0.005	5	5	16	5	142	A9829310

Au
1B

TS

1998 ICP Results

Hole ID	From	To	VMC	Au Chemex	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sr	Tl	Tl	U	V	W	Zn	Cert. #
TR98-MN1	184.0	188.0	0.18	0.675	0.4	0.26	1775	800	0.5	1	0.15	1	19	6	87	6.15	5	0.5	0.12	5	0.06	1850	4	0.005	69	430	6	20	20	60	0.005	5	5	15	5	354	A9829310
TR98-MN1	188.0	190.0	0.02	0.095	0.2	0.37	504	460	0.5	1	1.38	1	21	6	75	3.41	5	0.5	0.15	5	0.7	830	4	0.005	44	260	10	10	10	44	0.005	5	5	7	5	116	A9829310
TR98-MN1	190.0	192.0	0.11	0.26	0.2	0.32	332	750	0.5	1	1.12	1	19	7	60	4.43	5	0.5	0.11	5	0.49	955	10	0.005	62	390	28	14	14	55	0.005	5	5	20	5	142	A9829310
TR98-MN1	192.0	194.0	0.11	0.29	0.4	0.24	144	670	0.5	1	0.27	1	20	6	71	9.96	5	0.5	0.1	5	0.14	3250	7	0.005	74	480	16	10	10	31	0.005	5	5	49	5	146	A9829310
TR98-MN1	194.0	197.0	0.1	0.245	0.6	0.29	554	700	0.5	2	0.44	0.5	24	7	73	8.06	5	0.5	0.1	5	0.17	2240	6	0.005	69	650	8	16	16	50	0.005	5	5	40	5	226	A9829310
TR98-MN1	197.0	199.0	1	2.57	1.4	0.62	1800	1000	1	1	0.53	2	39	12	188	7.05	5	1	0.09	5	0.17	1780	8	0.005	103	750	10	24	24	90	0.005	5	5	30	5	434	A9829310
TR98-MN1	199.0	201.0	0.05	0.1	0.2	0.35	420	680	0.5	1	0.2	0.5	21	8	87	4.04	5	0.5	0.14	5	0.04	530	3	0.005	53	1180	16	6	6	137	0.005	5	5	19	5	212	A9829310
TR98-MN1	201.0	206.0	0.03	0.09	0.1	0.33	362	650	0.5	1	0.67	1	25	7	74	5.62	5	0.5	0.16	5	0.35	1415	6	0.005	55	450	14	10	10	56	0.005	5	5	11	5	146	A9829310
TR98-MN1	206.0	208.0	0.03	0.03	0.1	0.26	42	510	1	1	5.8	1	12	6	30	2.49	5	0.5	0.12	5	2.83	875	4	0.005	29	230	8	2	2	95	0.005	5	5	7	5	56	A9829310
TR98-MN1	208.0	210.0	0.01	0.035	0.2	0.34	94	640	0.5	1	0.41	1	22	7	53	3.97	5	1	0.14	5	0.12	720	11	0.005	74	760	32	8	8	66	0.005	5	5	30	5	142	A9829310
TR98-MN1	210.0	212.0	0.01	0.04	0.4	0.39	308	780	1	1	0.19	1.5	38	7	94	7.14	5	0.5	0.1	5	0.08	2380	8	0.005	104	1080	16	10	10	54	0.005	5	5	34	5	248	A9829310
TR98-MN1	212.0	214.0	0.01	0.035	0.2	0.31	170	700	0.5	1	0.09	1	23	9	82	4.5	5	0.5	0.11	5	0.06	1895	5	0.005	75	620	10	6	6	45	0.005	5	5	18	5	152	A9829310
TR98-MN1	214.0	220.0	0.01	0.035	0.2	0.34	390	640	0.5	1	0.14	1	24	7	60	5.1	5	0.5	0.13	5	0.07	1360	7	0.005	59	710	20	8	8	54	0.005	5	5	15	5	132	A9829310
TR98-MN1	220.0	222.0	0.16	0.675	1	0.42	806	960	1	1	0.05	1	17	11	114	6.07	5	1	0.12	5	0.03	585	5	0.005	62	910	16	10	10	107	0.005	5	5	23	5	156	A9829310
TR98-MN1	222.0	224.0	0.17	0.395	0.6	0.51	518	840	1	2	0.04	1	20	10	111	7	5	1	0.09	5	0.04	605	8	0.005	62	850	12	16	16	62	0.005	5	5	18	5	194	A9829310
TR98-MN1	224.0	226.0	0.06	0.16	0.2	0.74	404	840	1	1	0.05	1	44	10	87	5.14	5	1	0.12	5	0.06	2020	4	0.005	85	710	20	6	6	46	0.005	5	5	16	5	170	A9829310
TR98-MN1	226.0	229.0	0.34	0.62	1.2	0.27	430	1180	1	1	0.07	0.5	21	8	51	4.1	5	1	0.08	5	0.05	980	2	0.005	48	680	10	10	10	60	0.005	5	5	16	5	148	A9829310
TR98-MN1	229.0	232.0	0.52	0.95	1.2	0.29	728	800	0.5	1	0.06	1	20	6	64	4.06	5	1	0.12	5	0.05	1925	5	0.005	45	360	16	14	14	36	0.005	5	5	12	5	124	A9829310
TR98-MN1	232.0	236.0	0.28	0.61	0.6	0.38	1050	830	0.5	1	0.04	1	24	10	66	4.11	5	0.5	0.1	5	0.04	1835	1	0.005	47	340	10	12	12	42	0.005	5	5	14	5	98	A9829310
TR98-MN1	236.0	238.0	0.21	0.39	0.2	0.39	976	740	0.5	1	0.08	1	19	8	68	3.39	5	1	0.1	5	0.04	1440	6	0.005	45	350	10	10	10	39	0.005	5	5	17	5	180	A9829310
TR98-MN1	238.0	242.0	0.1	0.14	0.6	0.65	454	1430	1.5	2	0.49	0.5	20	13	79	4.95	5	3	0.23	10	0.08	900	19	0.005	89	2180	30	14	14	130	0.005	5	5	48	5	246	A9829310
TR98-MN1	242.0	246.0	0.14	0.415	1.2	0.87	414	970	1	1	0.9	1	18	28	83	4.95	5	3	0.35	30	0.07	205	10	0.01	70	6470	52	14	14	379	0.005	5	5	67	5	202	A9829310
TR98-MN1	246.0	250.0	0.05	0.145	0.6	0.56	380	1060	0.5	1	0.1	1	30	31	84	6.28	5	0.5	0.11	10	0.03	2260	10	0.005	78	1990	22	18	18	169	0.005	5	5	28	5	170	A9829310
TR98-MN1	250.0	254.0	0.29	0.63	1.6	0.60	1055	1990	0.5	1	0.17	1	21	23	90	8.1	5	3	0.19	10	0.04	1880	12	0.005	76	2280	44	22	22	204	0.005	5	5	50	5	196	A9829310
TR98-MN1	254.0	256.0	0.14	0.435	1.2	0.57	262	3910	0.5	1	0.11	1	10	23	68	4.42	5	0.5	0.07	5	0.02	240	7	0.005	56	2740	30	18	18	397	0.005	5	5	53	5	150	A9829310
TR98-MN1	256.0	258.0	0.06	0.175	1.6	0.59	118	3530	0.5	1	0.15	1	5	31	61	2.43	5	3	0.11	5	0.02	125	6	0.005	35	2640	48	14	14	627	0.005	5	5	64	5	88	A9829310
TR98-MN1	258.0	260.0	0.06	0.09	1.6	0.64	156	2850	0.5	1	0.63	1	6	34	97	4	5	5	0.16	10	0.02	70	8	0.01	54	5030	44	20	20	506	0.005	5	5	88	5	130	A9829310
TR98-SL18	0.0	3.0	0.09	0.01	0.2	0.37	54	200	0.2	1	0.06	0.2	11	38	62	3.82	5	0	0.16	40	0.03	115	3	0	34	430	22	12	1	21	0	5	5	16	5	84	A9833642
TR98-SL18	3.0	5.0	0.02	0.01	0.2	0.39	58	210	0.2	1	0.04	0.2	10	38	50	3.42	5	0	0.17	40	0.03	85	3	0	33	380	22	18	1	18	0	5	5	13	5	70	A9833642
TR98-SL18	5.0	8.0	0.01	0.015	0.4	0.46	116	300	0.2	1	0.04	0.2	8	29	55	3.09	5	0	0.18	40	0.03	70	4	0	29	350	22	32	1	35	0	5	5	14	5	96	A9833642
TR98-SL18	8.0	10.0	0.1	0.13	1.8	0.38	792	430	0.2	2	0.05	0.2	6	40	47	2.97	5	0	0.15	30	0.03	55	3	0	25	330	74	60	1	74	0	5	5	11	5	80	A9833642
TR98-SL18	10.0	12.0	0.1	0.125	1.6	0.42	490	1000	0.2	2	0.05	0.2	3	34	39	2.74	5	0	0.18	20	0.03	35	3	0	14	330	50	48	1	66	0	5	5	10	5	38	A9833642
TR98-SL18	12.0	14.0	0.07	0.09	1.8	0.42	432	460	0.2	2	0.05	0.2	3	49	32	2.57	5	0	0.18	20	0.03	35	3	0	11	320	42	52	1	55	0	5	5	12	5	44	A9833642
TR98-SL18	14.0	16.0	0.15	0.14	1.8	0.49	838	470	0.2	2	0.05	0.2	3	36	40	2.49	5	0	0.23	30	0.04	45	3	0	17	290	60	48	1	55	0	5	5	14	5	38	A9833642
TR98-SL18	16.0	18.0	0.07	0.1	0.8	0.60	908	460	0.2	2	0.04	0.2	5	38	59	3.96	5	0	0.27	30	0.04	60	3	0	20	420	36	38	1	53	0	5	5	18	5	56	A9833642
TR98-SL18	18.0	20.0	0.04	0.055	0.2	0.50	562	360	0.2	2	0.04	0.2	5	32	51	3.54	5	0	0.22	30	0.03	75	2	0	20	370	12	24	1	51	0	5	5	15	5	46	A9833642
TR98-SL18	20.0	22.0	1.75	2.14	1	0.47	>10000	560	0.2	26	0.03	0.2	6	29	52	4.77	5	0	0.19	20	0.03	65	3	0	16	440	40	50	2	37	0	5	5	15	5	58	A9833642
TR98-SL18	22.0	24.0	0.41	0.465	0.6	0.50	2240	320	0.2	8	0.04	0.2	9	37	54	3.59	5	0	0.21	30	0.05	70	3	0	24	380	18	38	1	25	0	5	5	14	5	48	A9833642
TR98-SL18	24.0	26.0	0.09	0.04	0.2	0.61	464	530	0.2	2	0.03	0.2	8	35	55	3.44	5	0	0.24	40	0.04	65	3	0	27	550	12	36	1	46	0	5	5	16	5	40	A9833642
TR98-SL18	26.0	28.0	0.03	0.03	0.4	0.60	228	280	0.2	2	0.03	0.2	10	37	62	3.54	5	0	0.24	40	0.04	120	3	0	37	500	16	36	2	27	0	5	5	15	5	64	A9833642
TR98-SL18	28.0	30.0	0.08	0.025	0.8	0.60	326	270	0.2	2	0.03	0.2	7	24	70	4.18	5	0	0.21	40	0.04	80	3	0	28	520	208	42	1	17	0	5	5	16	5	102	A9833642
TR98-SL18	30.0	32.0	0.25	0.245	1.2	0.52	2320	280	0.2	4	0.04	0.2	6	31	67	4.05	5	0	0.21	30	0.04	70	3	0	25	470	36	32	1	27	0	5	5	14	5	110	A9833642
TR98-SL18	32.0	34.0	0.13	0.135	0.8	0.39	1190	290	0.2	2	0.04	0.2	7	26	70	4.38	5	0	0.15	30	0.03	75	3	0	24	410	34	36	1	34	0	5	5	12	5	134	A9833642
TR98-SL18	34.0	36.0	0.05	0.07	0.8	0.43	732	320	0.2	1	0.04	0.2	8	25	67	4.3	5	0	0.15	30	0.03	75	3	0	27	400	52	44	1	40	0	5	5	11	5	134	A9833642
TR98-SL18	36.0	38.0	0.06	0.05	1.8	0.41	470	310	0.2	2	0.04	0.2	8	33	64	3.91	5	0	0.15	30	0.03	105	3	0	28	390	80	54	1	42	0	5	5	10	5	158	A9833642
TR98-SL18	38.0	40.0	0.05	0.03	0.2	0.42	920	310	0.2	1	0.04	0.2	9	27	99	4.35	5	0	0.17	30	0.03	140	3	0	29	680	18	22	2	68	0	5	5	12	5	124	A9833642
TR98-SL18	40.0	42.0	0.07	0.02	0.2	0.61	246	340	0.2	1	0.04	0.2	12	39	93	4.21	5	0	0.22	30	0.04	190	3	0	40	580	20	30	3	41	0	5	5	16	5	154	A9833642
TR98-SL18	42.0	44.0	0.04	0.035	1	0.64	540	520	0.2	2	0.05	0.2	8	35	71	4.32	5	0	0.22	30	0.04	130	3	0	30	540	40	38	2	38	0	5	5	17	5	106	A9833642
TR98-SL18	44.0	46.0	0.10	0.11	1	0.51	530	490	0.2	6	0.05	0.2	5	42	49	3.68	5	0	0.18	30	0.04	85	3	0	25	350	32	30	1	21	0	5	5	13	5	54	A9833642
TR98-SL18	46.0	48.0	0.05	0.075	1.4	0.43	442	340	0.2	4	0.05	0.2	5	52	49	3.3	5	0	0.15	20	0.03	80	4	0	22	320	44	30	1	29	0	5	5	11	5	60	A9833642
TR98-SL18	48.0	50.0	0.04	0.04	1	0.41	194	220	0.2	2	0.05	0.2	6	38	47	2.94	5	0	0.14	30	0.03	75	3	0	23	290	26	24	1	14	0	5	5	10	5	58	A9833642
TR98-SL19	0.0	3.0	0.04	0.045	0.2	0.25	346	290	0.2	2	0.04	0.2	8	39	94	2.73	5	0	0.19	30	0.04	85	2	0	31	410	34	16	3	33	0	5	5	13	5	158	A9833642
TR98-SL19	3.0	6.0	0.08	0.03	1	0.62	250	230	0.2	2	0.03	0.5	9	29	84	2.49	5	0	0.18	30	0.03	85	3	0	29	330	70	14	2	27	0	5	5	10	5	138	A9833642
TR98-SL19	6.0	9.0	0.02	0.025	2.8	0.51	140	180	0.2	2	0.03	0.5	8	46	83	2.15	5	0	0.15	20	0.02	55	3	0	27	280	108	28	1	15	0	5	5	8	5	146	A9833642
TR98-SL19	9.0	12.0	0.06	0.075	2.2	0.40	310	280	0.2	2	0.04	0.2	3	58	27	1.72	5	0	0.14	20	0.02	25	3	0	14	230	312	92	1	38	0	5	5	8	5	158	A9833642
TR98-SL19	12.0	15.0	0.03	0.055	1.4	0.33	306	280	0.2	4	0.03	0.2	5	58	63	2.81	5	0	0.15	20	0.03	40	3	0	22	330	176	72	1	33	0	5	5	9	5	188	A9833642
TR98-SL19	15.0	18.0	0.12	0.13	6.6	0.30	642	350	0.2	2	0.04	0.2	6	46	67	3.29	5	0	0.19	30	0.03	70	3	0	24	420	894	80	2	38	0	5	5	10	5	278	A9833642
TR98-SL19	18.0	21.0	0.03	0.05	1.6	0.37	608	280	0.2	6	0.05	0.2	6	42	73	3.73	5	0	0.23	20	0.04	35	1	0	20	430	110	28	2	33	0	5	5	11	5	200	A9833642
TR98-SL19	21.0	24.0	0.17	0.21	4.2	-1.00	806	320	0.2	2	0.05	0.2	5	38	68	3.74	5	0	0.25	30	0.04	25	3	0	20	480	506	18	3	40	0	5	5	10	5	214	A9833642
TR98-SL19	24.0	27.0	0.01	0.035	0.2	-1.00	256	290	0.2	2	0.05	0.2	11	36	70	3.15	5	0	0.22	30	0.04	85	3	0	37	390	18	6	2	21	0	5	5	10	5	114	A9833642
TR98-SL19	27.0	30.0	0.04	0.04	0.6	-1.00	156	250	0.2	2	0.04	0.2	10	34	74	3.25	5	0	0.21	30	0.03	75	3	0	35	390	42	6	2	18	0	5	5	11	5	134	A9833642
TR98-SL19	30.0	33.0	0.08	0.09	1	-1.00	458	300	0.2	2	0.05	0.2	7	46	56	3.47	5	0	0.22	20	0.03	35	4	0	24	420	28	8	2	30	0	5	5	11	5	126	A9833642
TR98-SL19	33.0	36.0	0.47	0.52	0.8	-1.00	1490	570	0.2	12	0.05	0.2	6	54	54	3.52	5	0	0.2	20	0.03	25	3	0	21	380	20	10	3	41	0	5	5	11	5	110	A9833642
TR98-SL19	36.0	39.0	3.05	4.21	1.4	-1.00	1705	300	0.2	22	0.05	0.2	7	47	56	3.96	5	0	0.19	10	0.03	40	3	0	27	450	20	12	3	31	0	5	5	10	5	168	A9833642
TR98-SL19	39.0	42.0	0.10	0.125	0.4	-1.00	456	210	0.2	6	0.04	0.2	8	45	62	3.18	5	0	0.15	10	0.03	75	7	0	29	370	14	12	1	20	0	5	5	8	5	154	A9833642
TR98-SL19	42.0	45.0	0.05	0.07	1.2	-1.00	454	280	0.2	2	0.05	0.2	6	43	49	2.79	5	0	0.18	20	0.03	45	3	0	21	310	172	94	1	26	0	5	5	7	5	126	A9833642
TR98-SL19	45.0	48.0	1.13	0.96	0.8	-1.00	304	380	0.2	6	0.04	0.2	10	81	52	3.24	5	0	0.16	20	0.03	95	3	0	33	380	78	62	4	36	0	5	5	22	5	144	A9833642
TR98-SL19	48.0	51.0	0.03	0.045	0.2	-1.00	202	250	0.2	1	0.05	0.2	7	39	48	3.39	5	0	0.16	30	0.03	60	3	0	25	360	22	26	1	16	0	5	5	9	5	94	A9833642
TR98-SL19	51.0	54.0	0.03	0.03	0.2	-1.00	282	240	0.2	4	0.05	0.2	7	38	47	3.74	5	0	0.16	20	0.03	40	3	0	22	410	18	32	1	17	0	5	5	10	5	70	A9833642
TR98-SL19	54.0	57.0	0.06	0.07	1.2	-1.00	394	310	0.2	4	0.04	0.2	4	51	30	2.68	5	0	0.22	30	0.03	25	3	0	13	310	46	38	1	31	0	5	5	9	5	52	A9833642
TR98-SL19	57.0	60.0	0.19	0.165	1.6	-1.00	380	270	0.2	8	0.04	0.2	5	42	35	2.96	5	0	0.22	30	0.03	35	3	0	18	310	116	44	1	22	0	5	5	9	5	60	A9833642
TR98-SL19	60.0	63.0	0.06	0.08	0.8	-1.00	610	310	0.2	8	0.05	0.2	6	37	48	3.39	5	0	0.2	20	0.04	35	3	0	21	380	22	20	2	23	0	5	5	11	5	48	A9833642
TR98-SL19	63.0	66.0	0.03	0.04	0.2	-1.00	296	320	0.2	4	0.05	0.2	9	38	68	3.4	5	0	0.19	30	0.04	50	2	0	29	420	14	22	1	22	0	5	5	10	5	64	A9833642
TR98-SL19	66.0	69.0	0.04	0.02	0.4	-1.00	414	280	0.2	6	0.05	0.2	9	45	61	3.22	5	0	0.18	30	0.04	55	3	0	28	350	22	32	1	21	0	5	5	10	5	58	A9833642
TR98-SL19	69.0	72.0	0.07	0.06	0.6	-1.00	252	250	0.2	2	0.04	0.2	9	39	46	2.89	5	0	0.19	30	0.03	90	3	0	32	340	50	42	1	19	0	5	5	10	5	124	A9833642
TR98-SL19	72.0	75.0	0.01	0.02	0.2	-1.00	200	250	0.5	1	0.04	0.2	13	25	62	3.6	5	0	0.16	20	0.03	120	2	0	39	470	18	28	2	23	0	5	5	10	5	172	A9833642
TR98-SL19	75.0	78.0	0.01	0.01	0.2	-1.00	222	230	0.5	1	0.04	0.5	15	29	82	3.96	5	0	0.18	30	0.04	150	2	0	41	510	22	36	3	20	0	5	5	13	5	134	A9833642
TR98-SL19	78.0	81.0	0.02	0.015	0.6	-1.00	354	260	0.5	2	0.05	0.2	11	41	75	3.31	5	0	0.2	30	0.04	80	2	0	28	410	22	18	1	21	0	5	5	11	5	94	A9833642

A
1: LTS

1998 ICP Results

Hole ID	From	To	VMC	Au Chemex	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn	Cert. #
TR98-SL19	81.0	84.0	0.03	0.015	0.6	-1.00	280	280	0.5	2	0.05	0.2	10	35	83	3.12	5	0	0.2	30	0.04	65	3	0	31	480	40	18	2	29	0	5	5	13	5	106	A9833642
TR98-SL19	84.0	87.0	0.02	0.01	0.4	-1.00	268	260	0.5	2	0.04	0.2	9	38	102	3.16	5	0	0.19	30	0.03	70	3	0	28	540	26	20	2	34	0	5	5	13	5	88	A9833642
TR98-SL19	87.0	90.0	0.04	0.01	0.6	-1.00	226	250	0.5	1	0.05	0.2	8	39	102	3.02	5	0	0.2	20	0.03	50	3	0	28	530	38	18	2	32	0	5	5	13	5	94	A9833642
TR98-SL19	90.0	93.0	0.02	0.015	1	-1.00	378	310	0.5	2	0.05	0.2	7	42	73	3.6	5	0	0.25	20	0.03	55	3	0	22	550	68	14	2	45	0	5	5	13	5	84	A9833642
TR98-SL19	93.0	96.0	0.07	0.045	2.2	-1.00	294	370	0.2	6	0.06	0.2	3	47	27	2.31	5	0	0.24	10	0.03	35	4	0	14	390	412	110	1	58	0	5	5	9	5	76	A9833642
TR98-SL19	96.0	99.0	0.07	0.085	2.6	-1.00	348	330	0.2	6	0.06	0.2	4	35	23	2.28	5	0	0.23	20	0.03	40	4	0	14	380	350	76	1	50	0	5	5	9	5	74	A9833642
TR98-SL19	99.0	102.0	0.77	0.81	1	-1.00	372	270	0.2	12	0.05	0.2	5	40	43	2.64	5	0	0.23	10	0.04	25	3	0	15	380	38	28	1	32	0	5	5	12	5	66	A9833642
TR98-SL19	102.0	105.0	0.11	0.1	0.6	-1.00	396	250	0.2	4	0.04	0.2	6	52	48	2.37	5	0	0.2	10	0.03	35	3	0	20	330	24	34	1	36	0	5	5	11	5	58	A9833642
TR98-SL19	105.0	108.0	0.05	0.04	0.8	-1.00	352	240	0.2	4	0.05	0.2	5	53	51	2.75	5	0	0.22	10	0.04	40	4	0	20	420	26	18	1	40	0	5	5	11	5	42	A9833642
TR98-SL19	108.0	111.0	0.02	0.025	0.6	-1.00	348	220	0.2	4	0.05	0.2	6	44	48	3.15	5	0	0.21	10	0.03	55	3	0	23	500	20	14	1	34	0	5	5	9	5	52	A9833642
TR98-SL19	111.0	114.0	0.14	0.145	0.4	-1.00	1405	250	0.2	4	0.04	0.2	13	37	57	3.55	5	0	0.21	20	0.04	90	3	0	37	390	24	10	1	19	0	5	5	10	5	94	A9833642
TR98-SL19	114.0	115.0	0.04	0.04	0.2	-1.00	406	280	0.2	2	0.03	0.2	10	39	50	3.08	5	0	0.22	30	0.04	90	3	0	30	360	28	14	1	20	0	5	5	11	5	76	A9833642

APPENDIX 7A

BOHEMIAN ZONE – 1998 RESOURCE ESTIMATE
TEXT

Memorandum

Date: 6 December 1998

To: R. Diment

From: V. Park

Subject: **Bohemian Zone - 1998 Resource Estimate**

Summary

Table 1, shown below, summarizes the geologic resource estimate for the Bohemian Zone. This estimate is inclusive of all 1998 drilling.

The global resource for the Bohemian Zone is 1.31 million tonnes at a grade of 1.42 grams per tonne, for a total of 59 427 ounces of gold.

The resource is reported by measured and indicated classes. The entire resource is further classified as oxide and sulfide.

All numbers are drill-indicated and undiluted.

Table 1.

Resource Summary

Bohemian Zone

Zone	Cut-off Grade (g/T)		All Material			Oxide**			Sulphide**		
			Tonnage (T)	Grade (g/T)	Au Ounces*	Tonnage (T)	Grade (g/T)	Au Ounces*	Tonnage (T)	Grade (g/T)	Au Ounces*
Bohemian	0.5	Global	1305596	1.42	59427	1111868	1.27	45235	193728	2.28	141925
		Measured	1246082	1.43	57410	1063940	1.27	43579	182142	2.36	13830
		Indicated	59514	1.05	2018	47928	0.92	1411	11586	0.97	362
		Inferred	0	0.00	0	0	0.00	0	0	0.00	0
		Meas+Ind	1305596	1.42	59428	1111868	1.27	44990	193728	2.28	14192

* 1 oz (troy) = 31.1035 g

**Note: Oxide and sulphide classifications are based *solely* on geology.

Criteria

1.) A minimum composite length of 6.0m with a grade of 0.5 g/T or greater, with a maximum of 4.0m of continuous internal dilution. In some instances, composite lengths or grade not meeting these criteria have been used to establish continuity. Larger polygons were sub-divided to better confine higher-grade intersections.

2.) On section the measured resource will extend 15.0m from the assay composite in a direction normal to the drill hole, or to the midpoint or bisector between two adjacent drill holes, whichever is less. The measured resource will extend 15.0m toward the next section, or to the midpoint between sections, whichever is less.

3.) On section the indicated resource will extend an additional 15.0m (30.0m) from the assay composite in a direction normal to the drill hole, or to the midpoint or bisector between two adjacent drill holes, whichever is less. The indicated resource will extend an additional 15.0m toward the next section, or to the midpoint between sections, whichever is less. If no assay composite exists, then the resource will be reported as indicated or inferred, depending on geological interpretation

4.) Due to the highly confined nature of mineralization, no inferred resource was calculated.

5.) No mineralization is extended into the footwall or beyond topographic limits.

6.) Drill data always takes precedence over trench data. Trench data was excluded from the Bohemian resource estimate as drilling failed to reproduce trenching results.

7.) A specific gravity of 2.4 is assumed for all mineralized rock.

8.) LAQM is assumed to represent the oxide resource. AQM is assumed to represent the sulfide resource. The classifications are based on major lithology, as logged, and not by any other metallurgical or mineralogical observations. Preliminary bottle roll test results indicate recoveries of greater than 80% from LAQM at depths to 60 meters.

Methods

1.) Several N-S cross sections, showing geology and assay values, were cut through the deposit at 25 meter spacing.

2.) Polygons joining adjacent grade composites were hand plotted on all the sections. In most cases the extents of the polygons honour geological and structural interpretations.

3.) Polygons were digitized and the areas were reported. Grade composites were hand calculated. Volumes were determined by using distances between sections (as described in Criteria). All values were entered into a spreadsheet and the results were calculated and tabulated.

V. Park, B. Sc
6 December 1998

APPENDIX 7b

BOHEMIAN ZONE – 1998 RESOURCE ESTIMATE TABLES

1998 Bohemian Resource Estimate

Curent through Phase 5 drilling

	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
1	23145	1	meas	RC91-618	34	40	0.54	31.3	25	2.4	AQM	782.5	1878.0	1014.1
2	23145	2	meas	RC91-618	34	40	0.54	6.7	25	2.4	AQM	167.5	402.0	217.1
3	23145	3	meas	RC91-577	26	38	1.11	257.3	25	2.4	AQM	6432.5	15438.0	17136.2
4	23145	4	meas	RC91-577	26	38	1.11	14.4	25	2.4	AQM	360.0	864.0	959.0
5	23145	5	meas	RC91-577	18	26	0.74	9.4	25	2.4	AQM	235.0	564.0	417.4
6	23145	6	meas	RC91-577	18	26	0.74	69.1	25	2.4	AQM	1727.5	4146.0	3068.0
7	23145	7	meas	RC91-617	14	20	0.61	51.1	25	2.4	LAQM	1277.5	3066.0	1870.3
8	23145	8	meas	RC91-617	14	20	0.61	26.5	25	2.4	LAQM	662.5	1590.0	969.9
9	23145	9	meas	RC98-578	2	6	1.23	26.1	25	2.4	LAQM	652.5	1566.0	1926.2
10	23145	10	meas	RC98-578	2	6	1.23	10.6	25	2.4	LAQM	265.0	636.0	782.3
11	23145	11	meas	RC98-578	36	42	1.01	69.1	25	2.4	LAQM	1727.5	4146.0	4187.5
12	23145	12	meas	RC98-578	36	42	1.01	12.23	25	2.4	LAQM	305.8	733.8	741.1
13	23145	13	meas	RC98-2238	50	52	0.28	6.7	25	2.4	LAQM	167.5	402.0	112.6
14	23145	14	meas	RC98-2238	50	52	0.28	16.2	25	2.4	LAQM	405.0	972.0	272.2
15	23145	15	meas	RC91-617	38	46	0.67	25.4	25	2.4	LAQM	635.0	1524.0	1021.1
16	23145	16	meas	RC91-617	38	46	0.67	61.7	25	2.4	LAQM	1542.5	3702.0	2480.3
17	23145	17	meas	RC91-618	40	44	1.32	5	25	2.4	AQM	125.0	300.0	396.0
18	23145	18	meas	RC91-618	40	44	1.32	16	25	2.4	AQM	400.0	960.0	1267.2
19														
20	23170	1	meas	RC98-2238	12	18	0.51	71.5	25	2.4	LAQM	1787.5	4290.0	2187.9
21	23170	2	meas	RC98-2238	12	18	0.51	76.6	25	2.4	LAQM	1915.0	4596.0	2344.0
22	23170	3	ind	RC98-2238	12	18	0.51	58.6	25	2.4	LAQM	1465.0	3516.0	1793.2
23														
24	23195	1	meas	RC98-2237	28	34	0.84	91.6	25	2.4	AQM	2290.0	5496.0	4616.6
25	23195	2	meas	RC98-2237	28	34	0.84	86.0	25	2.4	AQM	2150.0	5160.0	4334.4
26	23195	3	ind	RC98-2237	28	34	0.84	41.4	25	2.4	AQM	1035.0	2484.0	2086.6
27	23195	4	ind	RC97-1968	4	10	1.00	43.1	25	2.4	LAQM	1077.5	2586.0	2586.0
28	23195	5	meas	RC97-1968	4	10	1.00	86.8	25	2.4	LAQM	2170.0	5208.0	5208.0
29	23195	6	meas	RC97-1968	4	10	1.00	92.5	25	2.4	LAQM	2312.5	5550.0	5550.0
30	23195	7	ind	RC97-1968	4	10	1.00	44.1	25	2.4	LAQM	1102.5	2646.0	2646.0
31														
32	23220	1	meas	RC98-2246	40	48	0.53	133.9	25	2.4	LAQM	3347.5	8034.0	4258.0
33	23220	2	meas	RC98-2246	40	48	0.53	105.1	25	2.4	LAQM	2627.5	6306.0	3342.2
34	23220	3	ind	RC98-2246	40	48	0.53	13.2	25	2.4	LAQM	330.0	792.0	419.8
35	23220	4	ind	RC98-2205	12	16	0.44	11.9	25	2.4	LAQM	297.5	714.0	314.2
36	23220	5	meas	RC98-2205	12	16	0.44	69.7	25	2.4	LAQM	1742.5	4182.0	1840.1
37	23220	6	meas	RC98-2205	12	16	0.44	43.2	25	2.4	LAQM	1080.0	2592.0	1140.5
38	23220	7	ind	RC98-2205	12	16	0.44	3.2	25	2.4	LAQM	80.0	192.0	84.5
39	23220	8	meas	RC98-2246	48	60	1.27	176.8	25	2.4	AQM	4420.0	10608.0	13472.2
40	23220	9	meas	RC98-2246	48	60	1.27	179.9	25	2.4	AQM	4497.5	10794.0	13708.4
41	23220	10	ind	RC98-2246	48	60	1.27	22.6	25	2.4	AQM	565.0	1356.0	1722.1

1998 Bohemian Resource Estimate

Curent through Phase 5 drilling

	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
42	23220	11	ind	RC98-2205	16	30	1.14	16.2	25	2.4	LAQM	405.0	972.0	1108.1
43	23220	12	meas	RC98-2205	16	30	1.14	191.8	25	2.4	LAQM	4795.0	11508.0	13119.1
44	23220	13	meas	RC98-2205	16	30	1.14	198.7	25	2.4	LAQM	4967.5	11922.0	13591.1
45	23220	14	ind	RC98-2205	16	30	1.14	114.9	25	2.4	LAQM	2872.5	6894.0	7859.2
46														
47	23245	1	meas	RC98-2228	56	64	1.08	86.3	25	2.4	LAQM	2157.5	5178.0	5592.2
48	23245	2	meas	RC98-2228	56	64	1.08	128.9	25	2.4	LAQM	3222.5	7734.0	8352.7
49	23245	3	meas	RC98-2230	28	40	0.94	145.9	25	2.4	LAQM	3647.5	8754.0	8228.8
50	23245	4	meas	RC98-2228	28	40	0.94	146.4	25	2.4	LAQM	3660.0	8784.0	8257.0
51	23245	5	meas	RC98-2231	4	10	0.75	81.1	25	2.4	LAQM	2027.5	4866.0	3649.5
52	23245	6	meas	RC98-2231	4	10	0.75	10.0	25	2.4	LAQM	250.0	600.0	450.0
53	23245	7	meas	RC97-1971	8	16	1.98	9.2	25	2.4	LAQM	230.0	552.0	1093.0
54	23245	8	meas	RC97-1971	8	16	1.98	48.6	25	2.4	LAQM	1215.0	2916.0	5773.7
55	23245	9	meas	RC97-1969	0	4	0.41	44.4	25	2.4	LAQM	1110.0	2664.0	1092.2
56	23245	10	meas	RC97-1969	0	4	0.41	9.2	25	2.4	LAQM	230.0	552.0	226.3
57	23245	11	meas	RC98-2230	40	44	3.05	41.1	25	2.4	LAQM	1027.5	2466.0	7521.3
58	23245	12	meas	RC98-2230	40	44	3.05	27.3	25	2.4	LAQM	682.5	1638.0	4995.9
59	23245	13	meas	RC97-1971	16	22	0.40	21.9	25	2.4	LAQM	547.5	1314.0	525.6
60	23245	14	meas	RC98-2228	64	68	0.54	57.9	25	2.4	LAQM	1447.5	3474.0	1876.0
61	23245	15	meas	RC98-2228	64	68	0.54	49.6	25	2.4	LAQM	1240.0	2976.0	1607.0
62	23245	16	meas	RC98-2230	44	48	0.33	50.4	25	2.4	LAQM	1260.0	3024.0	997.9
63	23245	17	meas	RC98-2230	44	48	0.33	109.7	25	2.4	LAQM	2742.5	6582.0	2172.1
64	23245	18	meas	RC98-2231	22	48	0.55	102.6	25	2.4	LAQM	2565.0	6156.0	3385.8
65	23245	19	meas	RC98-2231	22	48	0.55	10.4	25	2.4	LAQM	260.0	624.0	343.2
66	23245	20	meas	RC97-1971	16	22	0.40	10.0	25	2.4	LAQM	250.0	600.0	240.0
67	23245	21	meas	RC97-1965	0	8	0.95	4.4	25	2.4	LAQM	110.0	264.0	250.8
68	23245	22	meas	RC97-1965	0	8	0.95	9.3	25	2.4	LAQM	232.5	558.0	530.1
69	23245	23	meas	RC97-1911	6	12	2.15	8.8	25	2.4	LAQM	220.0	528.0	1135.2
70	23245	24	meas	RC97-1911	6	12	2.15	59.0	25	2.4	LAQM	1475.0	3540.0	7611.0
71														
72	23270	1	meas	RC98-2229	26	32	1.12	88.3	25	2.4	LAQM	2207.5	5298.0	5933.8
73	23270	2	meas	RC98-2229	26	32	1.12	44.6	25	2.4	LAQM	1115.0	2676.0	2997.1
74	23270	3	meas	RC98-1972	22	24	0.97	28.4	25	2.4	LAQM	710.0	1704.0	1652.9
75	23270	4	meas	RC98-1972	22	24	0.97	27.5	25	2.4	LAQM	687.5	1650.0	1600.5
76	23270	5	ind	RC98-1972	22	24	0.97	8.7	25	2.4	LAQM	217.5	522.0	506.3
77	23270	6	ind	RC97-1970	0	4	0.46	26.7	25	2.4	LAQM	667.5	1602.0	736.9
78	23270	7	meas	RC97-1970	0	4	0.46	86.8	25	2.4	LAQM	2170.0	5208.0	2395.7
79	23270	8	meas	RC97-1970	0	4	0.46	6.4	25	2.4	LAQM	160.0	384.0	176.6
80	23270	9	meas	RC98-2206	0	6	0.92	9.3	25	2.4	LAQM	232.5	558.0	513.4
81	23270	10	meas	RC98-2206	0	6	0.92	35.4	25	2.4	LAQM	885.0	2124.0	1954.1
82	23270	11	meas	RC98-2229	32	42	1.83	147.6	25	2.4	LAQM	3690.0	8856.0	16206.5

1998 Bohemian Resource Estimate
Curent through Phase 5 drilling

	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
83	23270	12	meas	RC98-2229	32	42	1.83	79.9	25	2.4	LAQM	1997.5	4794.0	8773.0
84	23270	13	meas	RC97-1972	24	30	1.77	65.3	25	2.4	LAQM	1632.5	3918.0	6934.9
85	23270	14	meas	RC97-1972	24	30	1.77	76.0	25	2.4	LAQM	1900.0	4560.0	8071.2
86	23270	15	ind	RC97-1972	24	30	1.77	16.9	25	2.4	LAQM	422.5	1014.0	1794.8
87	23270	16	meas	RC98-2229	42	48	0.48	94.1	25	2.4	LAQM	2352.5	5646.0	2710.1
88	23270	17	meas	RC98-2229	42	48	0.48	46.1	25	2.4	LAQM	1152.5	2766.0	1327.7
89	23270	18	meas	RC97-1972	30	32	0.27	30.5	25	2.4	LAQM	762.5	1830.0	494.1
90	23270	19	meas	RC97-1972	30	32	0.27	31.6	25	2.4	LAQM	790.0	1896.0	511.9
91	23270	20	ind	RC97-1972	30	32	0.27	5.7	25	2.4	LAQM	142.5	342.0	92.3
92	23270	21	meas	RC98-2206	12	18	0.75	45.3	25	2.4	LAQM	1132.5	2718.0	2038.5
93	23270	22	meas	RC98-2206	12	18	0.75	47.3	25	2.4	LAQM	1182.5	2838.0	2128.5
94	23270	23	meas	RC97-1970.	24	28	1.24	7.5	25	2.4	LAQM	187.5	450.0	558.0
95	23270	24	meas	RC97-1970.	24	28	1.24	9.5	25	2.4	LAQM	237.5	570.0	706.8
96	23270	25	meas	RC97-1963	20	24	1.01	6.9	25	2.4	LAQM	172.5	414.0	418.1
97	23270	26	meas	RC97-1963	20	24	1.01	5.6	25	2.4	LAQM	140.0	336.0	339.4
98														
99	23295	1	meas	RC98-2193	82	94	0.96	192.8	25	2.4	AQM	4820.0	11568.0	11105.3
100	23295	2	meas	RC98-2193	82	94	0.96	226.8	25	2.4	AQM	5670.0	13608.0	13063.7
101	23295	3	ind	RC98-2193	82	94	0.96	129.1	25	2.4	AQM	3227.5	7746.0	7436.2
102	23295	4	ind	RC98-2226	22	42	0.84	42.9	25	2.4	LAQM	1072.5	2574.0	2162.2
103	23295	5	meas	RC98-2226	22	42	0.84	227.9	25	2.4	LAQM	5697.5	13674.0	11486.2
104	23295	6	meas	RC98-2226	22	42	0.84	45.6	25	2.4	LAQM	1140.0	2736.0	2298.2
105	23295	7	ind	RC98-2146	36	48	0.55	48.7	25	2.4	LAQM	1217.5	2922.0	1607.1
106	23295	8	meas	RC98-2146	36	48	0.55	154.9	25	2.4	LAQM	3872.5	9294.0	5111.7
107	23295	9	meas	RC98-2146	36	48	0.55	13.9	25	2.4	LAQM	347.5	834.0	458.7
108	23295	10	meas	RC98-2226	42	56	0.83	22.2	25	2.4	LAQM	555.0	1332.0	1105.6
109	23295	11	meas	RC98-2226	42	56	0.83	142.9	25	2.4	LAQM	3572.5	8574.0	7116.4
110	23295	12	meas	RC98-2146	18	36	0.55	38.0	25	2.4	LAQM	950.0	2280.0	1254.0
111	23295	13	meas	RC98-2146	18	36	0.55	114.1	25	2.4	LAQM	2852.5	6846.0	3765.3
112	23295	14	meas	RC98-2227	12	18	6.61	47.8	25	2.4	LAQM	1195.0	2868.0	18957.5
113	23295	15	meas	RC98-2227	12	18	6.10	27.6	25	2.4	LAQM	690.0	1656.0	10101.6
114	23295	16	meas	RC98-2227	18	24	1.35	59.6	25	2.4	LAQM	1490.0	3576.0	4827.6
115	23295	17	meas	RC98-2227	18	24	1.35	47.2	25	2.4	LAQM	1180.0	2832.0	3823.2
116	23295	18	meas	RC98-2227	24	28	5.68	39.2	25	2.4	LAQM	980.0	2352.0	13359.4
117	23295	19	meas	RC98-2227	24	28	5.68	35.7	25	2.4	LAQM	892.5	2142.0	12166.6
118	23295	20	meas	RC98-2227	28	40	0.68	101.7	25	2.4	LAQM	2542.5	6102.0	4149.4
119	23295	21	meas	RC98-2227	28	40	0.68	96.2	25	2.4	LAQM	2405.0	5772.0	3925.0
120	23295	22	meas	RC98-2224	28	40	0.68	118.9	25	2.4	LAQM	2972.5	7134.0	4851.1
121	23295	23	meas	RC98-2224	28	40	0.68	20.4	25	2.4	LAQM	510.0	1224.0	832.3
122														
123	23320	1	ind	RC98-2214	26	30	4.77	33.2	25	2.4	LAQM	830.0	1992.0	9501.8

1998 Bohemian Resource Estimate
Curent through Phase 5 drilling

	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
124	23320	2	meas	RC98-2214	26	30	4.77	53.3	25	2.4	LAQM	1332.5	3198.0	15254.5
125	23320	3	meas	RC98-2214	26	30	4.77	26.4	25	2.4	LAQM	660.0	1584.0	7555.7
126	23320	4	ind	RC98-2214	30	36	0.96	30.5	25	2.4	LAQM	762.5	1830.0	1756.8
127	23320	5	ind	RC98-2193	22	26	0.68	25.5	25	2.4	LAQM	637.5	1530.0	1040.4
128	23320	6	meas	RC98-2193	22	26	0.68	64.5	25	2.4	LAQM	1612.5	3870.0	2631.6
129	23320	7	meas	RC98-2193	22	26	0.68	37.2	25	2.4	LAQM	930.0	2232.0	1517.8
130	23320	8	meas	RC98-2204	6	12	0.35	48.4	25	2.4	LAQM	1210.0	2904.0	1016.4
131	23320	9	meas	RC98-2204	6	12	0.35	61.3	25	2.4	LAQM	1532.5	3678.0	1287.3
132	23320	10	meas	RC98-2204	24	34	0.80	113.5	25	2.4	LAQM	2837.5	6810.0	5448.0
133	23320	11	meas	RC98-2204	24	34	0.80	61.7	25	2.4	LAQM	1542.5	3702.0	2961.6
134	23320	12	meas	RC98-2204	38	44	0.62	67.4	25	2.4	LAQM	1685.0	4044.0	2507.3
135	23320	13	meas	RC98-2204	38	44	0.62	71.9	25	2.4	LAQM	1797.5	4314.0	2674.7
136	23320	14	meas	RC98-2146	4	18	1.21	68.9	25	2.4	LAQM	1722.5	4134.0	5002.1
137	23320	15	meas	RC98-2146	4	18	1.21	32.6	25	2.4	LAQM	815.0	1956.0	2366.8
138	23320	16	meas	RC98-2145	10	18	0.84	31.4	25	2.4	LAQM	785.0	1884.0	1582.6
139	23320	17	meas	RC98-2145	10	18	0.84	77.5	25	2.4	LAQM	1937.5	4650.0	3906.0
140	23320	18	meas	RC98-2145	22	36	0.64	108.7	25	2.4	LAQM	2717.5	6522.0	4174.1
141	23320	19	meas	RC98-2145	22	36	0.64	187.9	25	2.4	LAQM	4697.5	11274.0	7215.4
142	23320	20	meas	RC98-2152	0	4	0.71	52.1	25	2.4	LAQM	1302.5	3126.0	2219.5
143	23320	21	meas	RC98-2152	0	4	0.71	10.0	25	2.4	LAQM	250.0	600.0	426.0
144	23320	22	meas	RC98-2152	18	36	0.85	190.2	25	2.4	LAQM	4755.0	11412.0	9700.2
145	23320	23	meas	RC98-2152	18	36	0.85	175.1	25	2.4	LAQM	4377.5	10506.0	8930.1
146	23320	24	ind	RC98-2214	30	36	0.96	47.8	25	2.4	LAQM	1195.0	2868.0	2753.3
147	23320	25	meas	RC98-2214	30	36	0.96	75.4	25	2.4	LAQM	1885.0	4524.0	4343.0
148	23320	26	meas	RC98-2214	30	36	0.96	83.2	25	2.4	LAQM	2080.0	4992.0	4792.3
149														
150	23345	1	meas	RC98-2245	34	46	15.26	86.3	25	2.4	AQM	2157.5	5178.0	79016.3
151	23345	2	meas	RC98-2245	34	46	15.26	159.7	25	2.4	AQM	3992.5	9582.0	146221.3
152	23345	3	meas	RC98-2245	46	48	1.31	20.2	25	2.4	AQM	505.0	1212.0	1587.7
153	23345	4	meas	RC98-2245	46	48	1.31	57.7	25	2.4	AQM	1442.5	3462.0	4535.2
154	23345	5	meas	RC98-2196	22	26	10.34	15.7	25	2.4	LAQM	392.5	942.0	9740.3
155	23345	6	meas	RC98-2196	22	26	10.34	20.5	25	2.4	LAQM	512.5	1230.0	12718.2
156	23345	7	meas	RC98-2196	26	34	1.03	22.9	25	2.4	LAQM	572.5	1374.0	1415.2
157	23345	8	meas	RC98-2196	26	34	1.03	67.8	25	2.4	LAQM	1695.0	4068.0	4190.0
158	23345	9	meas	RC98-2196	48	58	0.55	80.0	25	2.4	AQM	2000.0	4800.0	2640.0
159	23345	10	meas	RC98-2196	48	58	0.55	80.1	25	2.4	AQM	2002.5	4806.0	2643.3
160	23345	11	meas	RC98-2236	16	24	0.47	97.7	25	2.4	LAQM	2442.5	5862.0	2755.1
161	23345	12	meas	RC98-2236	16	24	0.47	56.7	25	2.4	LAQM	1417.5	3402.0	1598.9
162	23345	13	meas	RC98-2236	42	48	0.71	59.4	25	2.4	LAQM	1485.0	3564.0	2530.4
163	23345	14	meas	RC98-2236	42	48	0.71	50.4	25	2.4	LAQM	1260.0	3024.0	2147.0
164	23345	15	meas	RC98-2193	0	4	0.32	39.7	25	2.4	LAQM	992.5	2382.0	762.2

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	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
165	23345	16	meas	RC98-2193	0	4	0.32	11.3	25	2.4	LAQM	282.5	678.0	217.0
166	23345	17	meas	RC98-2193	18	24	0.94	48.1	25	2.4	LAQM	1202.5	2886.0	2712.8
167	23345	18	meas	RC98-2192	20	22	5.42	5.1	25	2.4	LAQM	127.5	306.0	1658.5
168	23345	19	meas	RC98-2192	20	22	5.42	34.0	25	2.4	LAQM	850.0	2040.0	11056.8
169	23345	20	meas	RC98-2192	20	22	5.42	20.0	25	2.4	LAQM	500.0	1200.0	6504.0
170	23345	21	meas	RC98-2192	22	26	1.13	8.4	25	2.4	LAQM	210.0	504.0	569.5
171	23345	22	meas	RC98-2192	22	26	1.13	35.5	25	2.4	LAQM	887.5	2130.0	2406.9
172	23345	23	meas	RC98-2192	32	42	1.48	31.0	25	2.4	LAQM	775.0	1860.0	2752.8
173	23345	24	meas	RC98-2192	32	42	1.48	132.1	25	2.4	LAQM	3302.5	7926.0	11730.5
174	23345	25	meas	RC98-2225	4	20	1.06	132.1	25	2.4	LAQM	3302.5	7926.0	8401.6
175	23345	26	meas	RC98-2225	4	20	1.06	163.0	25	2.4	LAQM	4075.0	9780.0	10366.8
176	23345	27	meas	RC98-2225	20	24	2.28	44.4	25	2.4	LAQM	1110.0	2664.0	6073.9
177	23345	28	meas	RC98-2225	20	24	2.28	46.0	25	2.4	LAQM	1150.0	2760.0	6292.8
178	23345	29	meas	RC98-2225	24	28	0.99	53.4	25	2.4	LAQM	1335.0	3204.0	3172.0
179	23345	30	meas	RC98-2225	24	28	0.99	39.8	25	2.4	LAQM	995.0	2388.0	2364.1
180	23345	31	meas	RC98-2232	40	50	3.83	130.6	25	2.4	LAQM	3265.0	7836.0	30011.9
181	23345	32	meas	RC98-2232	40	50	3.83	41.1	25	2.4	LAQM	1027.5	2466.0	9444.8
182	23345	33	meas	RC98-2225	48	54	0.99	49.5	25	2.4	LAQM	1237.5	2970.0	2940.3
183	23345	34	meas	RC98-2225	48	54	0.99	79.9	25	2.4	LAQM	1997.5	4794.0	4746.1
184	23345	35	meas	RC98-2225	60	66	0.69	51.8	25	2.4	LAQM	1295.0	3108.0	2144.5
185	23345	36	meas	RC98-2225	60	66	0.69	77.8	25	2.4	LAQM	1945.0	4668.0	3220.9
186	23345	37	meas	RC98-2240	0	6	0.57	101.0	25	2.4	LAQM	2525.0	6060.0	3454.2
187	23345	38	meas	RC98-2240	0	6	0.57	13.4	25	2.4	LAQM	335.0	804.0	458.3
188	23345	39	meas	RC98-2240	6	8	2.86	33.2	25	2.4	LAQM	830.0	1992.0	5697.1
189	23345	40	meas	RC98-2240	6	8	2.86	10.6	25	2.4	LAQM	265.0	636.0	1819.0
190	23345	41	meas	RC98-2240	8	10	0.92	27.0	25	2.4	LAQM	675.0	1620.0	1490.4
191	23345	42	meas	RC98-2240	8	10	0.92	9.2	25	2.4	LAQM	230.0	552.0	507.8
192	23345	43	meas	RC98-2240	36	44	0.64	87.9	25	2.4	LAQM	2197.5	5274.0	3375.4
193	23345	44	meas	RC98-2240	36	44	0.64	125.8	25	2.4	LAQM	3145.0	7548.0	4830.7
194	23345	45	meas	RC98-2240	60	66	0.73	72.8	25	2.4	LAQM	1820.0	4368.0	3188.6
195	23345	46	meas	RC98-2240	60	66	0.73	71.4	25	2.4	LAQM	1785.0	4284.0	3127.3
196	23345	47	meas	RC97-1917	22	28	0.85	89.0	25	2.4	LAQM	2225.0	5340.0	4539.0
197	23345	48	meas	RC97-1917	22	28	0.85	92.1	25	2.4	LAQM	2302.5	5526.0	4697.1
198	23345	49	meas	RC98-2196	34	46	2.34	91.5	25	2.4	LAQM	2287.5	5490.0	12846.6
199	23345	50	meas	RC98-2196	34	46	2.34	74.3	25	2.4	AQM	1857.5	4458.0	10431.7
200	23345	51	meas	RC98-2193	18	24	0.94	14.9	25	2.4	LAQM	372.5	894.0	840.4
201														
202	23370	1	meas	RC98-2247	50	54	2.78	19.8	25	2.4	AQM	495.0	1188.0	3302.6
203	23370	2	meas	RC98-2247	50	54	2.78	70.3	25	2.4	AQM	1757.5	4218.0	11726.0
204	23370	3	meas	RC98-2196	20	24	4.40	40.7	25	2.4	LAQM	1017.5	2442.0	10744.8
205	23370	4	meas	RC98-2196	20	24	4.40	44.0	25	2.4	LAQM	1100.0	2640.0	11616.0

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	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
206	23370	5	meas	RC98-2236	4	14	1.18	69.2	25	2.4	LAQM	1730.0	4152.0	4899.4
207	23370	6	meas	RC98-2236	4	14	1.18	16.5	25	2.4	LAQM	412.5	990.0	1168.2
208	23370	7	meas	RC98-2185	28	34	0.51	48.8	25	2.4	LAQM	1220.0	2928.0	1493.3
209	23370	8	meas	RC98-2185	28	34	0.51	9.2	25	2.4	LAQM	230.0	552.0	281.5
210	23370	9	meas	RC98-2185	34	38	2.45	5.1	25	2.4	LAQM	127.5	306.0	749.7
211	23370	10	meas	RC98-2185	38	46	12.29	20.0	25	2.4	LAQM	500.0	1200.0	14748.0
212	23370	11	meas	RC98-2185	38	46	12.29	64.8	25	2.4	LAQM	1620.0	3888.0	47783.5
213	23370	12	meas	RC98-2185	34	38	2.45	33.8	25	2.4	LAQM	845.0	2028.0	4968.6
214	23370	13	meas	RC98-2192	20	22	5.42	3.6	25	2.4	LAQM	90.0	216.0	1170.7
215	23370	14	meas	RC98-2192	20	22	5.42	11.9	25	2.4	LAQM	297.5	714.0	3869.9
216	23370	15	meas	RC98-2191	14	24	0.59	29.0	25	2.4	LAQM	725.0	1740.0	1026.6
217	23370	16	meas	RC98-2191	14	24	0.59	125.0	25	2.4	LAQM	3125.0	7500.0	4425.0
218	23370	17	meas	RC98-2191	24	26	3.30	5.5	25	2.4	LAQM	137.5	330.0	1089.0
219	23370	18	meas	RC98-2191	26	30	11.85	8.6	25	2.4	LAQM	215.0	516.0	6114.6
220	23370	19	meas	RC98-2191	24	30	9.00	58.2	25	2.4	LAQM	1455.0	3492.0	31428.0
221	23370	20	meas	RC98-2191	30	44	1.06	81.7	25	2.4	LAQM	2042.5	4902.0	5196.1
222	23370	21	meas	RC98-2191	30	44	1.06	81.9	25	2.4	LAQM	2047.5	4914.0	5208.8
223	23370	22	meas	RC98-2191	46	54	1.53	19.5	25	2.4	LAQM	487.5	1170.0	1790.1
224	23370	23	meas	RC98-2185	46	54	1.53	54.7	25	2.4	LAQM	1367.5	3282.0	5021.5
225	23370	24	meas	RC98-2185	54	64	5.10	87.4	25	2.4	LAQM	2185.0	5244.0	26744.4
226	23370	25	meas	RC98-2185	54	64	5.10	122.6	25	2.4	LAQM	3065.0	7356.0	37515.6
227	23370	26	meas	RC98-2185	64	68	0.82	57.6	25	2.4	LAQM	1440.0	3456.0	2833.9
228	23370	27	meas	RC98-2185	64	68	0.82	23.0	25	2.4	LAQM	575.0	1380.0	1131.6
229	23370	28	meas	RC98-2185	70	74	0.78	28.3	25	2.4	LAQM	707.5	1698.0	1324.4
230	23370	29	meas	RC98-2185	70	74	0.78	31.5	25	2.4	LAQM	787.5	1890.0	1474.2
231	23370	30	meas	RC98-2185	74	78	3.10	21.9	25	2.4	LAQM	547.5	1314.0	4073.4
232	23370	31	meas	RC98-2185	74	78	3.10	26.9	25	2.4	LAQM	672.5	1614.0	5003.4
233	23370	32	meas	RC98-2194	68	76	0.94	41.0	25	2.4	AQM	1025.0	2460.0	2312.4
234	23370	33	meas	RC98-2194	68	76	0.94	40.7	25	2.4	AQM	1017.5	2442.0	2295.5
235	23370	34	meas	RC98-2148	6	12	2.84	30.6	25	2.4	LAQM	765.0	1836.0	5214.2
236	23370	35	meas	RC98-2148	6	12	2.84	2.4	25	2.4	LAQM	60.0	144.0	409.0
237	23370	36	meas	RC98-2148	12	24	0.85	104.4	25	2.4	LAQM	2610.0	6264.0	5324.4
238	23370	37	meas	RC98-2148	12	24	0.85	13.3	25	2.4	LAQM	332.5	798.0	678.3
239	23370	38	meas	RC98-2232	16	20	0.31	3.5	25	2.4	LAQM	87.5	210.0	65.1
240	23370	39	meas	RC98-2232	16	20	0.31	26.6	25	2.4	LAQM	665.0	1596.0	494.8
241	23370	40	meas	RC98-2148	28	38	1.10	17.8	25	2.4	LAQM	445.0	1068.0	1174.8
242	23370	41	meas	RC98-2148	24	38	1.21	135.8	25	2.4	LAQM	3395.0	8148.0	9859.1
243	23370	42	meas	RC98-2232	24	28	0.59	90.4	25	2.4	LAQM	2260.0	5424.0	3200.2
244	23370	43	meas	RC98-2232	24	28	0.59	11.3	25	2.4	LAQM	282.5	678.0	400.0
245	23370	44	meas	RC98-2222	30	40	0.94	15.9	25	2.4	LAQM	397.5	954.0	896.8
246	23370	45	meas	RC98-2222	42	46	1.48	31.8	25	2.4	LAQM	795.0	1908.0	2823.8

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	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
247	23370	46	meas	RC98-2222	42	46	1.48	13.6	25	2.4	LAQM	340.0	816.0	1207.7
248	23370	47	meas	RC98-2222	46	48	2.04	21.8	25	2.4	LAQM	545.0	1308.0	2668.3
249	23370	48	meas	RC98-2222	46	48	2.04	6.7	25	2.4	LAQM	167.5	402.0	820.1
250	23370	49	meas	RC98-2147	2	6	4.68	85.9	25	2.4	LAQM	2147.5	5154.0	24120.7
251	23370	50	meas	RC98-2147	2	6	4.68	14.9	25	2.4	LAQM	372.5	894.0	4183.9
252	23370	51	meas	RC98-2147	14	20	1.11	67.7	25	2.4	LAQM	1692.5	4062.0	4508.8
253	23370	52	meas	RC98-2147	14	20	1.11	46.7	25	2.4	LAQM	1167.5	2802.0	3110.2
254	23370	53	meas	RC98-2147	20	28	2.99	73.0	25	2.4	LAQM	1825.0	4380.0	13096.2
255	23370	54	meas	RC98-2147	20	28	2.99	47.0	25	2.4	LAQM	1175.0	2820.0	8431.8
256	23370	55	meas	RC98-2223	2	8	0.43	53.4	25	2.4	LAQM	1335.0	3204.0	1377.7
257	23370	56	meas	RC98-2223	2	8	0.43	60.7	25	2.4	LAQM	1517.5	3642.0	1566.1
258	23370	57	meas	RC98-2223	30	36	0.61	34.4	25	2.4	LAQM	860.0	2064.0	1259.0
259	23370	58	meas	RC98-2223	30	36	0.61	36.5	25	2.4	LAQM	912.5	2190.0	1335.9
260	23370	59	meas	RC98-2147	42	46	0.78	61.7	25	2.4	LAQM	1542.5	3702.0	2887.6
261	23370	60	meas	RC98-2147	42	46	0.78	35.4	25	2.4	LAQM	885.0	2124.0	1656.7
262	23370	61	meas	RC98-2148	60	68	0.57	88.9	25	2.4	LAQM	2222.5	5334.0	3040.4
263	23370	62	meas	RC98-2148	60	68	0.57	83.7	25	2.4	LAQM	2092.5	5022.0	2862.5
264	23370	63	meas	RC98-2148	42	46	0.83	20.6	25	2.4	LAQM	515.0	1236.0	1025.9
265	23370	64	meas	RC98-2148	42	46	0.83	79.6	25	2.4	LAQM	1990.0	4776.0	3964.1
266	23370	65	meas	RC98-2223	48	54	4.93	29.8	25	2.4	LAQM	745.0	1788.0	8814.8
267	23370	66	meas	RC98-2223	48	54	4.93	5.5	25	2.4	LAQM	137.5	330.0	1626.9
268	23370	67	meas	RC98-2209	58	64	1.19	18.7	25	2.4	LAQM	467.5	1122.0	1335.2
269	23370	68	meas	RC98-2209	58	64	1.19	17.9	25	2.4	LAQM	447.5	1074.0	1278.1
270	23370	69	meas	RC98-2223	66	74	0.36	24.9	25	2.4	LAQM	622.5	1494.0	537.8
271	23370	70	meas	RC98-2223	66	74	0.36	98.8	25	2.4	LAQM	2470.0	5928.0	2134.1
272														
273	23395	1	meas	RC98-2221	10	16	0.64	56.8	25	2.4	LAQM	1420.0	3408.0	2181.1
274	23395	2	meas	RC98-2221	10	16	0.64	35.6	25	2.4	LAQM	890.0	2136.0	1367.0
275	23395	3	meas	RC98-2194	40	46	0.99	76.8	25	2.4	LAQM	1920.0	4608.0	4561.9
276	23395	4	meas	RC98-2194	40	46	0.99	60.0	25	2.4	LAQM	1500.0	3600.0	3564.0
277	23395	5	meas	RC98-2194	46	52	2.10	71.7	25	2.4	LAQM	1792.5	4302.0	9034.2
278	23395	6	meas	RC98-2194	46	52	2.10	80.2	25	2.4	LAQM	2005.0	4812.0	10105.2
279	23395	7	meas	RC98-2194	52	58	0.81	74.5	25	2.4	LAQM	1862.5	4470.0	3620.7
280	23395	8	meas	RC98-2194	52	58	0.81	88.1	25	2.4	LAQM	2202.5	5286.0	4281.7
281	23395	9	meas	RC98-2194	58	62	3.83	50.0	25	2.4	LAQM	1250.0	3000.0	11490.0
282	23395	10	meas	RC98-2194	58	62	3.83	62.9	25	2.4	LAQM	1572.5	3774.0	14454.4
283	23395	11	meas	RC98-2194	62	70	0.94	92.1	25	2.4	LAQM	2302.5	5526.0	5194.4
284	23395	12	meas	RC98-2194	62	70	0.94	132.2	25	2.4	LAQM	3305.0	7932.0	7456.1
285	23395	13	meas	RC98-2222	30	32	0.74	32.9	25	2.4	LAQM	822.5	1974.0	1460.8
286	23395	14	meas	RC98-2222	30	32	0.74	1.4	25	2.4	LAQM	35.0	84.0	62.2
287	23395	15	meas	RC98-2221	34	40	2.06	87.0	25	2.4	LAQM	2175.0	5220.0	10753.2

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	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product
288	23395	16	meas	RC98-2221	34	40	2.06	63.7	25	2.4	LAQM	1592.5	3822.0	7873.3
289	23395	17	ind	RC98-2221	40	46	0.61	4.2	25	2.4	LAQM	105.0	252.0	153.7
290	23395	18	meas	RC98-2221	40	46	0.61	91.0	25	2.4	LAQM	2275.0	5460.0	3330.6
291	23395	19	meas	RC98-2221	40	46	0.61	98.1	25	2.4	LAQM	2452.5	5886.0	3590.5
292	23395	20	ind	RC98-2221	46	50	1.57	8.2	25	2.4	LAQM	205.0	492.0	772.4
293	23395	21	meas	RC98-2221	46	50	1.57	58.7	25	2.4	LAQM	1467.5	3522.0	5529.5
294	23395	22	meas	RC98-2221	46	50	1.57	68.9	25	2.4	LAQM	1722.5	4134.0	6490.4
295	23395	23	ind	RC98-2221	50	58	1.47	29.7	25	2.4	LAQM	742.5	1782.0	2619.5
296	23395	24	meas	RC98-2221	50	58	1.47	116.6	25	2.4	LAQM	2915.0	6996.0	10284.1
297	23395	25	meas	RC98-2221	50	58	1.47	57.4	25	2.4	LAQM	1435.0	3444.0	5062.7
298	23395	26	meas	RC98-2239	20	30	0.68	185.0	25	2.4	LAQM	4625.0	11100.0	7548.0
299	23395	27	meas	RC98-2239	20	30	0.68	145.7	25	2.4	LAQM	3642.5	8742.0	5944.6
300	23395	28	ind	RC98-2239	20	30	0.68	17.7	25	2.4	LAQM	442.5	1062.0	722.2
301	23395	29	ind	RC97-1915	0	8	0.64	13.9	25	2.4	LAQM	347.5	834.0	533.8
302	23395	30	meas	RC97-1915	0	8	0.64	99.5	25	2.4	LAQM	2487.5	5970.0	3820.8
303	23395	31	meas	RC97-1915	0	8	0.64	8.0	25	2.4	LAQM	200.0	480.0	307.2
304														
305	23420	1	meas	RC98-2215	58	88	1.62	351.2	25	2.4	AQM	8780.0	21072.0	34136.6
306	23420	2	meas	RC98-2215	58	88	1.62	361.6	25	2.4	AQM	9040.0	21696.0	35147.5
307	23420	3	meas	RC98-2186	56	68	0.66	130.6	25	2.4	LAQM	3265.0	7836.0	5171.8
308	23420	4	meas	RC98-2186	56	68	0.66	254.6	25	2.4	LAQM	6365.0	15276.0	10082.2
309	23420	5	meas	RC98-2186	112	118	0.58	64.6	25	2.4	AQM	1615.0	3876.0	2248.1
310	23420	6	meas	RC98-2186	112	118	0.58	62.9	25	2.4	AQM	1572.5	3774.0	2188.9
311	23420	7	meas	RC98-2194	14	18	0.40	58.6	25	2.4	LAQM	1465.0	3516.0	1406.4
312	23420	8	meas	RC98-2194	14	18	0.40	4.5	25	2.4	LAQM	112.5	270.0	108.0
313	23420	9	meas	RC91-621	18	24	0.70	6.2	25	2.4	LAQM	155.0	372.0	260.4
314	23420	10	meas	RC91-621	18	24	0.70	57.9	25	2.4	LAQM	1447.5	3474.0	2431.8
315	23420	11	meas	RC91-621	30	62	0.61	427.6	25	2.4	LAQM	10690.0	25656.0	15650.2
316	23420	12	meas	RC91-621	30	62	0.61	127.0	25	2.4	LAQM	3175.0	7620.0	4648.2
317	23420	13	meas	RC91-619	2	12	0.87	70.9	25	2.4	LAQM	1772.5	4254.0	3701.0
318	23420	14	meas	RC91-619	2	12	0.87	61.3	25	2.4	LAQM	1532.5	3678.0	3199.9
319	23420	15	meas	RC91-619	46	50	0.43	78.5	25	2.4	LAQM	1962.5	4710.0	2025.3
320	23420	16	meas	RC91-619	46	50	0.43	12.6	25	2.4	LAQM	315.0	756.0	325.1
321	23420	17	meas	RC93-764	22	40	0.53	66.2	25	2.4	LAQM	1655.0	3972.0	2105.2
322	23420	18	meas	RC93-764	22	40	0.53	94.2	25	2.4	LAQM	2355.0	5652.0	2995.6
323	23420	19	meas	RC93-763	26	32	0.82	9.8	25	2.4	LAQM	245.0	588.0	482.2
324	23420	20	meas	RC93-763	26	32	0.82	27.2	25	2.4	LAQM	680.0	1632.0	1338.2
325														
326	23445	1	meas	RC98-2218	60	66	0.81	62.9	25	2.4	AQM	1572.5	3774.0	3056.9
327	23445	2	meas	RC98-2218	60	66	0.81	39.3	25	2.4	AQM	982.5	2358.0	1910.0
328	23445	3	meas	RC98-2234	74	78	0.54	43.1	25	2.4	LAQM	1077.5	2586.0	1396.4

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	Section	Polygon ID	M/I/I	Hole ID	From	To	Grade	Area..	Thickness	SG	Rock Type	Volume	Tonnage	Au Product	
329	23445	4	meas	RC98-2234	74	78	0.54	49.3	25	2.4	LAQM	1232.5	2958.0	1597.3	
330	23445	5	meas	RC98-2233	56	60	0.33	52.8	25	2.4	LAQM	1320.0	3168.0	1045.4	
331	23445	6	meas	RC98-2233	56	60	0.33	41.5	25	2.4	LAQM	1037.5	2490.0	821.7	
332	23445	7	meas	RC98-2220	32	36	0.57	38.5	25	2.4	LAQM	962.5	2310.0	1316.7	
333	23445	8	meas	RC98-2220	32	36	0.57	55.6	25	2.4	LAQM	1390.0	3336.0	1901.5	
334	23445	9	ind	RC98-2220	32	36	0.57	42.6	25	2.4	LAQM	1065.0	2556.0	1456.9	
335	23445	10	meas	RC98-2220	54	58	0.56	41.7	25	2.4	LAQM	1042.5	2502.0	1401.1	
336	23445	11	meas	RC98-2220	54	58	0.56	62.4	25	2.4	LAQM	1560.0	3744.0	2096.6	
337															
338	23470	1	meas	RC98-2216	82	88	0.56	84.0	25	2.4	LAQM	2100.0	5040.0	2822.4	
339	23470	2	meas	RC98-2216	82	88	0.56	89.1	25	2.4	LAQM	2227.5	5346.0	2993.8	
340	23470	3	meas	RC98-2217	68	76	0.59	105.2	25	2.4	LAQM	2630.0	6312.0	3724.1	
341	23470	4	meas	RC98-2218	68	76	0.59	61.7	25	2.4	LAQM	1542.5	3702.0	2184.2	
342	23470	5	meas	RC98-2150	26	36	1.11	112.9	25	2.4	LAQM	2822.5	6774.0	7519.1	
343	23470	6	meas	RC98-2150	26	36	1.11	126.3	25	2.4	LAQM	3157.5	7578.0	8411.6	
344	23470	7	meas	RC98-2150	36	40	3.83	46.7	25	2.4	LAQM	1167.5	2802.0	10731.7	
345	23470	8	meas	RC98-2150	36	40	3.83	56.8	25	2.4	LAQM	1420.0	3408.0	13052.6	
346	23470	9	meas	RC98-2150	40	46	0.75	68.6	25	2.4	LAQM	1715.0	4116.0	3087.0	
347	23470	10	meas	RC98-2150	40	46	0.75	52.6	25	2.4	LAQM	1315.0	3156.0	2367.0	
348	23470	11	meas	RC98-2149	0	8	0.30	152.5	25	2.4	LAQM	3812.5	9150.0	2745.0	
349	23470	12	meas	RC98-2149	0	8	0.30	22.2	25	2.4	LAQM	555.0	1332.0	399.6	
350	23470	13	meas	RC98-2217	82	88	0.69	87.9	25	2.4	LAQM	2197.5	5274.0	3639.1	
351	23470	14	meas	RC98-2217	82	88	0.69	43.4	25	2.4	LAQM	1085.0	2604.0	1796.8	
352	23470	15	meas	RC98-2149	38	44	0.52	36.6	25	2.4	LAQM	915.0	2196.0	1141.9	
353	23470	16	meas	RC98-2149	38	44	0.52	91.1	25	2.4	LAQM	2277.5	5466.0	2842.3	
354	23470	17	ind	RC98-2149	38	44	0.52	48.9	25	2.4	LAQM	1222.5	2934.0	1525.7	
355															
356	23495	1	meas	RC98-2219	48	54	0.85	21.5	25	2.4	LAQM	537.5	1290.0	1096.5	
357	23495	2	meas	RC98-2219	48	54	0.85	74.0	25	2.4	LAQM	1850.0	4440.0	3774.0	
358	23495	3	meas	RC98-2243	18	28	1.98	94.1	25	2.4	LAQM	2352.5	5646.0	11179.1	
359	23495	4	meas	RC98-2243	18	28	1.98	156.0	25	2.4	LAQM	3900.0	9360.0	18532.8	
360	23495	5	ind	RC98-2243	18	28	1.98	41.8	25	2.4	LAQM	1045.0	2508.0	4965.8	
361															
362	23520	1	meas	RC98-2208	0	8	1.90	129.5	25	2.4	LAQM	3237.5	7770.0	14763.0	
363	23520	2	meas	RC98-2208	0	8	1.90	84.1	25	2.4	LAQM	2102.5	5046.0	9587.4	
													1305595.8	1848400.6	
														1.42	g/T
														59427	oz

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			All material				Oxide								Global Oxide		Global Sulfide	
			Measured		Indicated		Measured		Indicated		Measured		Indicated					
	Section	Polygon ID	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product
1	23145	1	1878	1014.12	0	0	0	0	0	0	1878	1014.12	0	0	0	0	1878	1014.12
2	23145	2	402	217.08	0	0	0	0	0	0	402	217.08	0	0	0	0	402	217.08
3	23145	3	15438	17136.18	0	0	0	0	0	0	15438	17136.18	0	0	0	0	15438	17136.18
4	23145	4	864	959.04	0	0	0	0	0	0	864	959.04	0	0	0	0	864	959.04
5	23145	5	564	417.36	0	0	0	0	0	0	564	417.36	0	0	0	0	564	417.36
6	23145	6	4146	3068.04	0	0	0	0	0	0	4146	3068.04	0	0	0	0	4146	3068.04
7	23145	7	3066	1870.26	0	0	3066	1870.26	0	0	0	0	0	0	3066	1870.26	0	0
8	23145	8	1590	969.9	0	0	1590	969.9	0	0	0	0	0	0	1590	969.9	0	0
9	23145	9	1566	1926.18	0	0	1566	1926.18	0	0	0	0	0	0	1566	1926.18	0	0
10	23145	10	636	782.28	0	0	636	782.28	0	0	0	0	0	0	636	782.28	0	0
11	23145	11	4146	4187.46	0	0	4146	4187.46	0	0	0	0	0	0	4146	4187.46	0	0
12	23145	12	733.8	741.138	0	0	733.8	741.138	0	0	0	0	0	0	733.8	741.138	0	0
13	23145	13	402	112.56	0	0	402	112.56	0	0	0	0	0	0	402	112.56	0	0
14	23145	14	972	272.16	0	0	972	272.16	0	0	0	0	0	0	972	272.16	0	0
15	23145	15	1524	1021.08	0	0	1524	1021.08	0	0	0	0	0	0	1524	1021.08	0	0
16	23145	16	3702	2480.34	0	0	3702	2480.34	0	0	0	0	0	0	3702	2480.34	0	0
17	23145	17	300	396	0	0	0	0	0	0	300	396	0	0	0	0	300	396
18	23145	18	960	1267.2	0	0	0	0	0	0	960	1267.2	0	0	0	0	960	1267.2
19			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	23170	1	4290	2187.9	0	0	4290	2187.9	0	0	0	0	0	0	4290	2187.9	0	0
21	23170	2	4596	2343.96	0	0	4596	2343.96	0	0	0	0	0	0	4596	2343.96	0	0
22	23170	3	0	0	3516	1793.16	0	0	3516	1793.16	0	0	0	0	3516	1793.16	0	0
23			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	23195	1	5496	4616.64	0	0	0	0	0	0	5496	4616.64	0	0	0	0	5496	4616.64
25	23195	2	5160	4334.4	0	0	0	0	0	0	5160	4334.4	0	0	0	0	5160	4334.4
26	23195	3	0	0	2484	2086.56	0	0	0	2086.56	0	0	2484	2086.56	0	0	2484	2086.56
27	23195	4	0	0	2586	2586	0	0	2586	2586	0	0	0	0	2586	2586	0	0
28	23195	5	5208	5208	0	0	5208	5208	0	0	0	0	0	0	5208	5208	0	0
29	23195	6	5550	5550	0	0	5550	5550	0	0	0	0	0	0	5550	5550	0	0
30	23195	7	0	0	2646	2646	0	0	2646	0	0	0	0	0	2646	2646	0	0
31			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	23220	1	8034	4258.02	0	0	8034	4258.02	0	0	0	0	0	0	8034	4258.02	0	0
33	23220	2	6306	3342.18	0	0	6306	3342.18	0	0	0	0	0	0	6306	3342.18	0	0
34	23220	3	0	0	792	419.76	0	0	792	419.76	0	0	0	0	792	419.76	0	0
35	23220	4	0	0	714	314.16	0	0	714	314.16	0	0	0	0	714	314.16	0	0
36	23220	5	4182	1840.08	0	0	4182	1840.08	0	0	0	0	0	0	4182	1840.08	0	0
37	23220	6	2592	1140.48	0	0	2592	1140.48	0	0	0	0	0	0	2592	1140.48	0	0
38	23220	7	0	0	192	84.48	0	0	192	0	0	0	0	0	192	84.48	0	0
39	23220	8	10608	13472.16	0	0	0	0	0	0	10608	13472.16	0	0	0	0	10608	13472.16
40	23220	9	10794	13708.38	0	0	0	0	0	0	10794	13708.38	0	0	0	0	10794	13708.38
41	23220	10	0	0	1356	1722.12	0	0	0	1722.12	0	0	1356	1722.12	0	0	1356	1722.12
42	23220	11	0	0	972	1108.08	0	0	972	1108.08	0	0	0	0	972	1108.08	0	0
43	23220	12	11508	13119.12	0	0	11508	13119.12	0	0	0	0	0	0	11508	13119.12	0	0
44	23220	13	11922	13591.08	0	0	11922	13591.08	0	0	0	0	0	0	11922	13591.08	0	0
45	23220	14	0	0	6894	7859.16	0	0	6894	0	0	0	0	0	6894	7859.16	0	0
46			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	23245	1	5178	5592.24	0	0	5178	5592.24	0	0	0	0	0	0	5178	5592.24	0	0
48	23245	2	7734	8352.72	0	0	7734	8352.72	0	0	0	0	0	0	7734	8352.72	0	0
49	23245	3	8754	8228.76	0	0	8754	8228.76	0	0	0	0	0	0	8754	8228.76	0	0
50	23245	4	8784	8256.96	0	0	8784	8256.96	0	0	0	0	0	0	8784	8256.96	0	0
51	23245	5	4866	3649.5	0	0	4866	3649.5	0	0	0	0	0	0	4866	3649.5	0	0
52	23245	6	600	450	0	0	600	450	0	0	0	0	0	0	600	450	0	0
53	23245	7	552	1092.96	0	0	552	1092.96	0	0	0	0	0	0	552	1092.96	0	0
54	23245	8	2916	5773.68	0	0	2916	5773.68	0	0	0	0	0	0	2916	5773.68	0	0
55	23245	9	2664	1092.24	0	0	2664	1092.24	0	0	0	0	0	0	2664	1092.24	0	0
56	23245	10	552	226.32	0	0	552	226.32	0	0	0	0	0	0	552	226.32	0	0
57	23245	11	2466	7521.3	0	0	2466	7521.3	0	0	0	0	0	0	2466	7521.3	0	0
58	23245	12	1638	4995.9	0	0	1638	4995.9	0	0	0	0	0	0	1638	4995.9	0	0

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Curent through Phase 5 drilling

	Section	Polygon ID	All material Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Oxide Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Global Oxide Tonnage	Au Product	Global Sulfide Tonnage	Au Product
59	23245	13	1314	525.6	0	0	1314	525.6	0	0	0	0	0	0	1314	525.6	0	0
60	23245	14	3474	1875.96	0	0	3474	1875.96	0	0	0	0	0	0	3474	1875.96	0	0
61	23245	15	2976	1607.04	0	0	2976	1607.04	0	0	0	0	0	0	2976	1607.04	0	0
62	23245	16	3024	997.92	0	0	3024	997.92	0	0	0	0	0	0	3024	997.92	0	0
63	23245	17	6582	2172.06	0	0	6582	2172.06	0	0	0	0	0	0	6582	2172.06	0	0
64	23245	18	6156	3385.8	0	0	6156	3385.8	0	0	0	0	0	0	6156	3385.8	0	0
65	23245	19	624	343.2	0	0	624	343.2	0	0	0	0	0	0	624	343.2	0	0
66	23245	20	600	240	0	0	600	240	0	0	0	0	0	0	600	240	0	0
67	23245	21	264	250.8	0	0	264	250.8	0	0	0	0	0	0	264	250.8	0	0
68	23245	22	558	530.1	0	0	558	530.1	0	0	0	0	0	0	558	530.1	0	0
69	23245	23	528	1135.2	0	0	528	1135.2	0	0	0	0	0	0	528	1135.2	0	0
70	23245	24	3540	7611	0	0	3540	7611	0	0	0	0	0	0	3540	7611	0	0
71			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	23270	1	5298	5933.76	0	0	5298	5933.76	0	0	0	0	0	0	5298	5933.76	0	0
73	23270	2	2676	2997.12	0	0	2676	2997.12	0	0	0	0	0	0	2676	2997.12	0	0
74	23270	3	1704	1652.88	0	0	1704	1652.88	0	0	0	0	0	0	1704	1652.88	0	0
75	23270	4	1650	1600.5	0	0	1650	1600.5	0	0	0	0	0	0	1650	1600.5	0	0
76	23270	5	0	0	522	506.34	0	0	522	506.34	0	0	0	0	522	506.34	0	0
77	23270	6	0	0	1602	736.92	0	0	1602	736.92	0	0	0	0	1602	736.92	0	0
78	23270	7	5208	2395.68	0	0	5208	2395.68	0	0	0	0	0	0	5208	2395.68	0	0
79	23270	8	384	176.64	0	0	384	176.64	0	0	0	0	0	0	384	176.64	0	0
80	23270	9	558	513.36	0	0	558	513.36	0	0	0	0	0	0	558	513.36	0	0
81	23270	10	2124	1954.08	0	0	2124	1954.08	0	0	0	0	0	0	2124	1954.08	0	0
82	23270	11	8856	16206.48	0	0	8856	16206.48	0	0	0	0	0	0	8856	16206.48	0	0
83	23270	12	4794	8773.02	0	0	4794	8773.02	0	0	0	0	0	0	4794	8773.02	0	0
84	23270	13	3918	6934.86	0	0	3918	6934.86	0	0	0	0	0	0	3918	6934.86	0	0
85	23270	14	4560	8071.2	0	0	4560	8071.2	0	0	0	0	0	0	4560	8071.2	0	0
86	23270	15	0	0	1014	1794.78	0	0	1014	1794.78	0	0	0	0	1014	1794.78	0	0
87	23270	16	5646	2710.08	0	0	5646	2710.08	0	0	0	0	0	0	5646	2710.08	0	0
88	23270	17	2766	1327.68	0	0	2766	1327.68	0	0	0	0	0	0	2766	1327.68	0	0
89	23270	18	1830	494.1	0	0	1830	494.1	0	0	0	0	0	0	1830	494.1	0	0
90	23270	19	1896	511.92	0	0	1896	511.92	0	0	0	0	0	0	1896	511.92	0	0
91	23270	20	0	0	342	92.34	0	0	342	92.34	0	0	0	0	342	92.34	0	0
92	23270	21	2718	2038.5	0	0	2718	2038.5	0	0	0	0	0	0	2718	2038.5	0	0
93	23270	22	2838	2128.5	0	0	2838	2128.5	0	0	0	0	0	0	2838	2128.5	0	0
94	23270	23	450	558	0	0	450	558	0	0	0	0	0	0	450	558	0	0
95	23270	24	570	706.8	0	0	570	706.8	0	0	0	0	0	0	570	706.8	0	0
96	23270	25	414	418.14	0	0	414	418.14	0	0	0	0	0	0	414	418.14	0	0
97	23270	26	336	339.36	0	0	336	339.36	0	0	0	0	0	0	336	339.36	0	0
98			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	23295	1	11568	11105.28	0	0	0	0	0	0	11568	11105.28	0	0	0	0	11568	11105.28
100	23295	2	13608	13063.68	0	0	0	0	0	0	13608	13063.68	0	0	0	0	13608	13063.68
101	23295	3	0	0	7746	7436.16	0	0	0	7436.16	0	0	7746	7436.16	0	0	7746	7436.16
102	23295	4	0	0	2574	2162.16	0	0	2574	2162.16	0	0	0	0	2574	2162.16	0	0
103	23295	5	13674	11486.16	0	0	13674	11486.16	0	0	0	0	0	0	13674	11486.16	0	0
104	23295	6	2736	2298.24	0	0	2736	2298.24	0	0	0	0	0	0	2736	2298.24	0	0
105	23295	7	0	0	2922	1607.1	0	0	2922	1607.1	0	0	0	0	2922	1607.1	0	0
106	23295	8	9294	5111.7	0	0	9294	5111.7	0	0	0	0	0	0	9294	5111.7	0	0
107	23295	9	834	458.7	0	0	834	458.7	0	0	0	0	0	0	834	458.7	0	0
108	23295	10	1332	1105.56	0	0	1332	1105.56	0	0	0	0	0	0	1332	1105.56	0	0
109	23295	11	8574	7116.42	0	0	8574	7116.42	0	0	0	0	0	0	8574	7116.42	0	0
110	23295	12	2280	1254	0	0	2280	1254	0	0	0	0	0	0	2280	1254	0	0
111	23295	13	6846	3765.3	0	0	6846	3765.3	0	0	0	0	0	0	6846	3765.3	0	0
112	23295	14	2868	18957.48	0	0	2868	18957.48	0	0	0	0	0	0	2868	18957.48	0	0
113	23295	15	1656	10101.6	0	0	1656	10101.6	0	0	0	0	0	0	1656	10101.6	0	0
114	23295	16	3576	4827.6	0	0	3576	4827.6	0	0	0	0	0	0	3576	4827.6	0	0
115	23295	17	2832	3823.2	0	0	2832	3823.2	0	0	0	0	0	0	2832	3823.2	0	0
116	23295	18	2352	13359.36	0	0	2352	13359.36	0	0	0	0	0	0	2352	13359.36	0	0

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	Section	Polygon ID	All material Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Oxide Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Measured Tonnage	Au Product	Indicated Tonnage	Au Product	Global Oxide Tonnage	Au Product	Global Sulfide Tonnage	Au Product
117	23295	19	2142	12166.56	0	0	2142	12166.56	0	0	0	0	0	0	2142	12166.56	0	0
118	23295	20	6102	4149.36	0	0	6102	4149.36	0	0	0	0	0	0	6102	4149.36	0	0
119	23295	21	5772	3924.96	0	0	5772	3924.96	0	0	0	0	0	0	5772	3924.96	0	0
120	23295	22	7134	4851.12	0	0	7134	4851.12	0	0	0	0	0	0	7134	4851.12	0	0
121	23295	23	1224	832.32	0	0	1224	832.32	0	0	0	0	0	0	1224	832.32	0	0
122			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	23320	1	0	0	1992	9501.84	0	0	1992	9501.84	0	0	0	0	1992	9501.84	0	0
124	23320	2	3198	15254.46	0	0	3198	15254.46	0	0	0	0	0	0	3198	15254.46	0	0
125	23320	3	1584	7555.68	0	0	1584	7555.68	0	0	0	0	0	0	1584	7555.68	0	0
126	23320	4	0	0	1830	1756.8	0	0	1830	1756.8	0	0	0	0	1830	1756.8	0	0
127	23320	5	0	0	1530	1040.4	0	0	1530	1040.4	0	0	0	0	1530	1040.4	0	0
128	23320	6	3870	2631.6	0	0	3870	2631.6	0	0	0	0	0	0	3870	2631.6	0	0
129	23320	7	2232	1517.76	0	0	2232	1517.76	0	0	0	0	0	0	2232	1517.76	0	0
130	23320	8	2904	1016.4	0	0	2904	1016.4	0	0	0	0	0	0	2904	1016.4	0	0
131	23320	9	3678	1287.3	0	0	3678	1287.3	0	0	0	0	0	0	3678	1287.3	0	0
132	23320	10	6810	5448	0	0	6810	5448	0	0	0	0	0	0	6810	5448	0	0
133	23320	11	3702	2961.6	0	0	3702	2961.6	0	0	0	0	0	0	3702	2961.6	0	0
134	23320	12	4044	2507.28	0	0	4044	2507.28	0	0	0	0	0	0	4044	2507.28	0	0
135	23320	13	4314	2674.68	0	0	4314	2674.68	0	0	0	0	0	0	4314	2674.68	0	0
136	23320	14	4134	5002.14	0	0	4134	5002.14	0	0	0	0	0	0	4134	5002.14	0	0
137	23320	15	1956	2366.76	0	0	1956	2366.76	0	0	0	0	0	0	1956	2366.76	0	0
138	23320	16	1884	1582.56	0	0	1884	1582.56	0	0	0	0	0	0	1884	1582.56	0	0
139	23320	17	4650	3906	0	0	4650	3906	0	0	0	0	0	0	4650	3906	0	0
140	23320	18	6522	4174.08	0	0	6522	4174.08	0	0	0	0	0	0	6522	4174.08	0	0
141	23320	19	11274	7215.36	0	0	11274	7215.36	0	0	0	0	0	0	11274	7215.36	0	0
142	23320	20	3126	2219.46	0	0	3126	2219.46	0	0	0	0	0	0	3126	2219.46	0	0
143	23320	21	600	426	0	0	600	426	0	0	0	0	0	0	600	426	0	0
144	23320	22	11412	9700.2	0	0	11412	9700.2	0	0	0	0	0	0	11412	9700.2	0	0
145	23320	23	10506	8930.1	0	0	10506	8930.1	0	0	0	0	0	0	10506	8930.1	0	0
146	23320	24	0	0	2868	2753.28	0	0	2868	2753.28	0	0	0	0	2868	2753.28	0	0
147	23320	25	4524	4343.04	0	0	4524	4343.04	0	0	0	0	0	0	4524	4343.04	0	0
148	23320	26	4992	4792.32	0	0	4992	4792.32	0	0	0	0	0	0	4992	4792.32	0	0
149			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	23345	1	5178	79016.28	0	0	0	0	0	0	5178	79016.28	0	0	0	0	5178	79016.28
151	23345	2	9582	146221.32	0	0	0	0	0	0	9582	146221.32	0	0	0	0	9582	146221.32
152	23345	3	1212	1587.72	0	0	0	0	0	0	1212	1587.72	0	0	0	0	1212	1587.72
153	23345	4	3462	4535.22	0	0	0	0	0	0	3462	4535.22	0	0	0	0	3462	4535.22
154	23345	5	942	9740.28	0	0	942	9740.28	0	0	0	0	0	0	942	9740.28	0	0
155	23345	6	1230	12718.2	0	0	1230	12718.2	0	0	0	0	0	0	1230	12718.2	0	0
156	23345	7	1374	1415.22	0	0	1374	1415.22	0	0	0	0	0	0	1374	1415.22	0	0
157	23345	8	4068	4190.04	0	0	4068	4190.04	0	0	0	0	0	0	4068	4190.04	0	0
158	23345	9	4800	2640	0	0	0	0	0	0	4800	2640	0	0	0	0	4800	2640
159	23345	10	4806	2643.3	0	0	0	0	0	0	4806	2643.3	0	0	0	0	4806	2643.3
160	23345	11	5862	2755.14	0	0	5862	2755.14	0	0	0	0	0	0	5862	2755.14	0	0
161	23345	12	3402	1598.94	0	0	3402	1598.94	0	0	0	0	0	0	3402	1598.94	0	0
162	23345	13	3564	2530.44	0	0	3564	2530.44	0	0	0	0	0	0	3564	2530.44	0	0
163	23345	14	3024	2147.04	0	0	3024	2147.04	0	0	0	0	0	0	3024	2147.04	0	0
164	23345	15	2382	762.24	0	0	2382	762.24	0	0	0	0	0	0	2382	762.24	0	0
165	23345	16	678	216.96	0	0	678	216.96	0	0	0	0	0	0	678	216.96	0	0
166	23345	17	2886	2712.84	0	0	2886	2712.84	0	0	0	0	0	0	2886	2712.84	0	0
167	23345	18	306	1658.52	0	0	306	1658.52	0	0	0	0	0	0	306	1658.52	0	0
168	23345	19	2040	11056.8	0	0	2040	11056.8	0	0	0	0	0	0	2040	11056.8	0	0
169	23345	20	1200	6504	0	0	1200	6504	0	0	0	0	0	0	1200	6504	0	0
170	23345	21	504	569.52	0	0	504	569.52	0	0	0	0	0	0	504	569.52	0	0
171	23345	22	2130	2406.9	0	0	2130	2406.9	0	0	0	0	0	0	2130	2406.9	0	0
172	23345	23	1860	2752.8	0	0	1860	2752.8	0	0	0	0	0	0	1860	2752.8	0	0
173	23345	24	7926	11730.48	0	0	7926	11730.48	0	0	0	0	0	0	7926	11730.48	0	0
174	23345	25	7926	8401.56	0	0	7926	8401.56	0	0	0	0	0	0	7926	8401.56	0	0

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Curent through Phase 5 drilling

			All material				Oxide								Global Oxide		Global Sulfide	
			Measured		Indicated		Measured		Indicated		Measured		Indicated					
	Section	Polygon ID	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product
175	23345	26	9780	10366.8	0	0	9780	10366.8	0	0	0	0	0	0	9780	10366.8	0	0
176	23345	27	2664	6073.92	0	0	2664	6073.92	0	0	0	0	0	0	2664	6073.92	0	0
177	23345	28	2760	6292.8	0	0	2760	6292.8	0	0	0	0	0	0	2760	6292.8	0	0
178	23345	29	3204	3171.96	0	0	3204	3171.96	0	0	0	0	0	0	3204	3171.96	0	0
179	23345	30	2388	2364.12	0	0	2388	2364.12	0	0	0	0	0	0	2388	2364.12	0	0
180	23345	31	7836	30011.88	0	0	7836	30011.88	0	0	0	0	0	0	7836	30011.88	0	0
181	23345	32	2466	9444.78	0	0	2466	9444.78	0	0	0	0	0	0	2466	9444.78	0	0
182	23345	33	2970	2940.3	0	0	2970	2940.3	0	0	0	0	0	0	2970	2940.3	0	0
183	23345	34	4794	4746.06	0	0	4794	4746.06	0	0	0	0	0	0	4794	4746.06	0	0
184	23345	35	3108	2144.52	0	0	3108	2144.52	0	0	0	0	0	0	3108	2144.52	0	0
185	23345	36	4668	3220.92	0	0	4668	3220.92	0	0	0	0	0	0	4668	3220.92	0	0
186	23345	37	6060	3454.2	0	0	6060	3454.2	0	0	0	0	0	0	6060	3454.2	0	0
187	23345	38	804	458.28	0	0	804	458.28	0	0	0	0	0	0	804	458.28	0	0
188	23345	39	1992	5697.12	0	0	1992	5697.12	0	0	0	0	0	0	1992	5697.12	0	0
189	23345	40	636	1818.96	0	0	636	1818.96	0	0	0	0	0	0	636	1818.96	0	0
190	23345	41	1620	1490.4	0	0	1620	1490.4	0	0	0	0	0	0	1620	1490.4	0	0
191	23345	42	552	507.84	0	0	552	507.84	0	0	0	0	0	0	552	507.84	0	0
192	23345	43	5274	3375.36	0	0	5274	3375.36	0	0	0	0	0	0	5274	3375.36	0	0
193	23345	44	7548	4830.72	0	0	7548	4830.72	0	0	0	0	0	0	7548	4830.72	0	0
194	23345	45	4368	3188.64	0	0	4368	3188.64	0	0	0	0	0	0	4368	3188.64	0	0
195	23345	46	4284	3127.32	0	0	4284	3127.32	0	0	0	0	0	0	4284	3127.32	0	0
196	23345	47	5340	4539	0	0	5340	4539	0	0	0	0	0	0	5340	4539	0	0
197	23345	48	5526	4697.1	0	0	5526	4697.1	0	0	0	0	0	0	5526	4697.1	0	0
198	23345	49	5490	12846.6	0	0	5490	12846.6	0	0	0	0	0	0	5490	12846.6	0	0
199	23345	50	4458	10431.72	0	0	0	0	0	0	4458	10431.72	0	0	0	0	4458	10431.72
200	23345	51	894	840.36	0	0	894	840.36	0	0	0	0	0	0	894	840.36	0	0
201			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	23370	1	1188	3302.64	0	0	0	0	0	0	1188	3302.64	0	0	0	0	1188	3302.64
203	23370	2	4218	11726.04	0	0	0	0	0	0	4218	11726.04	0	0	0	0	4218	11726.04
204	23370	3	2442	10744.8	0	0	2442	10744.8	0	0	0	0	0	0	2442	10744.8	0	0
205	23370	4	2640	11616	0	0	2640	11616	0	0	0	0	0	0	2640	11616	0	0
206	23370	5	4152	4899.36	0	0	4152	4899.36	0	0	0	0	0	0	4152	4899.36	0	0
207	23370	6	990	1168.2	0	0	990	1168.2	0	0	0	0	0	0	990	1168.2	0	0
208	23370	7	2928	1493.28	0	0	2928	1493.28	0	0	0	0	0	0	2928	1493.28	0	0
209	23370	8	552	281.52	0	0	552	281.52	0	0	0	0	0	0	552	281.52	0	0
210	23370	9	306	749.7	0	0	306	749.7	0	0	0	0	0	0	306	749.7	0	0
211	23370	10	1200	14748	0	0	1200	14748	0	0	0	0	0	0	1200	14748	0	0
212	23370	11	3888	47783.52	0	0	3888	47783.52	0	0	0	0	0	0	3888	47783.52	0	0
213	23370	12	2028	4968.6	0	0	2028	4968.6	0	0	0	0	0	0	2028	4968.6	0	0
214	23370	13	216	1170.72	0	0	216	1170.72	0	0	0	0	0	0	216	1170.72	0	0
215	23370	14	714	3869.88	0	0	714	3869.88	0	0	0	0	0	0	714	3869.88	0	0
216	23370	15	1740	1026.6	0	0	1740	1026.6	0	0	0	0	0	0	1740	1026.6	0	0
217	23370	16	7500	4425	0	0	7500	4425	0	0	0	0	0	0	7500	4425	0	0
218	23370	17	330	1089	0	0	330	1089	0	0	0	0	0	0	330	1089	0	0
219	23370	18	516	6114.6	0	0	516	6114.6	0	0	0	0	0	0	516	6114.6	0	0
220	23370	19	3492	31428	0	0	3492	31428	0	0	0	0	0	0	3492	31428	0	0
221	23370	20	4902	5196.12	0	0	4902	5196.12	0	0	0	0	0	0	4902	5196.12	0	0
222	23370	21	4914	5208.84	0	0	4914	5208.84	0	0	0	0	0	0	4914	5208.84	0	0
223	23370	22	1170	1790.1	0	0	1170	1790.1	0	0	0	0	0	0	1170	1790.1	0	0
224	23370	23	3282	5021.46	0	0	3282	5021.46	0	0	0	0	0	0	3282	5021.46	0	0
225	23370	24	5244	26744.4	0	0	5244	26744.4	0	0	0	0	0	0	5244	26744.4	0	0
226	23370	25	7356	37515.6	0	0	7356	37515.6	0	0	0	0	0	0	7356	37515.6	0	0
227	23370	26	3456	2833.92	0	0	3456	2833.92	0	0	0	0	0	0	3456	2833.92	0	0
228	23370	27	1380	1131.6	0	0	1380	1131.6	0	0	0	0	0	0	1380	1131.6	0	0
229	23370	28	1698	1324.44	0	0	1698	1324.44	0	0	0	0	0	0	1698	1324.44	0	0
230	23370	29	1890	1474.2	0	0	1890	1474.2	0	0	0	0	0	0	1890	1474.2	0	0
231	23370	30	1314	4073.4	0	0	1314	4073.4	0	0	0	0	0	0	1314	4073.4	0	0
232	23370	31	1614	5003.4	0	0	1614	5003.4	0	0	0	0	0	0	1614	5003.4	0	0

1998 Bohemian Resource Estimate

Curent through Phase 5 drilling

			All material				Oxide								Global Oxide		Global Sulfide	
			Measured		Indicated		Measured		Indicated		Measured		Indicated					
	Section	Polygon ID	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product
233	23370	32	2460	2312.4	0	0	0	0	0	0	2460	2312.4	0	0	0	0	2460	2312.4
234	23370	33	2442	2295.48	0	0	0	0	0	0	2442	2295.48	0	0	0	0	2442	2295.48
235	23370	34	1836	5214.24	0	0	1836	5214.24	0	0	0	0	0	0	1836	5214.24	0	0
236	23370	35	144	408.96	0	0	144	408.96	0	0	0	0	0	0	144	408.96	0	0
237	23370	36	6264	5324.4	0	0	6264	5324.4	0	0	0	0	0	0	6264	5324.4	0	0
238	23370	37	798	678.3	0	0	798	678.3	0	0	0	0	0	0	798	678.3	0	0
239	23370	38	210	65.1	0	0	210	65.1	0	0	0	0	0	0	210	65.1	0	0
240	23370	39	1596	494.76	0	0	1596	494.76	0	0	0	0	0	0	1596	494.76	0	0
241	23370	40	1068	1174.8	0	0	1068	1174.8	0	0	0	0	0	0	1068	1174.8	0	0
242	23370	41	8148	9859.08	0	0	8148	9859.08	0	0	0	0	0	0	8148	9859.08	0	0
243	23370	42	5424	3200.16	0	0	5424	3200.16	0	0	0	0	0	0	5424	3200.16	0	0
244	23370	43	678	400.02	0	0	678	400.02	0	0	0	0	0	0	678	400.02	0	0
245	23370	44	954	896.76	0	0	954	896.76	0	0	0	0	0	0	954	896.76	0	0
246	23370	45	1908	2823.84	0	0	1908	2823.84	0	0	0	0	0	0	1908	2823.84	0	0
247	23370	46	816	1207.68	0	0	816	1207.68	0	0	0	0	0	0	816	1207.68	0	0
248	23370	47	1308	2668.32	0	0	1308	2668.32	0	0	0	0	0	0	1308	2668.32	0	0
249	23370	48	402	820.08	0	0	402	820.08	0	0	0	0	0	0	402	820.08	0	0
250	23370	49	5154	24120.72	0	0	5154	24120.72	0	0	0	0	0	0	5154	24120.72	0	0
251	23370	50	894	4183.92	0	0	894	4183.92	0	0	0	0	0	0	894	4183.92	0	0
252	23370	51	4062	4508.82	0	0	4062	4508.82	0	0	0	0	0	0	4062	4508.82	0	0
253	23370	52	2802	3110.22	0	0	2802	3110.22	0	0	0	0	0	0	2802	3110.22	0	0
254	23370	53	4380	13096.2	0	0	4380	13096.2	0	0	0	0	0	0	4380	13096.2	0	0
255	23370	54	2820	8431.8	0	0	2820	8431.8	0	0	0	0	0	0	2820	8431.8	0	0
256	23370	55	3204	1377.72	0	0	3204	1377.72	0	0	0	0	0	0	3204	1377.72	0	0
257	23370	56	3642	1566.06	0	0	3642	1566.06	0	0	0	0	0	0	3642	1566.06	0	0
258	23370	57	2064	1259.04	0	0	2064	1259.04	0	0	0	0	0	0	2064	1259.04	0	0
259	23370	58	2190	1335.9	0	0	2190	1335.9	0	0	0	0	0	0	2190	1335.9	0	0
260	23370	59	3702	2887.56	0	0	3702	2887.56	0	0	0	0	0	0	3702	2887.56	0	0
261	23370	60	2124	1656.72	0	0	2124	1656.72	0	0	0	0	0	0	2124	1656.72	0	0
262	23370	61	5334	3040.38	0	0	5334	3040.38	0	0	0	0	0	0	5334	3040.38	0	0
263	23370	62	5022	2862.54	0	0	5022	2862.54	0	0	0	0	0	0	5022	2862.54	0	0
264	23370	63	1236	1025.88	0	0	1236	1025.88	0	0	0	0	0	0	1236	1025.88	0	0
265	23370	64	4776	3964.08	0	0	4776	3964.08	0	0	0	0	0	0	4776	3964.08	0	0
266	23370	65	1788	8814.84	0	0	1788	8814.84	0	0	0	0	0	0	1788	8814.84	0	0
267	23370	66	330	1626.9	0	0	330	1626.9	0	0	0	0	0	0	330	1626.9	0	0
268	23370	67	1122	1335.18	0	0	1122	1335.18	0	0	0	0	0	0	1122	1335.18	0	0
269	23370	68	1074	1278.06	0	0	1074	1278.06	0	0	0	0	0	0	1074	1278.06	0	0
270	23370	69	1494	537.84	0	0	1494	537.84	0	0	0	0	0	0	1494	537.84	0	0
271	23370	70	5928	2134.08	0	0	5928	2134.08	0	0	0	0	0	0	5928	2134.08	0	0
272			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
273	23395	1	3408	2181.12	0	0	3408	2181.12	0	0	0	0	0	0	3408	2181.12	0	0
274	23395	2	2136	1367.04	0	0	2136	1367.04	0	0	0	0	0	0	2136	1367.04	0	0
275	23395	3	4608	4561.92	0	0	4608	4561.92	0	0	0	0	0	0	4608	4561.92	0	0
276	23395	4	3600	3564	0	0	3600	3564	0	0	0	0	0	0	3600	3564	0	0
277	23395	5	4302	9034.2	0	0	4302	9034.2	0	0	0	0	0	0	4302	9034.2	0	0
278	23395	6	4812	10105.2	0	0	4812	10105.2	0	0	0	0	0	0	4812	10105.2	0	0
279	23395	7	4470	3620.7	0	0	4470	3620.7	0	0	0	0	0	0	4470	3620.7	0	0
280	23395	8	5286	4281.66	0	0	5286	4281.66	0	0	0	0	0	0	5286	4281.66	0	0
281	23395	9	3000	11490	0	0	3000	11490	0	0	0	0	0	0	3000	11490	0	0
282	23395	10	3774	14454.42	0	0	3774	14454.42	0	0	0	0	0	0	3774	14454.42	0	0
283	23395	11	5526	5194.44	0	0	5526	5194.44	0	0	0	0	0	0	5526	5194.44	0	0
284	23395	12	7932	7456.08	0	0	7932	7456.08	0	0	0	0	0	0	7932	7456.08	0	0
285	23395	13	1974	1460.76	0	0	1974	1460.76	0	0	0	0	0	0	1974	1460.76	0	0
286	23395	14	84	62.16	0	0	84	62.16	0	0	0	0	0	0	84	62.16	0	0
287	23395	15	5220	10753.2	0	0	5220	10753.2	0	0	0	0	0	0	5220	10753.2	0	0
288	23395	16	3822	7873.32	0	0	3822	7873.32	0	0	0	0	0	0	3822	7873.32	0	0
289	23395	17	0	0	252	153.72	0	0	252	153.72	0	0	0	0	252	153.72	0	0
290	23395	18	5460	3330.6	0	0	5460	3330.6	0	0	0	0	0	0	5460	3330.6	0	0

1998 Bohemian Resource Estimate

Curent through Phase 5 drilling

			All material				Oxide								Global Oxide		Global Sulfide	
			Measured		Indicated		Measured		Indicated		Measured		Indicated					
	Section	Polygon ID	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product
291	23395	19	5886	3590.46	0	0	5886	3590.46	0	0	0	0	0	0	5886	3590.46	0	0
292	23395	20	0	0	492	772.44	0	0	492	772.44	0	0	0	0	492	772.44	0	0
293	23395	21	3522	5529.54	0	0	3522	5529.54	0	0	0	0	0	0	3522	5529.54	0	0
294	23395	22	4134	6490.38	0	0	4134	6490.38	0	0	0	0	0	0	4134	6490.38	0	0
295	23395	23	0	0	1782	2619.54	0	0	1782	2619.54	0	0	0	0	1782	2619.54	0	0
296	23395	24	6996	10284.12	0	0	6996	10284.12	0	0	0	0	0	0	6996	10284.12	0	0
297	23395	25	3444	5062.68	0	0	3444	5062.68	0	0	0	0	0	0	3444	5062.68	0	0
298	23395	26	11100	7548	0	0	11100	7548	0	0	0	0	0	0	11100	7548	0	0
299	23395	27	8742	5944.56	0	0	8742	5944.56	0	0	0	0	0	0	8742	5944.56	0	0
300	23395	28	0	0	1062	722.16	0	0	1062	722.16	0	0	0	0	1062	722.16	0	0
301	23395	29	0	0	834	533.76	0	0	834	533.76	0	0	0	0	834	533.76	0	0
302	23395	30	5970	3820.8	0	0	5970	3820.8	0	0	0	0	0	0	5970	3820.8	0	0
303	23395	31	480	307.2	0	0	480	307.2	0	0	0	0	0	0	480	307.2	0	0
304			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	23420	1	21072	34136.64	0	0	0	0	0	0	21072	34136.64	0	0	0	0	21072	34136.64
306	23420	2	21696	35147.52	0	0	0	0	0	0	21696	35147.52	0	0	0	0	21696	35147.52
307	23420	3	7836	5171.76	0	0	7836	5171.76	0	0	0	0	0	0	7836	5171.76	0	0
308	23420	4	15276	10082.16	0	0	15276	10082.16	0	0	0	0	0	0	15276	10082.16	0	0
309	23420	5	3876	2248.08	0	0	0	0	0	0	3876	2248.08	0	0	0	0	3876	2248.08
310	23420	6	3774	2188.92	0	0	0	0	0	0	3774	2188.92	0	0	0	0	3774	2188.92
311	23420	7	3516	1406.4	0	0	3516	1406.4	0	0	0	0	0	0	3516	1406.4	0	0
312	23420	8	270	108	0	0	270	108	0	0	0	0	0	0	270	108	0	0
313	23420	9	372	260.4	0	0	372	260.4	0	0	0	0	0	0	372	260.4	0	0
314	23420	10	3474	2431.8	0	0	3474	2431.8	0	0	0	0	0	0	3474	2431.8	0	0
315	23420	11	25656	15650.16	0	0	25656	15650.16	0	0	0	0	0	0	25656	15650.16	0	0
316	23420	12	7620	4648.2	0	0	7620	4648.2	0	0	0	0	0	0	7620	4648.2	0	0
317	23420	13	4254	3700.98	0	0	4254	3700.98	0	0	0	0	0	0	4254	3700.98	0	0
318	23420	14	3678	3199.86	0	0	3678	3199.86	0	0	0	0	0	0	3678	3199.86	0	0
319	23420	15	4710	2025.3	0	0	4710	2025.3	0	0	0	0	0	0	4710	2025.3	0	0
320	23420	16	756	325.08	0	0	756	325.08	0	0	0	0	0	0	756	325.08	0	0
321	23420	17	3972	2105.16	0	0	3972	2105.16	0	0	0	0	0	0	3972	2105.16	0	0
322	23420	18	5652	2995.56	0	0	5652	2995.56	0	0	0	0	0	0	5652	2995.56	0	0
323	23420	19	588	482.16	0	0	588	482.16	0	0	0	0	0	0	588	482.16	0	0
324	23420	20	1632	1338.24	0	0	1632	1338.24	0	0	0	0	0	0	1632	1338.24	0	0
325			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	23445	1	3774	3056.94	0	0	0	0	0	0	3774	3056.94	0	0	0	0	3774	3056.94
327	23445	2	2358	1909.98	0	0	0	0	0	0	2358	1909.98	0	0	0	0	2358	1909.98
328	23445	3	2586	1396.44	0	0	2586	1396.44	0	0	0	0	0	0	2586	1396.44	0	0
329	23445	4	2958	1597.32	0	0	2958	1597.32	0	0	0	0	0	0	2958	1597.32	0	0
330	23445	5	3168	1045.44	0	0	3168	1045.44	0	0	0	0	0	0	3168	1045.44	0	0
331	23445	6	2490	821.7	0	0	2490	821.7	0	0	0	0	0	0	2490	821.7	0	0
332	23445	7	2310	1316.7	0	0	2310	1316.7	0	0	0	0	0	0	2310	1316.7	0	0
333	23445	8	3336	1901.52	0	0	3336	1901.52	0	0	0	0	0	0	3336	1901.52	0	0
334	23445	9	0	0	2556	1456.92	0	0	2556	1456.92	0	0	0	0	2556	1456.92	0	0
335	23445	10	2502	1401.12	0	0	2502	1401.12	0	0	0	0	0	0	2502	1401.12	0	0
336	23445	11	3744	2096.64	0	0	3744	2096.64	0	0	0	0	0	0	3744	2096.64	0	0
337			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
338	23470	1	5040	2822.4	0	0	5040	2822.4	0	0	0	0	0	0	5040	2822.4	0	0
339	23470	2	5346	2993.76	0	0	5346	2993.76	0	0	0	0	0	0	5346	2993.76	0	0
340	23470	3	6312	3724.08	0	0	6312	3724.08	0	0	0	0	0	0	6312	3724.08	0	0
341	23470	4	3702	2184.18	0	0	3702	2184.18	0	0	0	0	0	0	3702	2184.18	0	0
342	23470	5	6774	7519.14	0	0	6774	7519.14	0	0	0	0	0	0	6774	7519.14	0	0
343	23470	6	7578	8411.58	0	0	7578	8411.58	0	0	0	0	0	0	7578	8411.58	0	0
344	23470	7	2802	10731.66	0	0	2802	10731.66	0	0	0	0	0	0	2802	10731.66	0	0
345	23470	8	3408	13052.64	0	0	3408	13052.64	0	0	0	0	0	0	3408	13052.64	0	0
346	23470	9	4116	3087	0	0	4116	3087	0	0	0	0	0	0	4116	3087	0	0
347	23470	10	3156	2367	0	0	3156	2367	0	0	0	0	0	0	3156	2367	0	0
348	23470	11	9150	2745	0	0	9150	2745	0	0	0	0	0	0	9150	2745	0	0

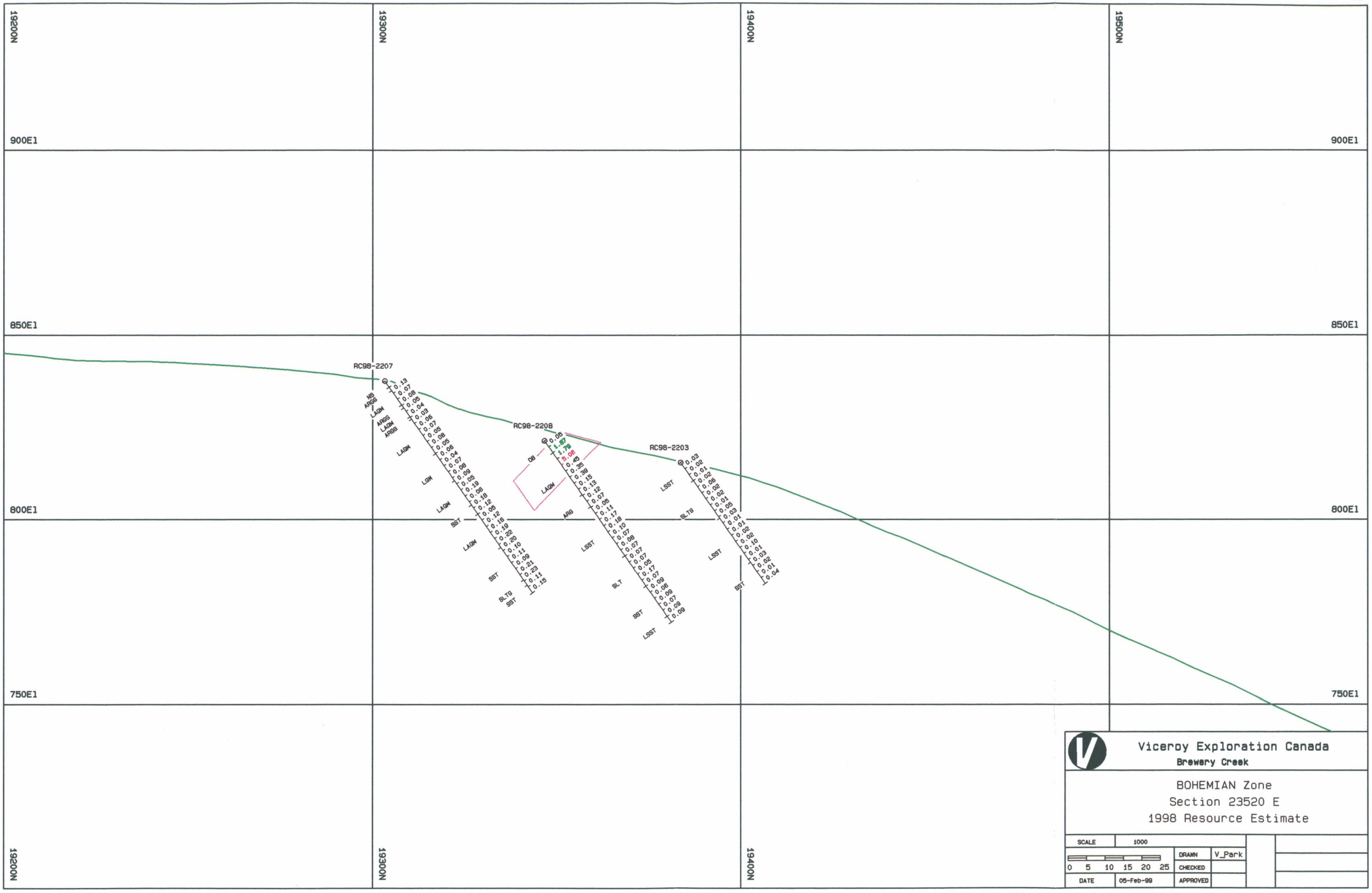
1998 Bohemian Resource Estimate

Curent through Phase 5 drilling

			All material				Oxide								Global Oxide		Global Sulfide	
			Measured		Indicated		Measured		Indicated		Measured		Indicated					
	Section	Polygon ID	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product	Tonnage	Au Product
349	23470	12	1332	399.6	0	0	1332	399.6	0	0	0	0	0	0	1332	399.6	0	0
350	23470	13	5274	3639.06	0	0	5274	3639.06	0	0	0	0	0	0	5274	3639.06	0	0
351	23470	14	2604	1796.76	0	0	2604	1796.76	0	0	0	0	0	0	2604	1796.76	0	0
352	23470	15	2196	1141.92	0	0	2196	1141.92	0	0	0	0	0	0	2196	1141.92	0	0
353	23470	16	5466	2842.32	0	0	5466	2842.32	0	0	0	0	0	0	5466	2842.32	0	0
354	23470	17	0	0	2934	1525.68	0	0	2934	0	0	0	0	0	2934	1525.68	0	0
355			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
356	23495	1	1290	1096.5	0	0	1290	1096.5	0	0	0	0	0	0	1290	1096.5	0	0
357	23495	2	4440	3774	0	0	4440	3774	0	0	0	0	0	0	4440	3774	0	0
358	23495	3	5646	11179.08	0	0	5646	11179.08	0	0	0	0	0	0	5646	11179.08	0	0
359	23495	4	9360	18532.8	0	0	9360	18532.8	0	0	0	0	0	0	9360	18532.8	0	0
360	23495	5	0	0	2508	4965.84	0	0	2508	0	0	0	0	0	2508	4965.84	0	0
361			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
362	23520	1	7770	14763	0	0	7770	14763	0	0	0	0	0	0	7770	14763	0	0
363	23520	2	5046	9587.4	0	0	5046	9587.4	0	0	0	0	0	0	5046	9587.4	0	0
			1246081.8	1785642.9	59514.0	62757.7	1063939.8	1355467.2	47928.0	43883.3	182142.0	430175.8	11586.0	11244.8	1111867.8	1406980.0	193728.0	441420.6
				1.43 g/T		1.05 g/T		1.27 g/T		0.92 g/T		2.36 g/T		0.97 g/T		1.27 g/T		2.28 g/T
				57410 oz		2018 oz		43579 oz		1411 oz		13830 oz		362 oz		45235 oz		14192 oz

APPENDIX 7c

BOHEMIAN ZONE – 1998 RESOURCE ESTIMATE SECTIONS



sectiona.pf

SSI - Viceroy International Exploration

19200N

19300N

19400N

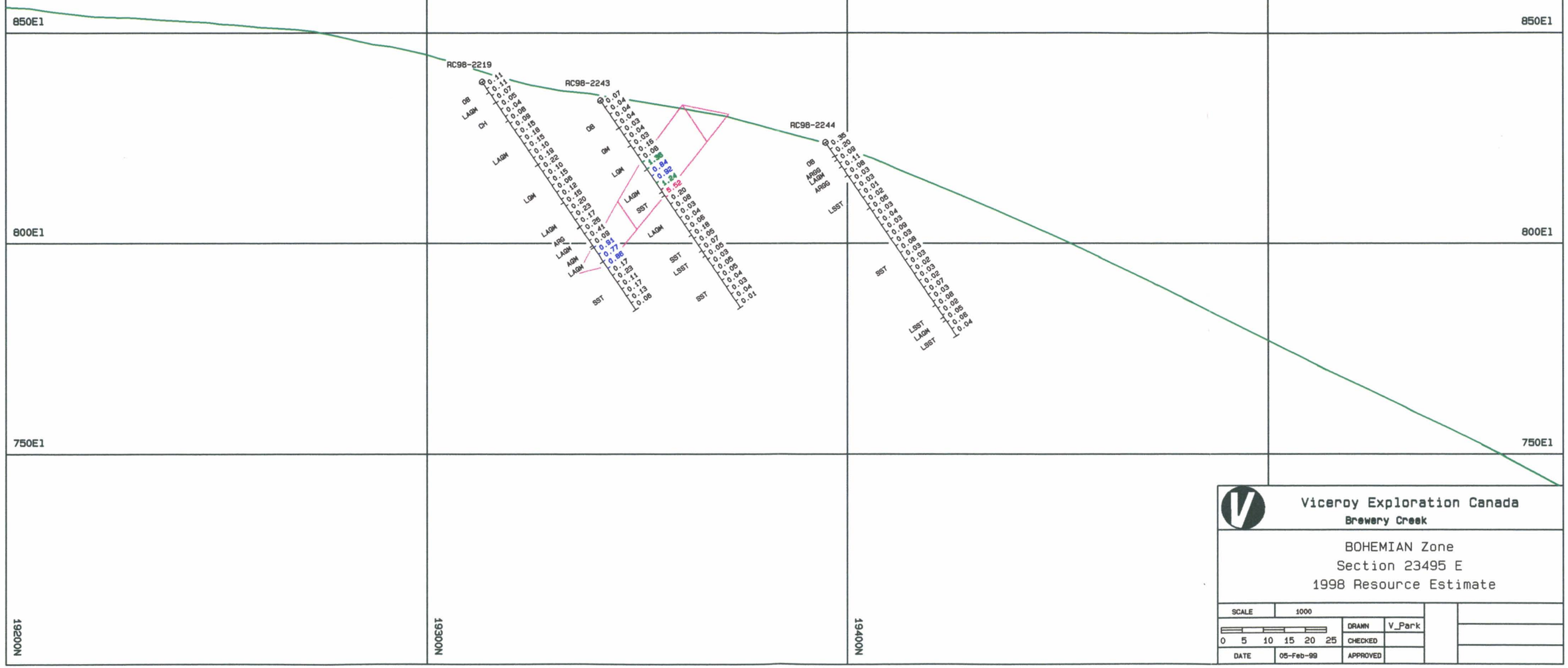
19500N

900E1

850E1

800E1

750E1



Viceroy Exploration Canada

Brewery Creek

BOHEMIAN Zone

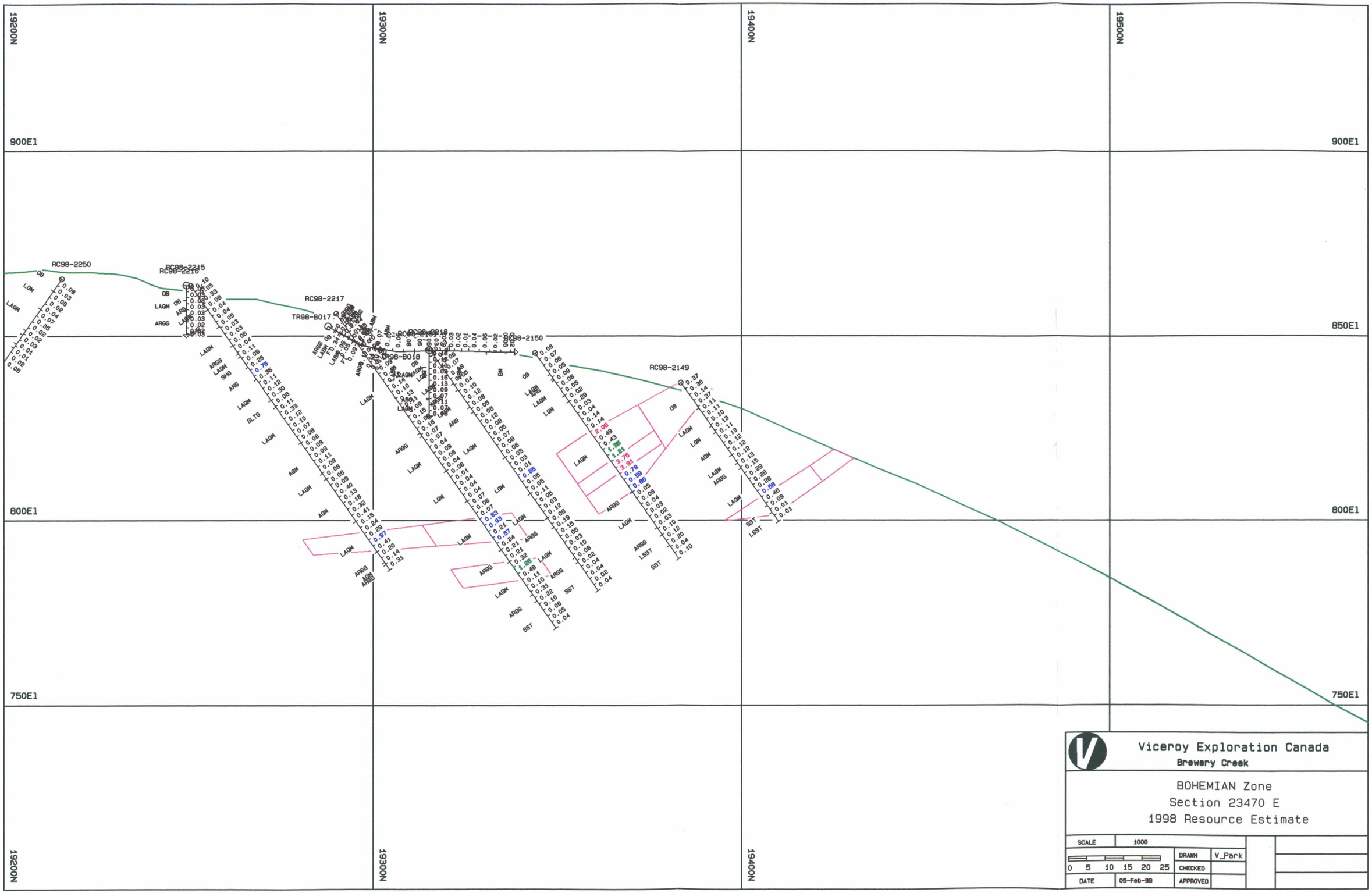
Section 23495 E

1998 Resource Estimate

SCALE	1000			
0 5 10 15 20 25		DRAWN	V_Park	
		CHECKED		
DATE	05-Feb-99	APPROVED		

sectiona.pf

SSI - Viceroy International Exploration



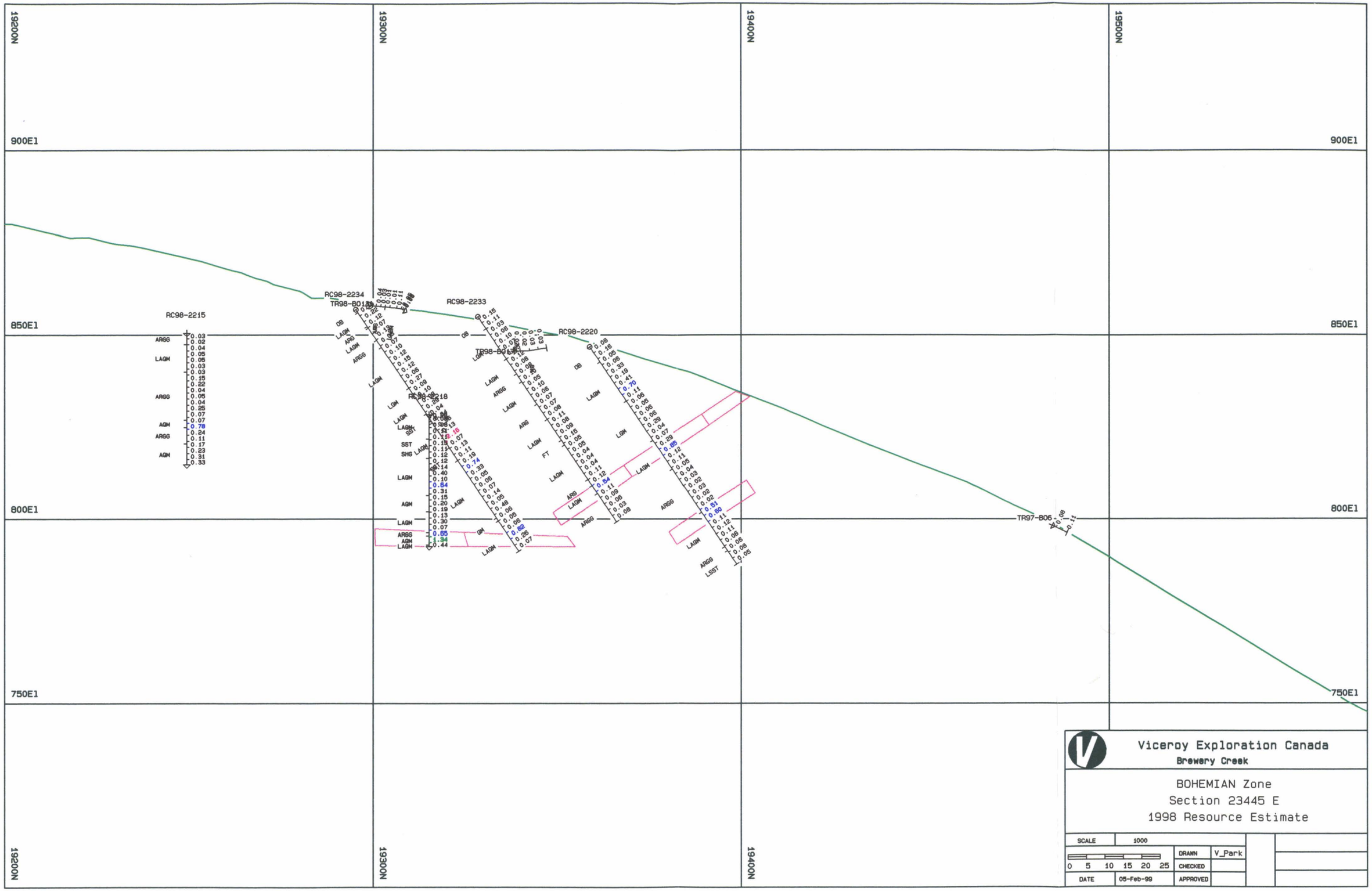
Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23470 E
1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25		DRAWN	V_Park
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Vicerov International Exploration



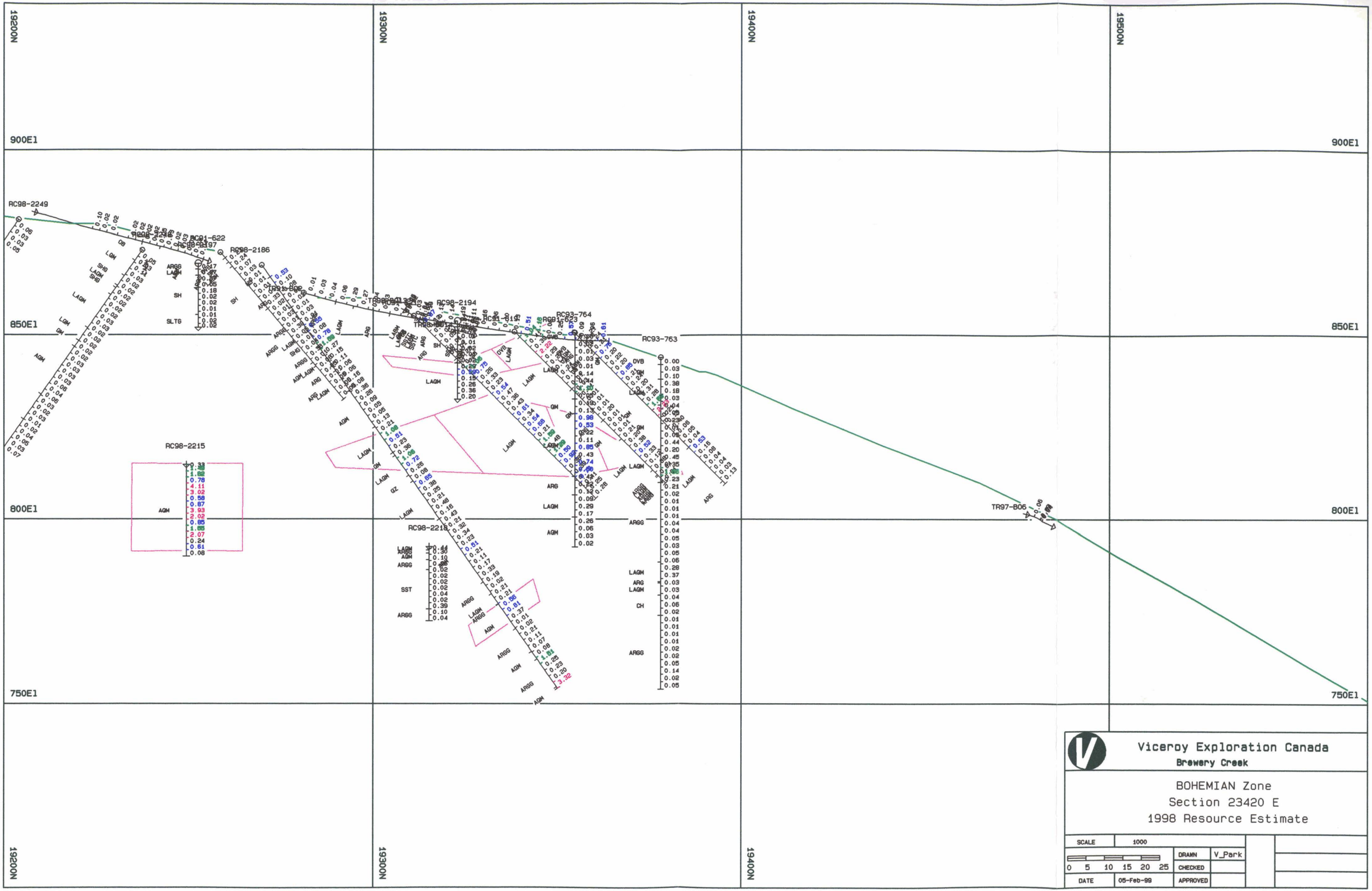
Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23445 E
1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25	DRAWN	V_Park	
	CHECKED		
DATE 05-Feb-99	APPROVED		

sectiona.pf

SSI - Viceroy International Exploration



Viceroy Exploration Canada

Brewery Creek

BOHEMIAN Zone

Section 23420 E

1998 Resource Estimate

SCALE	1000		
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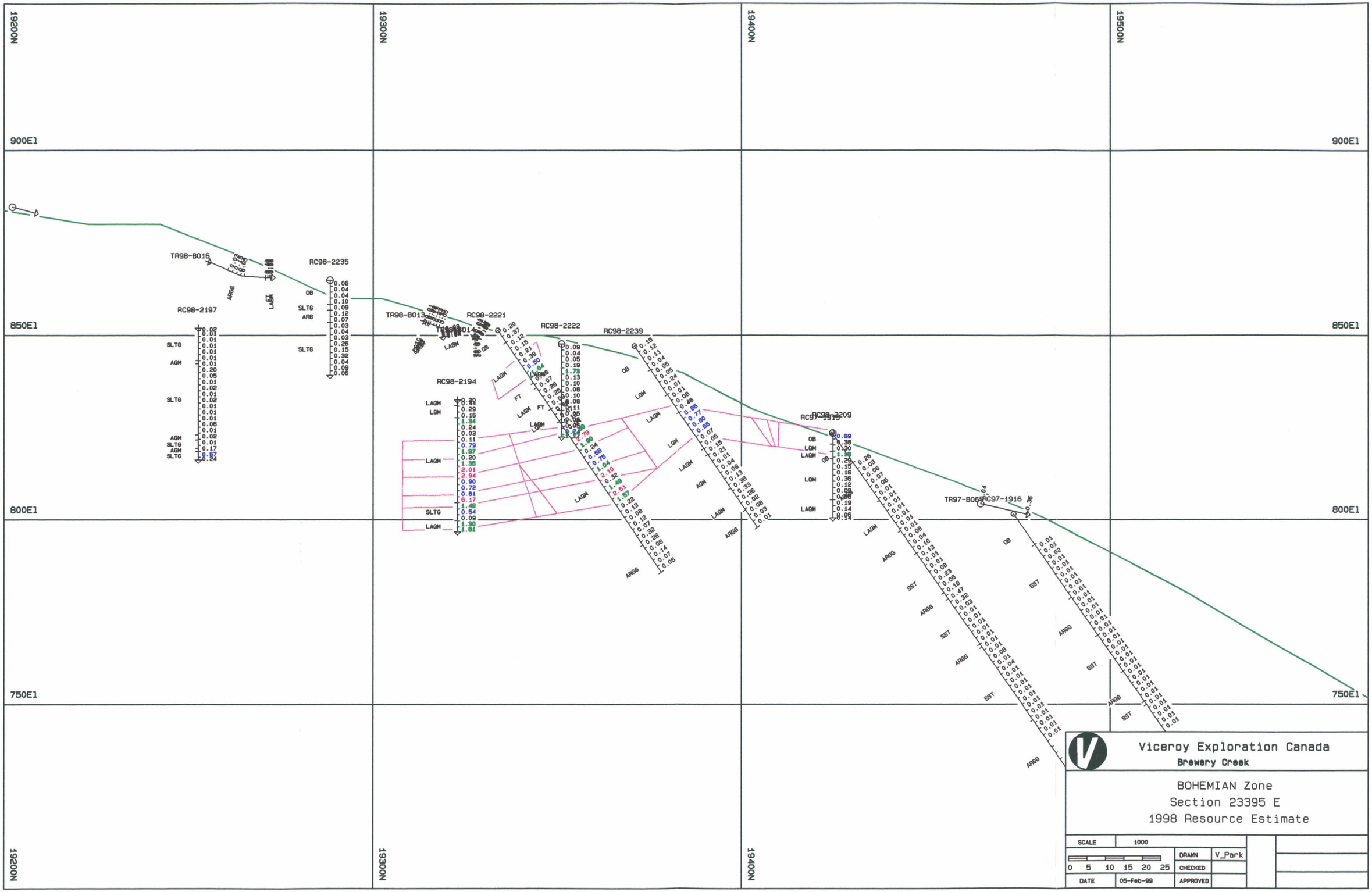
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Viceroy International Exploration



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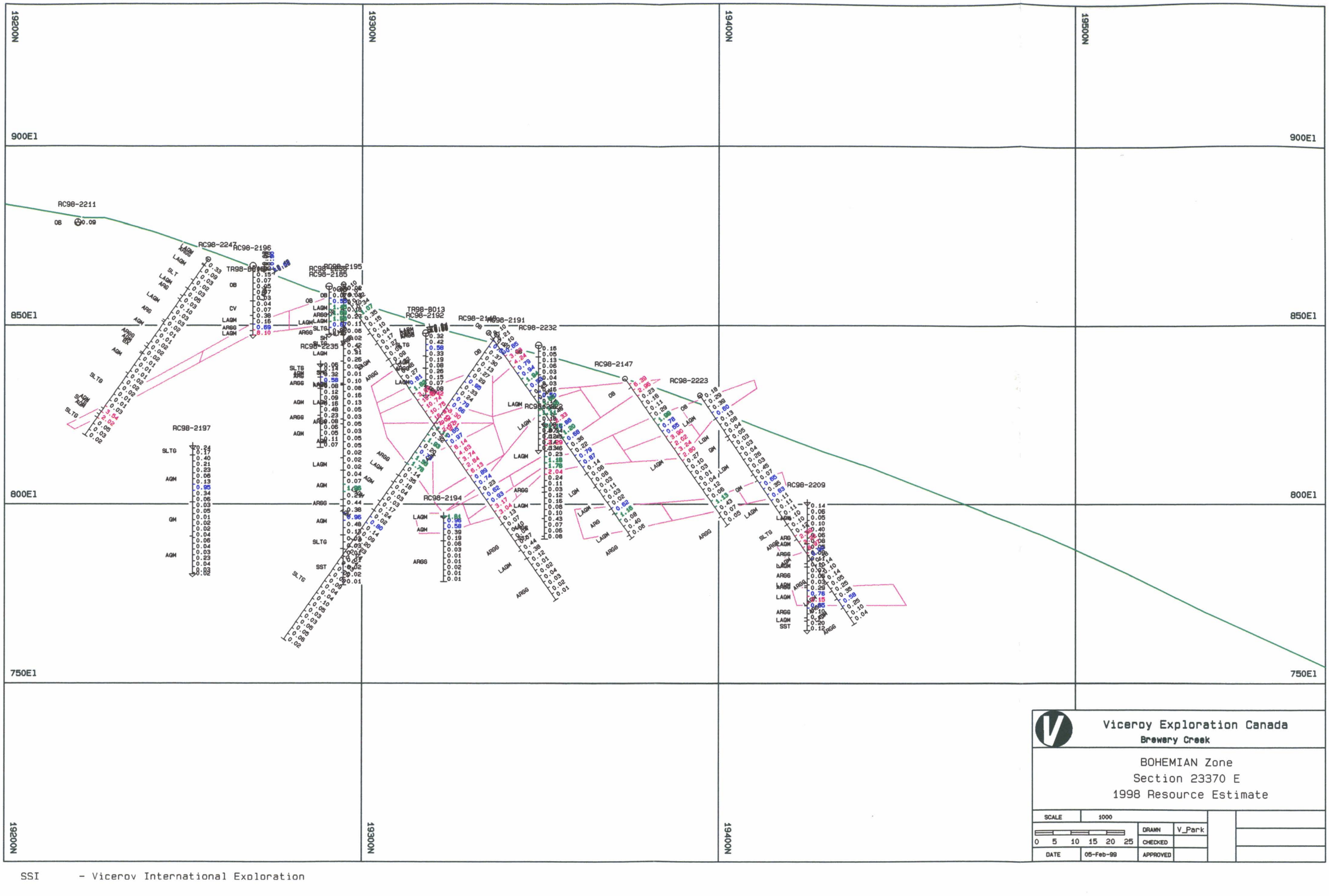

sectiona.pf

Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23370 E
1998 Resource Estimate

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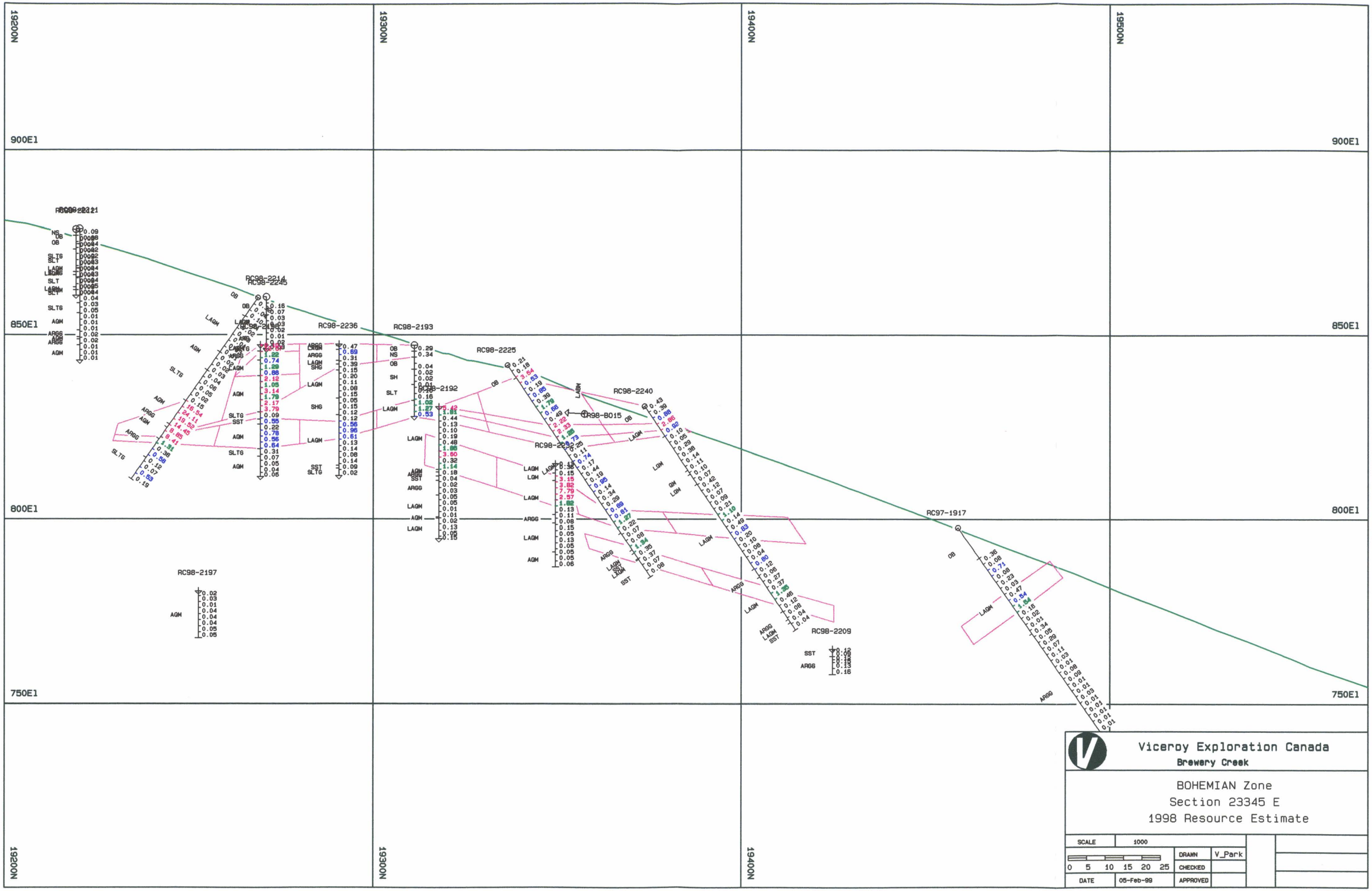
	CHECKED		
DATE	05-Feb-99	APPROVED	

SSI - Viceroy International Exploration



Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23345 E
1998 Resource Estimate

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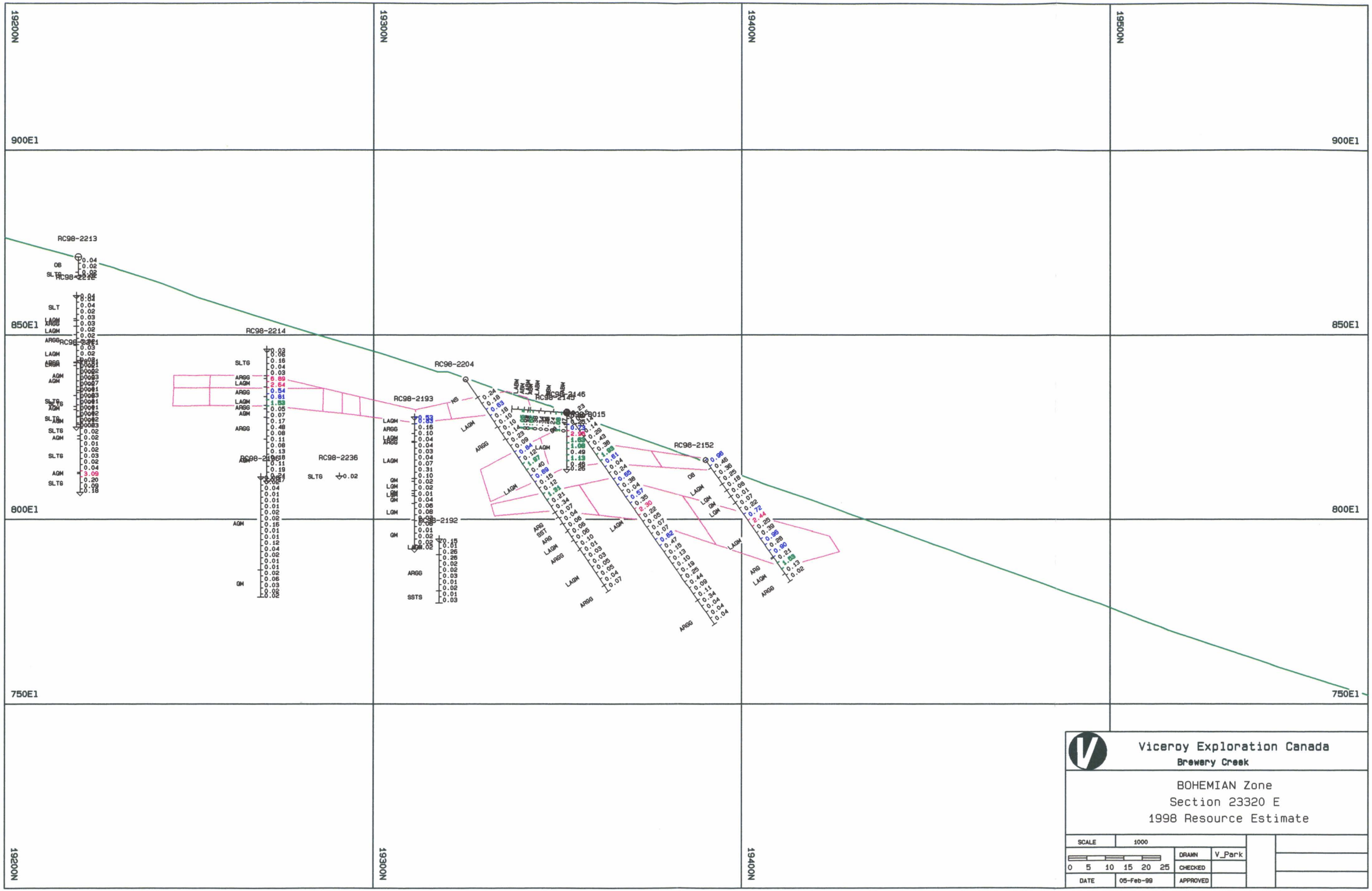
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Viceroy International Exploration



sectiona.pf

SSI - Viceroy International Exploration

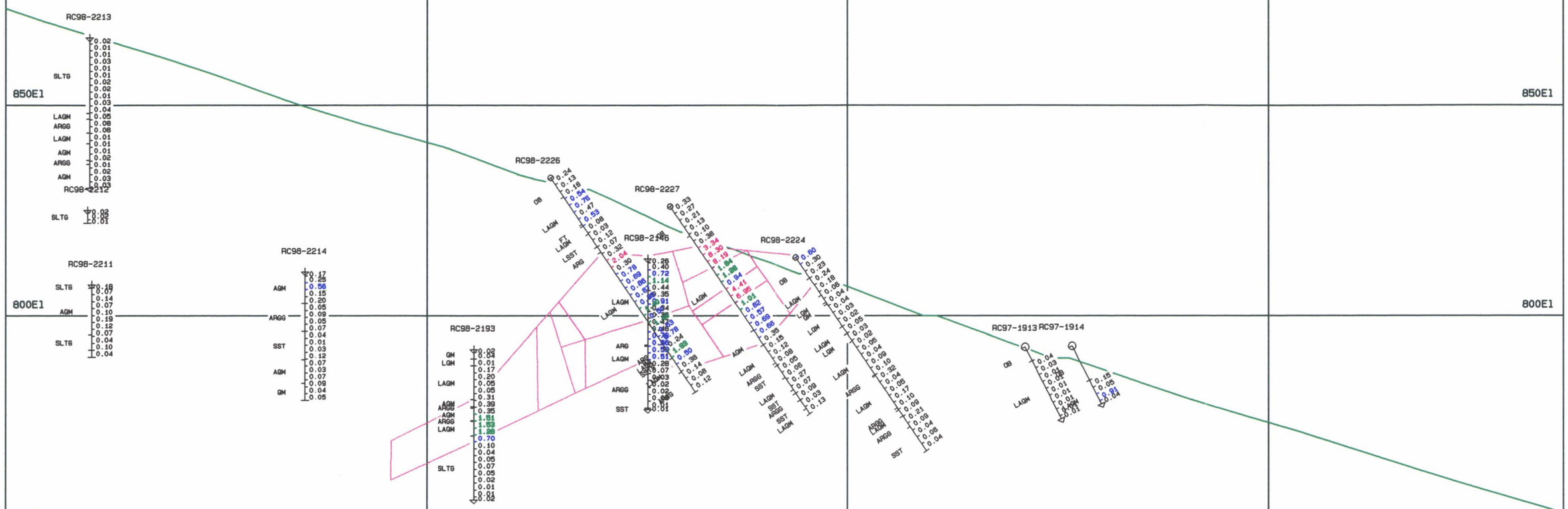
1920ON | 1930ON | 1940ON | 1950ON

900E1 | 900E1

850E1 | 850E1

800E1 | 800E1

750E1 | 750E1



Viceroy Exploration Canada

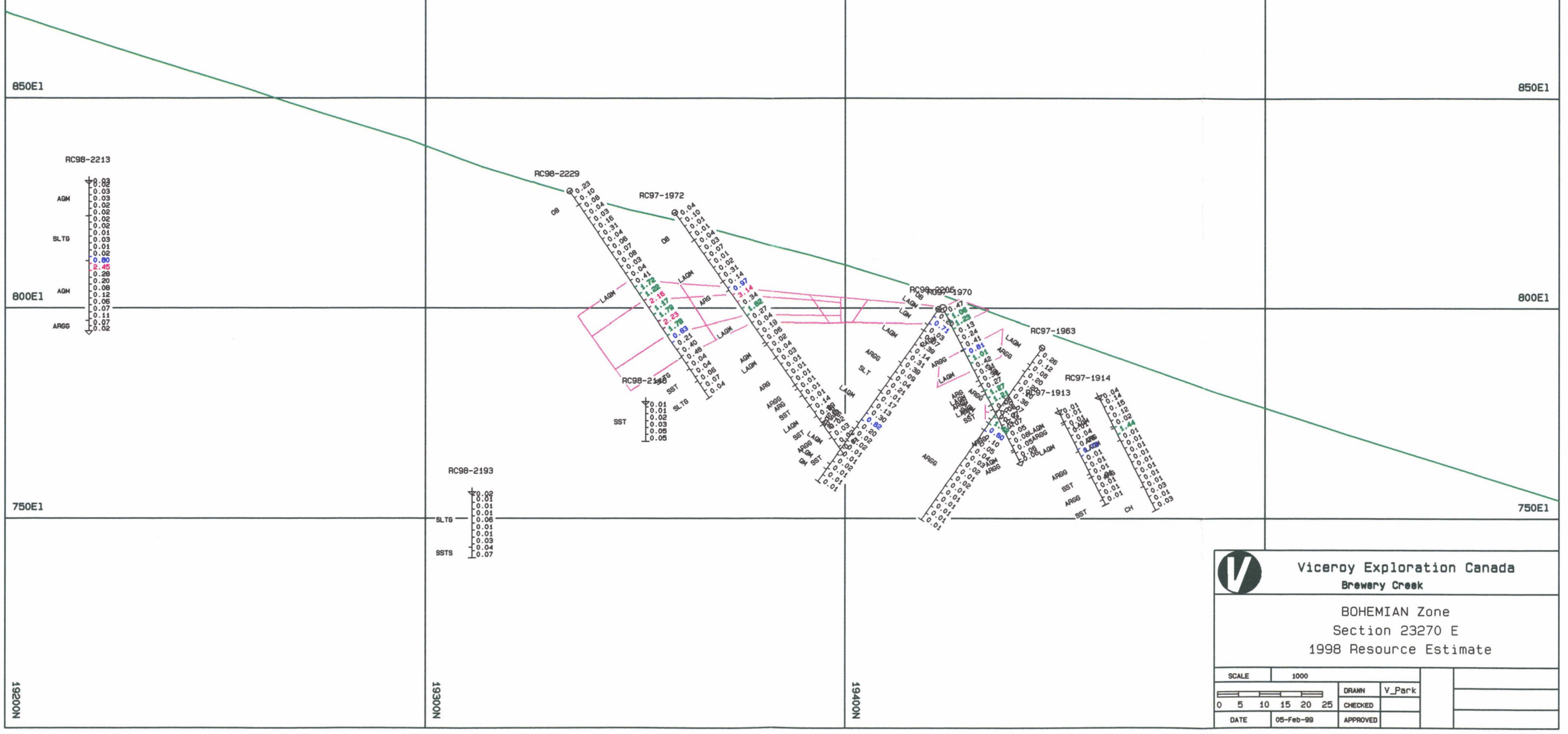
Brewery Creek

BOHEMIAN Zone
Section 23295 E
1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25		DRAWN	V_Park
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Viceroy International Exploration



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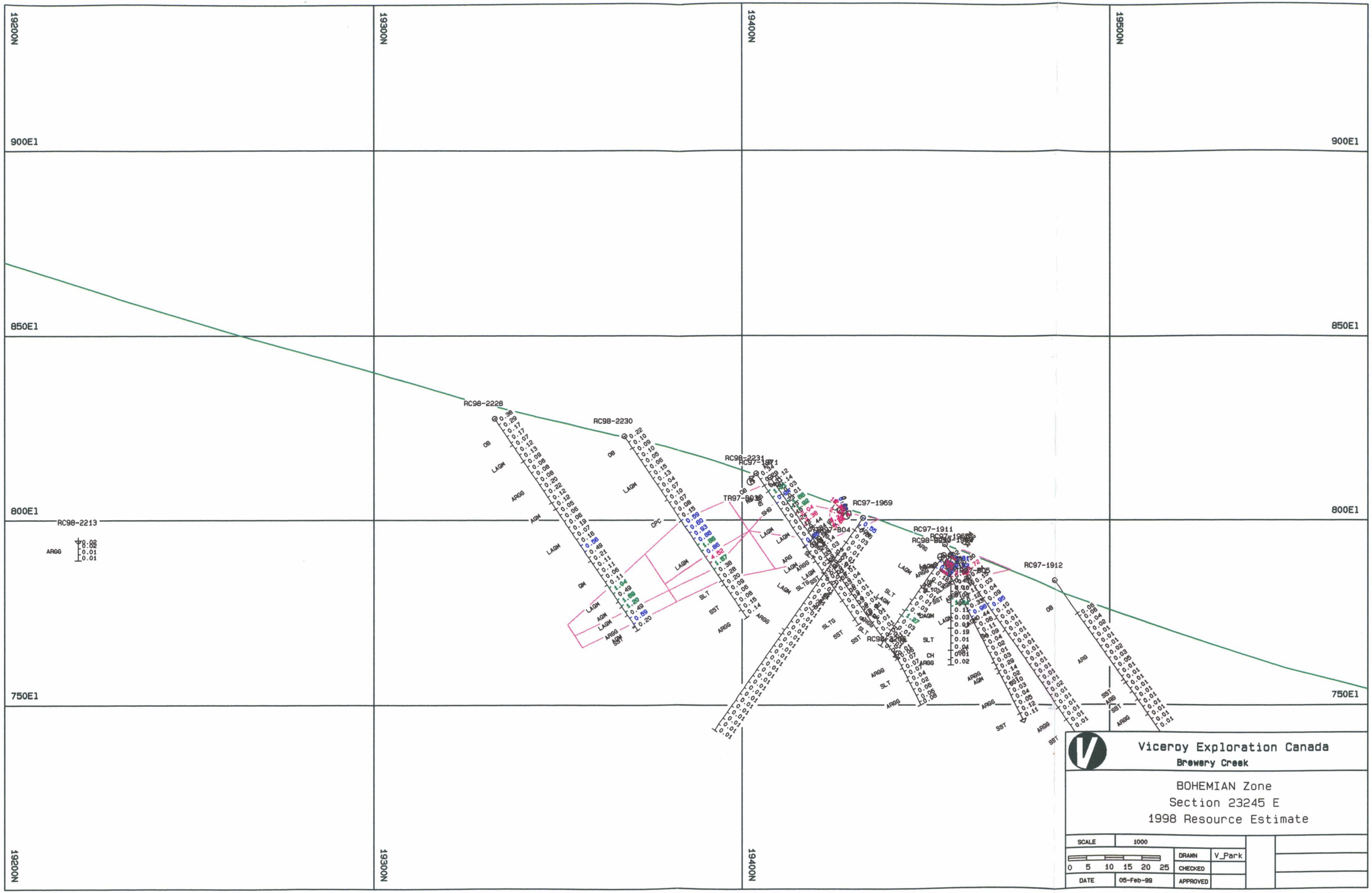


sectiona.pf

SSI - Viceroy International Exploration

N19250N

N19300N

N19400N

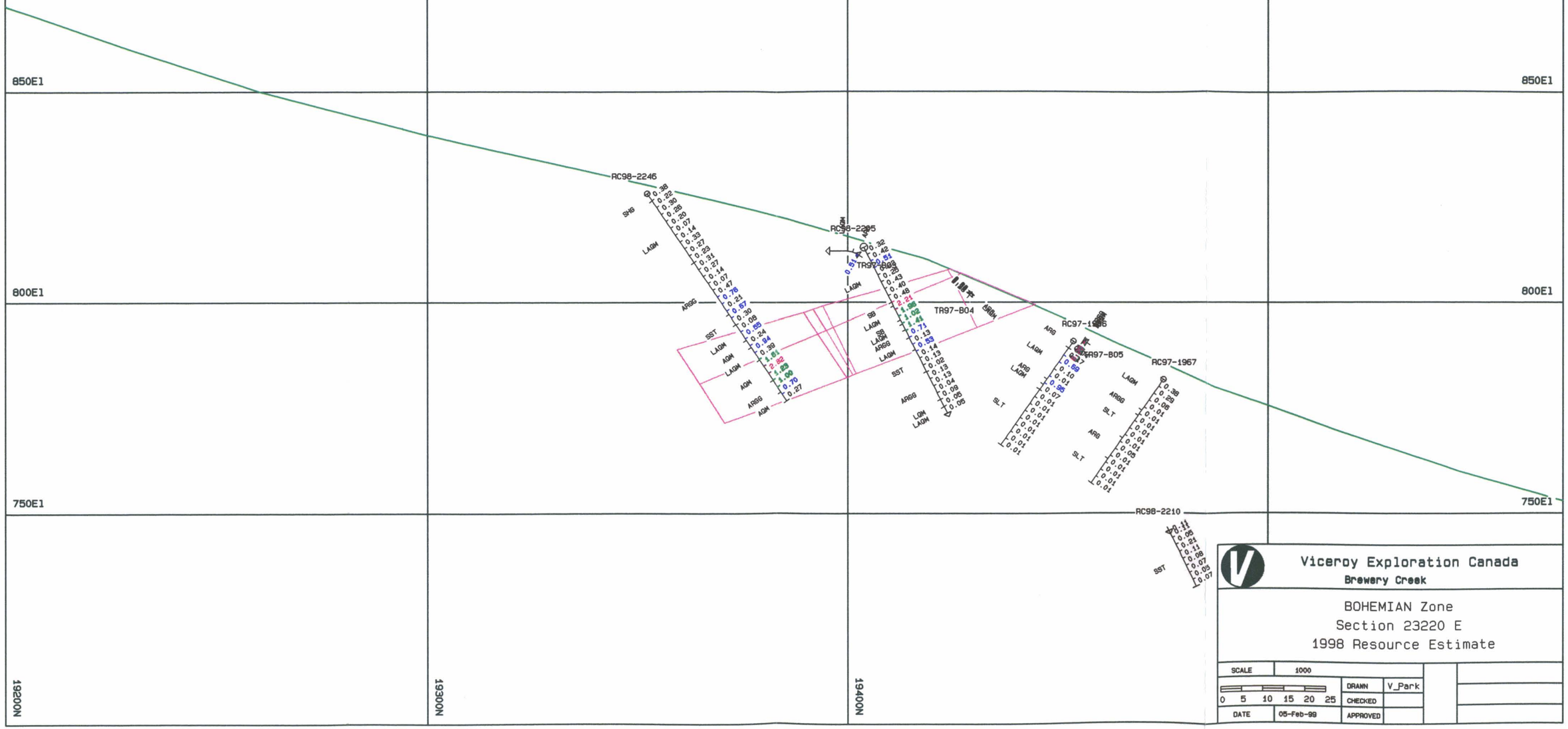
N19500N

900E1

850E1

800E1

750E1



Viceroy Exploration Canada

Brewery Creek

BOHEMIAN Zone

Section 23220 E

1998 Resource Estimate

SCALE	1000		
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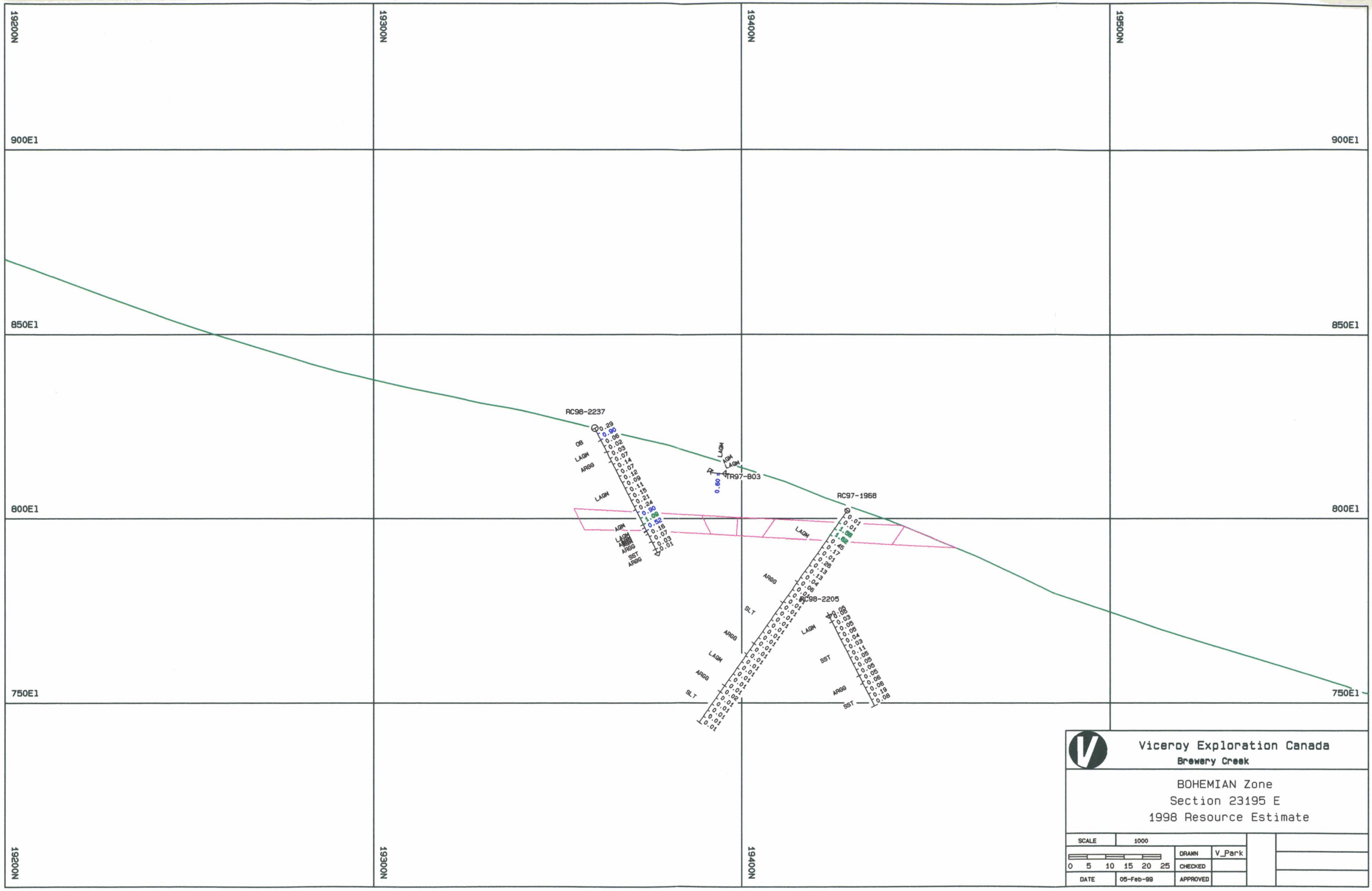
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Viceroy International Exploration



Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23195 E
1998 Resource Estimate

SCALE	1000				
0 5 10 15 20 25		DRAWN	V_Park		
		CHECKED			
DATE	05-Feb-99	APPROVED			

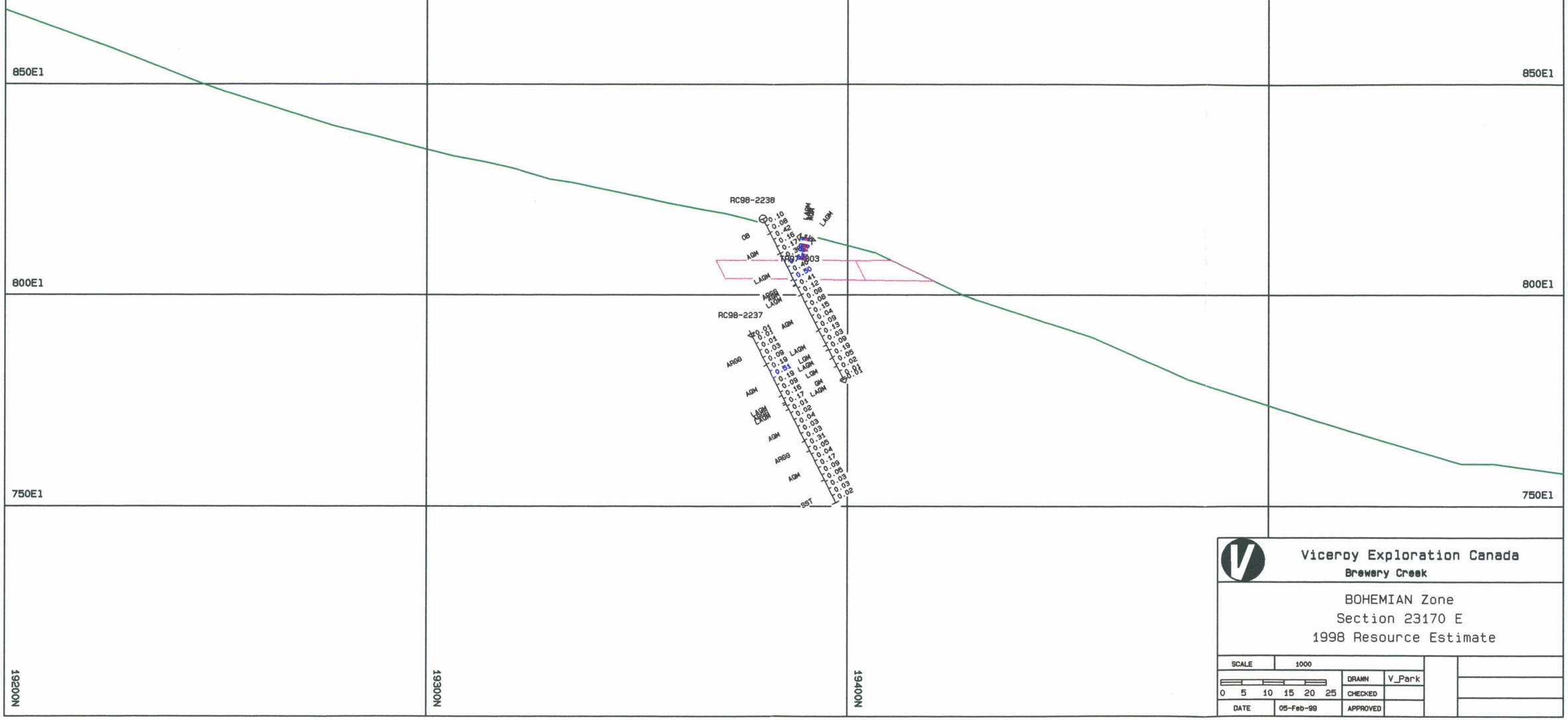
sectiona.pf

SSI - Viceroy International Exploration

19200N | 19300N | 19400N | 19500N

900E1 | | | 900E1

850E1 | | | 850E1



800E1 | | | 800E1

750E1 | | | 750E1

19200N | 19300N | 19400N

Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23170 E
1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25		DRAWN	V_Park
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Viceroy International Exploration

19200N

19300N

19400N

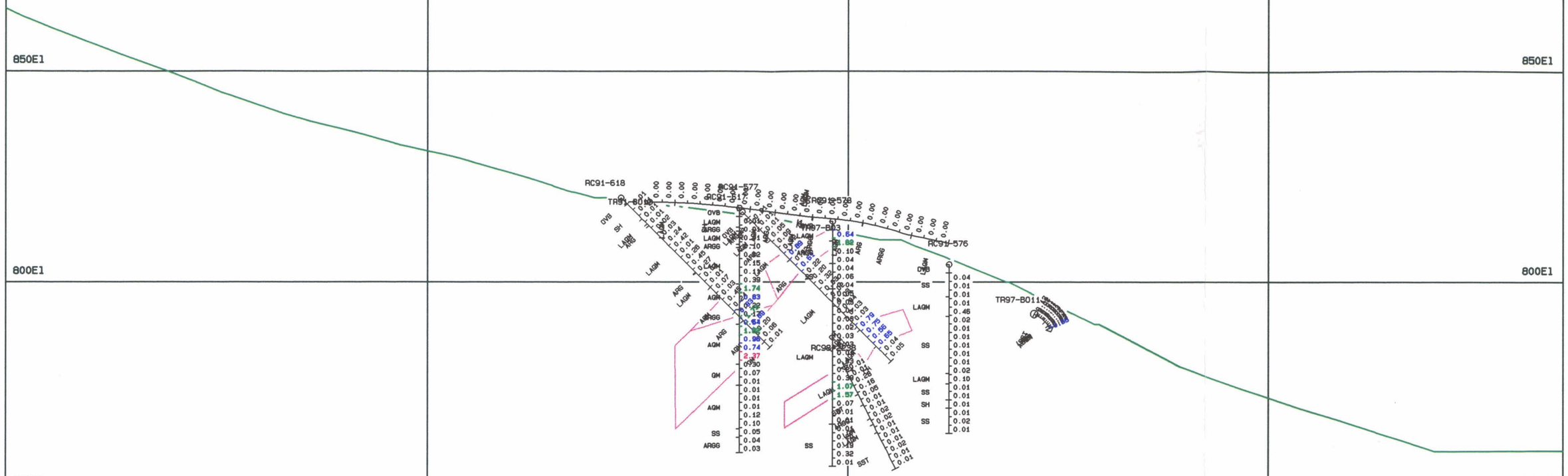
19500N

900E1

850E1

800E1

750E1



Viceroy Exploration Canada

Brewery Creek

BOHEMIAN Zone

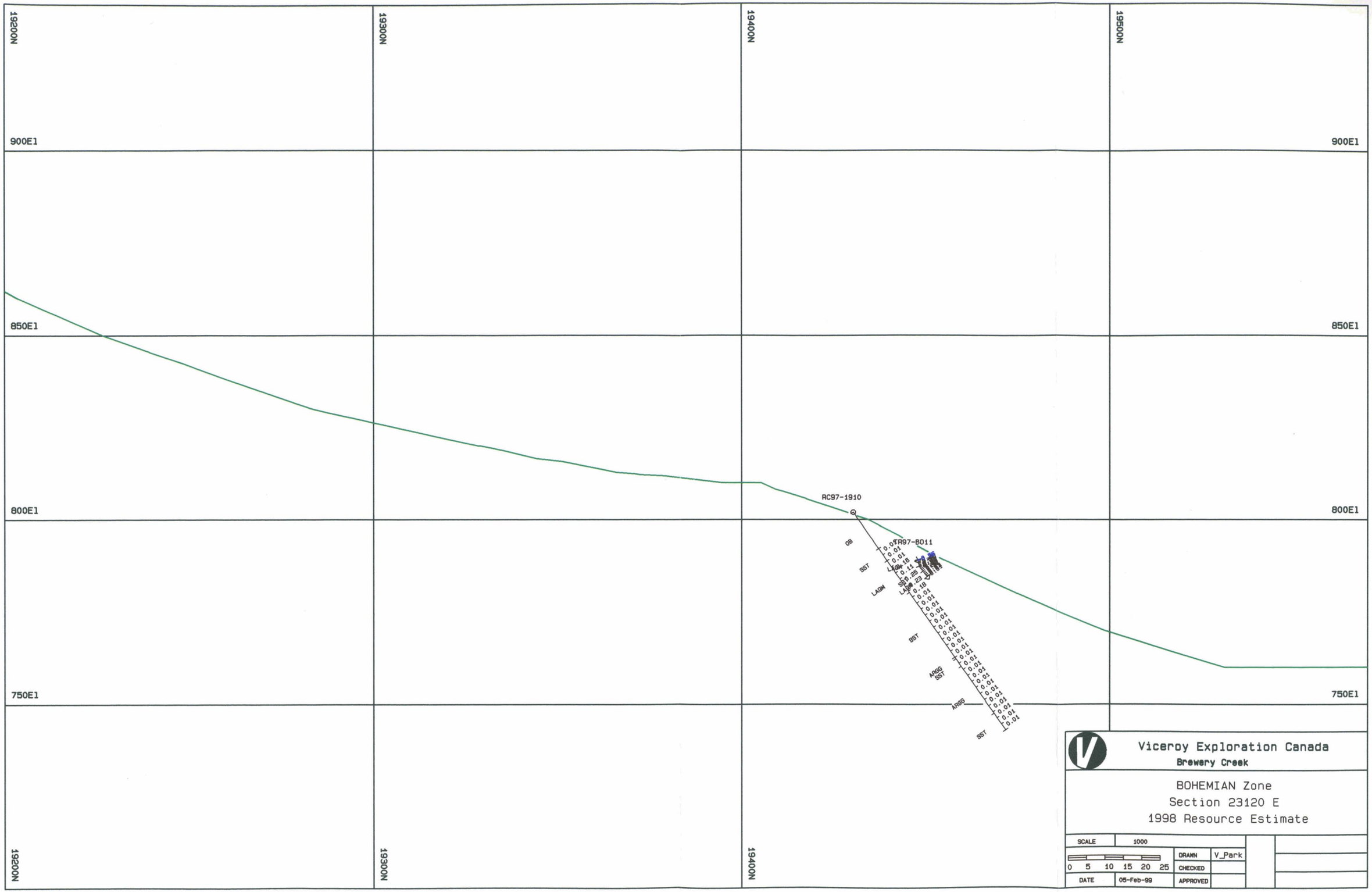
Section 23145 E

1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25		DRAWN	V_Park
		CHECKED	
DATE	05-Feb-99	APPROVED	

sectiona.pf

SSI - Vicerov International Exploration



sectiona.pf

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19200N | 19300N | 19400N | 19500N

900E1 | 900E1

850E1 | 850E1

800E1 | 800E1

750E1 | 750E1

19200N | 19300N | 19400N

RC98-2143

0.01 0.23 0.07 0.04 0.04 0.20 0.09 0.16 0.10 0.07 0.06 0.05 0.03 0.02 0.05 0.08 0.06 0.05 0.02 0.05 0.07 0.04 0.34 0.23 0.12 0.09 0.17 0.07 0.06 0.03 0.05

OB LAGM ARGG LAGM SST LAGM AGM LAGM GN LAGM ARG AGM ARGG AGM SST

RC98-2144

0.09 0.03 0.06 0.03 0.06 0.12 0.09 0.16 0.18 0.04 0.10 0.02 0.16 0.03 0.04 0.01 0.03 0.06

OB LAGM ARGG LAGM ARG SST ARGG

TR97-B011

LAGM SST ARGG

Viceroy Exploration Canada
Brewery Creek

BOHEMIAN Zone
Section 23095 E
1998 Resource Estimate

SCALE	1000		
0 5 10 15 20 25	DRAWN	V_Park	
	CHECKED		
DATE 05-Feb-99	APPROVED		

sectiona.pf

SSI - Viceroy International Exploration

APPENDIX 8

BOHEMIAN ZONE –RECOMMENDATIONS FOR 1999

Memorandum

To: Rick Diment

From: Vivian Park

Re: **Brewery Creek – Bohemian Zone**
Recommendations for 1999 Work

Date: 5 February 1999

The following memo outlines recommendations for 1999 work to be conducted in the Bohemian Zone

In 1998, forty-three holes for 3,369 meters and six trenches (pre-existing exposures) for 332.0 meters were completed (Plate 5.10). This work, combined with concurrent infill drilling, defined a global resource of 1.31 million tonnes at a grade of 1.42 gpt, for a total of 59,427 ounces of gold; ninety percent of this resource is classified as measured. Eighty-five percent of the resource is classified as oxide. Please refer to the **Bohemian Zone – 1998 Resource Estimate** memo (6 December 1998).

Geology in the Bohemian zone consists of a flat-lying monzonite sill that has invaded along the contact between Steel Formation siltstone footwall rocks and graphitic argillite hanging wall rocks. Graphitic argillite in the footwall is decreasingly common to the east, where it is often absent or occurs as a very narrow horizon immediately below the sill. The footwall is intensely disrupted by numerous steep brittle faults that displace lithology and mineralization by up to twenty meters. This intense block faulting is atypical of most Reserve Trend deposits except for the Lower Fosters zone.

Although the block faulting is extreme, the zone can be described as four major blocks: core, west, east and south. The core (23 000 E – 23 400 E, north of 19 300 N)) hosts the best mineralization, with intercepts of 1.2 gpt / 40.0 meters (RC98-2148), 1.45 gpt / 34.0 meters (RC98-2194) and 4.42 gpt / 46.0 meters (RC98-2185). The dominant controls to geology and mineralization are NNE. Economic gold mineralization is hosted within monzonite; anomalous values occasionally occur in footwall siltstone toward the east. Mineralized domains are broad, although the higher-grade intersections are likely related to steep structures within the hanging wall. Fracture orientations measured in 1998 trenches are NNE and ESE and the highest-grade intercepts probably occur at the intersection of these structures. The highest-grade intercepts typically occur in monzonite that is intensely silicified. Oxidation persists to at least 60.0 meters from surface.

Geology and mineralization in the west and east domains trend ESE, an orientation that is more typical of all Reserve Trend deposits. Mineralization, hosted in oxidized monzonite, occurs as predictable south-dipping, occasionally flat-topped bands. Significant intercepts include 1.54 gpt / 20.0 meters (RC98-2150) and 0.73 gpt / 30.0 meters (RC98-2205). This mineralization daylights to the east; additional step-out drilling is not recommended. Mineralization to the west remains open-ended along strike; however, the best potential for adding to the resource is south of 19 330 N. Step-out drilling in this direction is strongly warranted.

The south domain is separated from the core by two convergent, steeply north-dipping faults. The area is dominated by great expanses of graphitic argillite into which monzonite has intruded. The graphitic argillite might have impeded oxidation. Significant results include 1.62 gpt / 30.0 meters (RC98-2215), 1.97 gpt / 44.0 meters (RC98-2196) and 13.3 gpt / 14.0 meters (RC98-2245); this mineralization is hosted within pyritic, unoxidized monzonite. Due to the wide-spaced drilling, the controls to lithology and mineralization are not well understood. Step-out drilling to the west of RC98-2245, and southeast of and immediately adjacent to RC98-2215 will likely yield mineralized sulfide intercepts and to possibly define an ESE mineralized corridor parallel to the one north of 19300N.

Several composite samples from 1997 drilling, corresponding to those intervals used to calculate the 1997 resource were submitted for bottle roll tests. Oxidized quartz monzonite returned recoveries of 49.54 % to 75.66 %. For 1998 drilling, all samples with a grade that exceeded 0.60 gpt were submitted for bottle roll tests. Recoveries range from 1.54 % from completely unoxidized monzonite to 96.87 % from oxidized monzonite. Recoveries >90.0 % occur up to 60.0 meters from surface; thus, the Bohemian zone is very amenable to heap leaching.

Recommendations

1. The gold mineralization appears continuous throughout the deposit but the higher-grade intercepts are erratic and their occurrence is difficult to predict. These intercepts are interpreted to represent the intersection of ESE and NNE structures, but as RC drilling does not preserve structure and the mineralized zones are not expressed in surface trenches, there is no physical evidence to support this. It is recommended that infill drilling be conducted on a more tightly spaced pattern (<25.0 m), especially between 23320E and 23420E to more adequately define the highest grade mineralization.

2. South of the 19300N, gold mineralization is hosted within unoxidized monzonite in thick sequences of graphitic argillite. The current drill spacing (<50.0 m) is not adequate to define the deposit in this area. It is recommended that the infill drill spacing be reduced to less than 25.0 meters between 23320E and 23420E where gold grades are highest and to at least 25.0 meters for the remaining areas.

3. Oxide mineralization remains open along strike to the west from all existing drilling. A N-S drainage at 23300E, originally interpreted to represent a steep post-ore fault, does not disrupt mineralization. Due to the extensive permafrost, there is a subdued response from soil geochemistry. However, due to the western continuity of mineralization north of 19300N fifty meter spaced step-out drilling, on the west side of this drainage, south of 19300N is strongly recommended.

4. Mineralization is open-ended along strike to the southeast toward the Schooner Zone. Step-out drilling at fifty meter spacing is recommended.

5. The deposit is almost entirely dry but a surface representing the water table should be constructed. Permafrost is an issue that should be evaluated.

6. The bottle roll results indicate that excellent recoveries from mineralized LAQM (P4-P3) persist to depths of 60 m; only highly silicified LAQM reports a lower recovery. There is a very sharp boundary (an apparent steeply N-dipping structure) that separates the oxide from the sulfide. It is **not** recommended that the recovery DTMs (eg. Topo –20, -40 etc) used in the MDA models be used here; new surfaces should be interpreted based on the existing metallurgical test data.

7. There is no preg-robbing data for the Bohemian zone. Although graphitic argillite is not common (and the deposit is not wet) through the core, it does become increasingly thick and common to the south. The mineralized sulfide intervals to the south are completely encased in graphitic argillite and historical data shows that carbon in the sulfide facies is strongly preg-robbing. It is recommended that samples of graphitic and carbonaceous sediments be submitted for metallurgical testing to determine their preg-robbing tendencies.

APPENDIX 9

STATEMENT OF QUALIFICATIONS

APPENDIX 9

STATEMENT OF QUALIFICATIONS

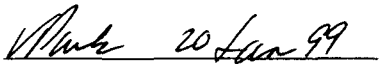
I, Vivian F. Park, of the city of Whitehorse, Yukon Territory, Canada, do hereby certify that:

1. I have consulted in the position of Senior Site Geologist (Brewery Creek Mine Exploration) since 1998.

2. I graduated from the University of British Columbia with a Bachelor of Science Degree in Geology in 1990.

3. I have been continually active in mineral exploration since 1988.

4. I supervised the exploration program and performed part of the work described in this report.



Vivian F. Park, B. Sc.

Senior Site Geologist-BCMX
Viceroy Exploration (Canada), Inc.

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093962

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093962
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Viceroy Exploration (Canada) Inc.

Brewery Creek Rock Code

Rock Types

Tombstone Suite

LAQM	Limonitic Altered Quartz Monzonite
AQM	Altered Quartz Monzonite
LQM	Limonitic Quartz Monzonite
QM	Quartz Monzonite
LASY	Limonitic Altered Syenite
ASY	Altered Syenite
LSY	Limonitic Syenite
SY	Syenite
LABM	Limonitic Altered Biotite Monzonite
ABM	Altered Biotite Monzonite
LBM	Limonitic Biotite Monzonite
BM	Biotite Monzonite

Where:
L: indicates pervasive limonitic staining
A: biotite is not fresh and black

Others*

OB	Overburden
CV	Colluvium
FT	Fault
QZ	Quartz Vein
SB	Massive Stibnite

*(indicate protolith)

Earn Group

TSS	Tuffaceous sandstone		
TSH	Tuffaceous shale		
CPC	Chert Pebble Conglomerate		
QW	Greywacke		
SS	Sandstone	SSG	Graphitic Sandstone
SH	Shale	SHG	Graphitic Shale
SLT	Siltstone	SLTG	Graphitic Siltstone
ARG	Argillite		
BAR	Barite		
LST	Limestone		
ARGG	Graphitic Argillite		

Road River Group

SST	Steel Formation Siltstone	LSST	Limonitic Steel Formation Siltstone
SSTC	Steel Formation Siltstone - cherty	SSTC	Steel Formation Siltstone - silicified
CH	Chert		
MTUFF	Menzie Creek Tuff		
SGW	Steel Formation Greywacke		
SLST	Steel Formation Limestone		

Rabbitkettle Formation

PHY	Calcareous Phyllite

Codes may be added or modified as necessary, but an explanation must be provided.

Modifiers

Modifier		Examples	
		LITH	Modifiers
=>	indicates protolith	OB	=>LAQM C1 Qe
		FT	=>SST C3
->	gradation	SH	->SLT
		AQM	->AQM
XX:YY	rock ratio	LAQM	80:20 AQM
	(use within similar rock types only)	SS	60:40 SH
+Lm	limonitic fractures	AQM	+Lm P0
Ft	fault or shear	LAQM	Ft
Bx	breccia	CH	Bx
Pf	permafrost	OB	=>LAQM C3 Qe Pf
S1-S4	quartz flooding	LAQM	C1 S3
C1-C3	modal carbonate	LAQM	C3 Qe
P0-P4	pyrite oxidation	LAQM	C1 S3 Sk 5P4
	assign *average* percentage and alteration for the interval - avoid ranges please		
Sk	quartz stockwork	LAQM	C1 S3 Sk
Ck	calcite veining	ARGG	C3 Ck
Qe	quartz eyes	LAQM	Qe
Py	pyrite	ARGG	Py P0 (no longer used - instead use %P* eg. 10P2)
As	arsenopyrite	SS	As
Sb	stibnite	LAQM	10P4 S3 Sk Sb
	attempt to quantify *significant* quantities of arsenopyrite and stibnite		

Alterations

Pyrite Oxidation (attempt to quantify in modifier string and descriptive log)

P0	fresh pyrite
P1	weak tarnish or rust
P2	moderate oxidation
P3	very oxidized; often pitted or corroded; usually retains good crystal shape
P4	completely altered to limonite; may be coated with manganese oxide

Carbonate

C0	no reaction to HCl
C1	weak reaction to HCl - may be audible but not visible
C2	very positive reaction to HCl - may take a few seconds
C3	instananeous and intense reactio to HCl - as to limestone

Silica (secondary)

S0	no secondary quartz
S1	weak silicification or stockwork
S2	moderate silicification or stockwork
S3	strong silicification or stockwork
S4	intense silicification or stockwork

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2166

NORTHING : 20849.6 EASTING : 18746.9 ELEVATION : 954.4

MAXDEPTH : 40 AZIMUTH : 333 DIP : -50

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	
2.00	15.50	LAQM	C1 S1 8P4 Qe
15.50	19.00	SH	2P4
19.00	27.00	MTUFF	S1 5P4
27.00	29.00	SH	2P4
29.00	33.00	LAQM	S1 6P3
33.00	33.50	SH	2P3
33.50	39.00	MTUFF	C2 S1 4P3
39.00	40.00	SH	S1 2P3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2166

NORTHING : 20849.6 EASTING : 18746.9 ELEVATION : 954.4

MAXDEPTH : 40 AZIMUTH : 333 DIP : -50

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.78	-1	-1	-1	-1
2.00	4.00	.51	P4	C1	S1	DRY
4.00	6.00	.38	P4	C1	S1	DRY
6.00	8.00	.48	P4	C1	S1	DRY
8.00	10.00	1.20	P4	C0	S1	DRY
10.00	12.00	6.91	P4	C0	S1	DRY
12.00	14.00	5.73	P4	C0	S1	DRY
14.00	16.00	.68	P4	C0	S0	DRY
16.00	18.00	.08	P4	C0	S0	DRY
18.00	20.00	.35	P4	C0	S1	DRY
20.00	22.00	.14	P4	C0	S1	DRY
22.00	24.00	.12	P4	C0	S1	DRY
24.00	26.00	.42	P4	C0	S1	WET
26.00	28.00	.04	P4	C0	S0	DRY
28.00	30.00	.03	P3	C0	S1	DRY
30.00	32.00	.01	P3	C0	S1	DRY
32.00	34.00	.01	P3	C0	S1	DRY
34.00	36.00	.01	P2	C2	S1	DRY
36.00	38.00	.01	P3	C0	S1	DRY
38.00	40.00	.03	P3	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2167

NORTHING : 20863.1 EASTING : 18769 ELEVATION : 959.2

MAXDEPTH : 30 AZIMUTH : 333 DIP : -90

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.50	LAQM	C1 S1 5P4 Qe
4.50	5.00	AQM	C1 S1 3P1
5.00	12.00	LAQM	C1 S1 5P4
12.00	13.00	LAQM	C1 S1 3P4
13.00	20.00	MTUFF	C1 S1 5P4
20.00	27.00	SH	3P4
27.00	30.00	MTUFF	C1 S1 4P3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2167

NORTHING : 20863.1 EASTING : 18769 ELEVATION : 959.2

MAXDEPTH : 30 AZIMUTH : 333 DIP : -90

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.13	P4	C1	S1	DRY
2.00	4.00	.32	P4	C1	S1	DRY
4.00	6.00	.10	P3	C1	S1	DRY
6.00	8.00	1.33	P4	C1	S1	DRY
8.00	10.00	1.13	P4	C1	S1	DRY
10.00	12.00	.04	P4	C1	S1	DRY
12.00	14.00	.02	P4	C1	S1	DRY
14.00	16.00	.01	P4	C1	S1	DRY
16.00	18.00	.01	P4	C1	S1	DRY
18.00	20.00	.01	P4	C1	S1	DRY
20.00	22.00	.01	P4	C0	S0	DRY
22.00	24.00	.01	P4	C0	S0	DRY
24.00	26.00	.01	P4	C0	S0	DRY
26.00	28.00	.01	P3	C0	S1	DRY
28.00	30.00	.02	P3	C1	S0	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2168

NORTHING : 20838.7 EASTING : 18780.4 ELEVATION : 953.1

MAXDEPTH : 46 AZIMUTH : 333 DIP : -90

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	=>LAQM S1 6P4
2.00	4.00	LAQM	S2 5P4 Qe
4.00	7.00	LAQM	S1 6P3 Qe
7.00	10.00	LAQM	90:10 AQM S2 4P3 Qe
10.00	12.00	LAQM	S1 4P3 Qe
12.00	16.00	LAQM	70:30 AQM S2 3P2 Qe
16.00	20.00	LAQM	S2 4P3 Qe
20.00	25.50	LAQM	S1 6P3
25.50	34.00	LAQM	60:40 AQM S1 5P1
34.00	36.00	AQM	S1 7P0
36.00	38.00	LAQM	S1 3P3 Qe
38.00	42.00	LAQM	60:40 S1 5P2
42.00	46.00	LAQM	C1 S2 4P2 Qe

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2168

NORTHING : 20838.7 EASTING : 18780.4 ELEVATION : 953.1

MAXDEPTH : 46 AZIMUTH : 333 DIP : -90

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.16	P4	C0	S1	DRY
2.00	4.00	.07	P4	C0	S2	DRY
4.00	6.00	.01	P3	C0	S1	DRY
6.00	8.00	.15	P3	C0	S2	DRY
8.00	10.00	.54	P3	C0	S2	DRY
10.00	12.00	.01	P3	C0	S1	DRY
12.00	14.00	.01	P2	C0	S2	DRY
14.00	16.00	.01	P2	C0	S1	DRY
16.00	18.00	.01	P3	C0	S1	DRY
18.00	20.00	.29	P3	C0	S2	DRY
20.00	22.00	1.36	P3	C0	S1	DRY
22.00	24.00	.90	P3	C0	S1	DRY
24.00	26.00	.42	P2	C0	S1	DRY
26.00	28.00	.74	P1	C0	S1	DRY
28.00	30.00	.27	P1	C0	S1	DRY
30.00	32.00	1.15	P1	C0	S1	DRY
32.00	34.00	.47	P1	C0	S1	DRY
34.00	36.00	1.58	P0	C0	S1	DRY
36.00	38.00	1.69	P3	C0	S1	DRY
38.00	40.00	1.73	P2	C0	S1	DRY
40.00	42.00	.81	P1	C0	S1	DRY
42.00	46.00					
42.00	44.00	.15	P2	C1	S1	DRY
44.00	46.00	.60	P2	C1	S2	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2169

NORTHING : 20844.6 EASTING : 18803.2 ELEVATION : 954.9

MAXDEPTH : 30 AZIMUTH : 333 DIP : -50

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.00	LAQM	C1 S1 6P4 Qe
8.00	18.30	LAQM	C2 S2 3P3 Qe
18.30	20.00	AQM	C1 S1 TRP1
20.00	21.10	LAQM	C1 S1 5P3
21.10	22.50	AQM	C1 S1 2P0
22.50	25.80	LAQM	C1 S1 5P3 Qe
25.80	27.00	ARGG	S1 5P3
27.00	28.00	LAQM	S1 5P3
28.00	30.00	MTUFF	60:40 ARGG 5P3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2169

NORTHING : 20844.6 EASTING : 18803.2 ELEVATION : 954.9

MAXDEPTH : 30 AZIMUTH : 333 DIP : -50

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.08	P4	C1	S1	DRY
2.00	4.00	.02	P4	C1	S1	DRY
4.00	6.00	.02	P4	C1	S1	DRY
6.00	8.00	.01	P4	C1	S1	DRY
8.00	10.00	.01	P3	C2	S2	DRY
10.00	12.00	.01	P3	C2	S1	DRY
12.00	14.00	.01	P3	C2	S2	DRY
14.00	16.00	.01	P3	C2	S2	DRY
16.00	18.00	.01	P3	C2	S1	DRY
18.00	20.00	2.15	P3	C1	S1	DRY
20.00	22.00	.86	P3	C1	S1	DRY
22.00	24.00	.04	P3	C1	S1	DRY
24.00	26.00	.15	P3	C1	S1	DRY
26.00	28.00	.15	P3	C0	S1	DRY
28.00	30.00	.01	P3	C0	S0	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2170

NORTHING : 20850.3 EASTING : 18853.5 ELEVATION : 957.6

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	LAQM	->CV* C2 6P4
6.00	12.00	LAQM	C2 S2 6P4 Qe
12.00	14.00	LAQM	C1 S1 2P3 Qe
14.00	16.00	LAQM	C1 S1 5P3
16.00	18.00	AQM	80:20 LAQM C1 S1 1P2
18.00	19.00	LAQM	C1 S1 6P3
19.00	26.00	AQM	80:20 LAQM C1 S1 1P2
26.00	31.00	LAQM	80:20 AQM C1 S2 3P3 Qe
31.00	34.00	AQM	C1 S1 2P1 Qe
34.00	36.00	LAQM	C1 S2 3P2 Qe
36.00	40.00	AQM	70:30 LAQM C1 S1 2P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2170

NORTHING : 20850.3 EASTING : 18853.5 ELEVATION : 957.6

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.01	P4	C2	S0	DRY
2.00	4.00	.01	P4	C2	S0	DRY
4.00	6.00	.02	P4	C2	S0	DRY
6.00	8.00	.05	P4	C2	S1	DRY
8.00	10.00	.38	P4	C2	S2	DRY
10.00	12.00	.04	P3	C2	S2	DRY
12.00	14.00	.01	P3	C1	S1	DRY
14.00	16.00	.01	P3	C1	S1	DRY
16.00	18.00	.01	P2	C1	S1	DRY
18.00	20.00	.07	P3	C1	S1	DRY
20.00	22.00	.10	P1	C1	S1	DRY
22.00	24.00	.01	P2	C1	S1	DRY
24.00	26.00	.01	P1	C1	S1	DRY
26.00	28.00	.01	P3	C1	S2	DRY
28.00	30.00	.01	P3	C1	S1	DRY
30.00	32.00	.01	P2	C1	S1	DRY
32.00	34.00	.01	P1	C1	S1	DRY
34.00	36.00	.01	P2	C1	S2	DRY
36.00	40.00					
36.00	38.00	.05	P1	C1	S1	DRY
38.00	40.00	.01	P1	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2171

NORTHING : 20840.8 EASTING : 18912 ELEVATION : 958.1

MAXDEPTH : 44 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.50	OB	=>LAQM S1 7P4
1.50	10.00	LAQM	C2 S1 7P4 Qe
10.00	14.00	LAQM	60:40 AQM C1 S1 5P3 Qe
14.00	16.00	LAQM	C1 S1 5P3
16.00	21.00	LAQM	60:40 AQM C1 S1 3P2 Qe
21.00	28.00	AQM	S2 2P1 Qe
28.00	33.00	LAQM	S1 2P2 Qe
33.00	39.00	AQM	S1 4P1
39.00	41.50	ARGG	C1 S1 3P1
41.50	44.00	AQM	S1 1P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2171

NORTHING : 20840.8 EASTING : 18912 ELEVATION : 958.1

MAXDEPTH : 44 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.31	P4	C2	S1	DRY
2.00	4.00	.04	P4	C2	S1	DRY
4.00	6.00	.03	P4	C2	S1	DRY
6.00	8.00	.04	P4	C2	S1	DRY
8.00	10.00	.03	P4	C2	S1	DRY
10.00	12.00	.01	P3	C1	S1	DRY
12.00	14.00	.02	P3	C1	S1	DRY
14.00	16.00	.01	P3	C1	S1	DRY
16.00	18.00	.01	P2	C1	S1	DRY
18.00	20.00	.40	P2	C1	S1	DRY
20.00	22.00	.40	P1	C0	S1	DRY
22.00	24.00	.08	P1	C0	S2	DRY
24.00	26.00	.11	P1	C0	S1	DRY
26.00	28.00	.13	P1	C0	S1	DRY
28.00	30.00	.14	P2	C0	S1	DRY
30.00	32.00	.04	P2	C0	S1	DRY
32.00	34.00	.60	P1	C0	S1	DRY
34.00	36.00	1.20	P1	C0	S1	DRY
36.00	38.00	.53	P1	C0	S1	DRY
38.00	40.00	.36	P1	C1	S1	DRY
40.00	42.00	.01	P1	C0	S1	DRY
42.00	44.00	.02	P2	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2172

NORTHING : 20875.1 EASTING : 18893.7 ELEVATION : 964.1

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.00	OB	=>LAQM C1 S1 8P4
1.00	7.00	LAQM	C1 S1 8P3 Qe
7.00	12.50	LAQM	60:40 AQM C1 S1 4P3
12.50	19.00	LAQM	C1 S1 5P3
19.00	22.00	LQM	70:30 QM C1 S1 5P3
22.00	29.50	LAQM	C1 S1 5P3 Qe
29.50	31.00	AQM	60:40 AQM C1 S1 4P2
31.00	36.00	LAQM	80:20 AQM C1 S1 3P2
36.00	40.00	ARGG	S1 1P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2172

NORTHING : 20875.1 EASTING : 18893.7 ELEVATION : 964.1

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	2.06	P4	C1	S1	DRY
2.00	4.00	3.39	P3	C1	S1	DRY
4.00	6.00	1.06	P3	C1	S1	DRY
6.00	8.00	.85	P3	C1	S1	DRY
8.00	10.00	.38	P3	C1	S1	DRY
10.00	12.00	.03	P2	C1	S1	DRY
12.00	14.00	.07	P3	C1	S1	DRY
14.00	16.00	.01	P3	C1	S1	DRY
16.00	18.00	.18	P3	C1	S1	DRY
18.00	20.00	.14	P3	C1	S1	DRY
20.00	22.00	.01	P3	C1	S1	DRY
22.00	24.00	.02	P3	C1	S1	DRY
24.00	26.00	.02	P3	C1	S1	DRY
26.00	28.00	.03	P3	C1	S1	DRY
28.00	30.00	.04	P3	C1	S1	DRY
30.00	32.00	.02	P2	C1	S1	DRY
32.00	34.00	.01	P2	C1	S1	DRY
34.00	36.00	.01	P2	C1	S1	DRY
36.00	40.00					
36.00	38.00	.01	P2	C0	S1	DRY
38.00	40.00	.01	P2	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2173

NORTHING : 20899.5 EASTING : 18928.1 ELEVATION : 968.9

MAXDEPTH : 46 AZIMUTH : 333 DIP : -50

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	.50	OB	=>LAQM C2 S1 7P4 Qe
.50	11.00	LAQM	C2 S1 7P3
11.00	11.50	AQM	C2 S1 1P2
11.50	20.00	LAQM	C2 S1 6P3
20.00	22.00	LAQM	C1 S1 6P3
22.00	25.00	LAQM	85:15 ARGG C1 S1 5P3
25.00	28.00	LAQM	C1 S1 5P2
28.00	35.00	AQM	5P1
35.00	46.00	AQM	S1 2P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2173

NORTHING : 20899.5 EASTING : 18928.1 ELEVATION : 968.9

MAXDEPTH : 46 AZIMUTH : 333 DIP : -50

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.07	P4	C2	S1	DRY
2.00	4.00	.02	P3	C2	S1	DRY
4.00	6.00	.01	P3	C2	S1	DRY
6.00	8.00	.01	P3	C2	S1	DRY
8.00	10.00	.01	P3	C2	S1	DRY
10.00	12.00	.01	P3	C2	S1	DRY
12.00	14.00	.01	P3	C2	S1	DRY
14.00	16.00	.01	P3	C2	S1	DRY
16.00	18.00	.01	P3	C2	S1	DRY
18.00	20.00	.05	P3	C1	S1	DRY
20.00	22.00	.03	P3	C1	S1	DRY
22.00	24.00	.06	P3	C1	S1	DRY
24.00	26.00	.85	P3	C1	S1	DRY
26.00	28.00	.86	P2	C1	S1	DRY
28.00	30.00	1.37	P1	C0	S0	DRY
30.00	32.00	1.81	P1	C0	S0	DRY
32.00	34.00	1.45	P1	C0	S0	DRY
34.00	36.00	.49	P1	C0	S1	DRY
36.00	38.00	.04	P2	C0	S1	DRY
38.00	40.00	.50	P2	C0	S1	DRY
40.00	42.00	.59	P1	C0	S1	DRY
42.00	44.00	.46	P1	C0	S1	DRY
44.00	46.00	.12	P2	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2174

NORTHING : 20866.3 EASTING : 19034.4 ELEVATION : 962.5

MAXDEPTH : 60 AZIMUTH : 333 DIP : -45

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	10.00	LAQM	S1 5P3
10.00	12.50	SH	75:25 SS S1 2P3
12.50	16.00	LAQM	C1 S1 6P3 Qe
16.00	20.00	LAQM	C1 S1 5P3
20.00	21.00	LAQM	C1 S1 6P3
21.00	27.50	SHG	C1 S1 2P3 Qe
27.50	34.00	LAQM	S1 5P4
34.00	34.50	ARG	S1 2P3
34.50	40.50	LAQM	S1 3P2
40.50	41.50	ARG	S1 2P3
41.50	45.00	LAQM	S1 5P3
45.00	46.00	AQM	S1 4P1
46.00	50.00	LAQM	S1 3P2
50.00	56.00	LAQM	70:30 AQM S1 4P2
56.00	60.00	AQM	80:20 LAQM S1 4P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2174

NORTHING : 20866.3 EASTING : 19034.4 ELEVATION : 962.5

MAXDEPTH : 60 AZIMUTH : 333 DIP : -45

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.14	P3	C0	S1	DRY
2.00	4.00	.05	P3	C0	S1	DRY
4.00	6.00	.47	P3	C0	S1	DRY
6.00	8.00	1.16	P3	C0	S1	DRY
8.00	10.00	.76	P3	C0	S1	DRY
10.00	12.00	.27	P3	C0	S1	DRY
12.00	14.00	.18	P3	C1	S1	DRY
14.00	16.00	.09	P3	C1	S1	DRY
16.00	18.00	.01	P3	C1	S1	DRY
18.00	20.00	.01	P3	C1	S1	DRY
20.00	22.00	.15	P3	C1	S1	DRY
22.00	24.00	.01	P3	C0	S0	DRY
24.00	26.00	.01	P3	C0	S1	DRY
26.00	28.00	.01	P3	C0	S1	DRY
28.00	30.00	.01	P4	C0	S1	DRY
30.00	32.00	.01	P4	C0	S1	DRY
32.00	34.00	.01	P4	C0	S1	DRY
34.00	36.00	.06	P3	C0	S1	DRY
36.00	38.00	.01	P2	C0	S0	DRY
38.00	40.00	.01	P2	C0	S0	DRY
40.00	42.00	.36	P3	C0	S1	DRY
42.00	44.00	.65	P3	C0	S1	DRY
44.00	46.00	1.18	P2	C0	S1	DRY
46.00	48.00	.16	P2	C0	S1	DRY
48.00	50.00	.50	P2	C0	S1	DRY
50.00	52.00	.72	P2	C0	S1	DRY
52.00	54.00	.69	P2	C0	S1	DRY
54.00	56.00	.76	P2	C0	S1	DRY
56.00	60.00					
56.00	58.00	1.29	P1	C0	S1	DRY
58.00	60.00	2.64	P1	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2175

NORTHING : 20941.2 EASTING : 18994.9 ELEVATION : 971.5

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	12.00	LAQM	C2 S1 6P3
12.00	30.00	SHG	S1 1P3
30.00	31.50	LAQM	C1 S1 4P2
31.50	40.00	SST	S1 3P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2175

NORTHING : 20941.2 EASTING : 18994.9 ELEVATION : 971.5

MAXDEPTH : 40 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	1.44	P3	C2	S1	DRY
2.00	4.00	.18	P3	C2	S1	DRY
4.00	6.00	.05	P3	C2	S1	DRY
6.00	8.00	.04	P3	C2	S1	DRY
8.00	10.00	.05	P3	C2	S1	DRY
10.00	12.00	.05	P3	C2	S1	DRY
12.00	14.00	.03	P3	C0	S0	DRY
14.00	16.00	.02	P3	C0	S0	DRY
16.00	18.00	.01	P3	C0	S1	DRY
18.00	20.00	.03	P3	C0	S1	DRY
20.00	22.00	.03	P3	C0	S1	DRY
22.00	24.00	.18	P3	C0	S1	DRY
24.00	26.00	.11	P3	C0	S1	DRY
26.00	28.00	.03	P3	C0	S1	DRY
28.00	30.00	.03	P3	C0	S0	DRY
30.00	32.00	.05	P2	C1	S1	DRY
32.00	34.00	.01	P1	C0	S1	DRY
34.00	36.00	.04	P1	C0	S1	DRY
36.00	38.00	.02	P1	C0	S0	DRY
38.00	40.00	.01	P1	C0	S0	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2176

NORTHING : 20902.5 EASTING : 19113.5 ELEVATION : 960.5

MAXDEPTH : 52 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.50	OB	"
1.50	38.50	SHG	S1 SK 1P4
38.50	40.00	LAQM	S1 6P2
40.00	42.50	LAQM	S1 5P2
42.50	48.00	AQM	C1 S1 5P1
48.00	52.00	LAQM	C1 S1 4P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2176

NORTHING : 20902.5 EASTING : 19113.5 ELEVATION : 960.5

MAXDEPTH : 52 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.07	P4	C0	S1	DRY
2.00	4.00	.02	P4	C0	S0	DRY
4.00	6.00	.02	P4	C0	S0	DRY
6.00	8.00	.01	P4	C0	S1	DRY
8.00	10.00	.02	P4	C0	S1	DRY
10.00	12.00	.01	P4	C0	S1	DRY
12.00	14.00	.01	P4	C0	S1	DRY
14.00	16.00	.01	P4	C0	S1	DRY
16.00	18.00	.03	P4	C0	S1	DRY
18.00	20.00	.02	P3	C0	S1	DRY
20.00	22.00	.03	P3	C0	S2	DRY
22.00	24.00	.01	P3	C0	S1	DRY
24.00	26.00	.05	P3	C0	S1	DRY
26.00	28.00	.03	P3	C0	S1	DRY
28.00	30.00	.16	P3	C0	S1	DRY
30.00	32.00	.49	P3	C0	S1	DRY
32.00	34.00	.08	P3	C0	S1	DRY
34.00	36.00	.09	P3	C0	S1	DRY
36.00	38.00	.23	P3	C0	S2	DRY
38.00	40.00	1.24	P2	C0	S1	DRY
40.00	42.00	.49	P2	C0	S1	DRY
42.00	44.00	.94	P1	C1	S1	DRY
44.00	46.00	1.73	P1	C1	S1	DRY
46.00	48.00	1.67	P1	C1	S1	DRY
48.00	52.00					
48.00	50.00	1.34	P2	C1	S1	DRY
50.00	52.00	1.22	P2	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2177

NORTHING : 20947.2 EASTING : 19063.5 ELEVATION : 963.8

MAXDEPTH : 30 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	SHG	C1 S1 1P4
2.00	7.00	LAQM	C1 S2 8P4
7.00	10.00	LAQM	90:10 AQM C1 S1 5P3
10.00	18.00	ARG	C2 S2 2P4
18.00	19.00	LAQM	C1 S1 6P3
19.00	24.00	MTUFF	C1 S1 2P2
24.00	28.00	MTUFF	C1 S1 1P1
28.00	30.00	MTUFF	C2 S1 1P3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2177

NORTHING : 20947.2 EASTING : 19063.5 ELEVATION : 963.8

MAXDEPTH : 30 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.51	P4	C1	S1	DRY
2.00	4.00	.53	P4	C1	S2	DRY
4.00	6.00	1.50	P4	C1	S1	DRY
6.00	8.00	.96	P3	C1	S1	DRY
8.00	10.00	.11	P3	C1	S1	DRY
10.00	12.00	.15	P4	C2	S2	DRY
12.00	14.00	.03	P4	C2	S1	DRY
14.00	16.00	.02	P4	C2	S1	DRY
16.00	18.00	.03	P4	C2	S1	DRY
18.00	20.00	.02	P3	C1	S1	DRY
20.00	22.00	.02	P2	C1	S1	DRY
22.00	24.00	.02	P2	C1	S1	DRY
24.00	26.00	.01	P2	C1	S1	DRY
26.00	28.00	.01	P2	C1	S1	DRY
28.00	30.00	.01	P3	C2	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2178

NORTHING : 20926.7 EASTING : 19149.5 ELEVATION : 952.2

MAXDEPTH : 60 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	14.00	SHG	S1 2P4
14.00	40.50	SHG	S2 Sk 2P3
40.50	44.00	LAQM	S1 6P2
44.00	48.00	AQM	60:40 LAQM S1 4P1
48.00	50.00	LAQM	C1 S1 3P2
50.00	52.50	LAQM	C1 S1 5P2
52.50	53.50	ARG	S1 1P1
53.50	57.00	LAQM	S1 4P2
57.00	60.00	ARG	S1 1P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2178

NORTHING : 20926.7 EASTING : 19149.5 ELEVATION : 952.2

MAXDEPTH : 60 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.18	P4	C0	S0	DRY
2.00	4.00	.04	P4	C0	S0	DRY
4.00	6.00	.04	P4	C0	S0	DRY
6.00	8.00	.04	P4	C0	S0	DRY
8.00	10.00	.05	P4	C0	S1	DRY
10.00	12.00	.07	P4	C0	S0	DRY
12.00	14.00	.09	P4	C0	S1	DRY
14.00	16.00	.04	P3	C0	S2	DRY
16.00	18.00	.04	P3	C0	S2	DRY
18.00	20.00	.07	P3	C0	S2	DRY
20.00	22.00	.07	P3	C0	S1	DRY
22.00	24.00	.07	P3	C0	S1	DRY
24.00	26.00	.10	P3	C0	S1	DRY
26.00	28.00	.05	P3	C0	S1	DRY
28.00	30.00	.04	P3	C0	S1	DRY
30.00	32.00	2.38	P3	C0	S1	DRY
32.00	34.00	.13	P3	C0	S1	DRY
34.00	36.00	1.43	P3	C0	S1	DRY
36.00	38.00	2.42	P2	C0	S1	DRY
38.00	40.00	1.17	P3	C0	S1	DRY
40.00	42.00	1.48	P2	C0	S1	DRY
42.00	44.00	1.58	P2	C0	S1	DRY
44.00	46.00	1.31	P1	C0	S1	DRY
46.00	48.00	1.81	P1	C0	S1	DRY
48.00	50.00	.44	P2	C1	S1	DRY
50.00	52.00	.79	P2	C1	S1	DRY
52.00	54.00	.87	P1	C0	S1	DRY
54.00	56.00	2.48	P2	C0	S1	DRY
56.00	58.00	1.97	P2	C0	S1	DRY
58.00	60.00	.17	P1	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2179

NORTHING : 20957.8 EASTING : 19131.1 ELEVATION : 954.7

MAXDEPTH : 30 AZIMUTH : 333 DIP : -45

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.00	OB	=>LAQM S1 7P4
1.00	5.50	SST	S1 TRP4
5.50	19.00	LAQM	C1 S2 7P3 Qe
19.00	29.00	SHG	S1 TRP3
29.00	30.00	MTUFF	C1 S1 1P3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2179

NORTHING : 20957.8 EASTING : 19131.1 ELEVATION : 954.7

MAXDEPTH : 30 AZIMUTH : 333 DIP : -45

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	1.52	P4	C0	S1	DRY
2.00	4.00	1.54	P4	C0	S1	DRY
4.00	6.00	1.91	P4	C0	S1	DRY
6.00	8.00	1.27	P3	C1	S1	DRY
8.00	10.00	1.22	P3	C1	S1	DRY
10.00	12.00	1.15	P3	C1	S1	DRY
12.00	14.00	1.01	P3	C1	S1	DRY
14.00	16.00	1.64	P3	C1	S2	DRY
16.00	18.00	1.32	P3	C1	S1	DRY
18.00	20.00	1.31	P3	C1	S2	DRY
20.00	22.00	.77	P3	C0	S1	DRY
22.00	24.00	.21	P3	C0	S1	DRY
24.00	26.00	.04	P3	C0	S1	DRY
26.00	28.00	.06	P3	C0	S1	DRY
28.00	30.00	.10	P3	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2180

NORTHING : 20899.5 EASTING : 19092.2 ELEVATION : 961.6

MAXDEPTH : 60 AZIMUTH : 333 DIP : -50

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	32.50	SH	S1 1P4
32.50	36.00	LAQM	S1 5P3
36.00	44.00	AQM	60:40 LAQM S1 3P2
44.00	51.00	LAQM	C1 S1 3P2
51.00	54.00	SHG	S1 1P1
54.00	60.00	SST	C1 S1 3P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2180

NORTHING : 20899.5 EASTING : 19092.2 ELEVATION : 961.6

MAXDEPTH : 60 AZIMUTH : 333 DIP : -50

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	P4	C0	S0	DRY
2.00	4.00	.04	P4	C0	S0	DRY
4.00	6.00	.05	P4	C0	S1	DRY
6.00	8.00	.02	P4	C0	S1	DRY
8.00	10.00	.02	P4	C0	S1	DRY
10.00	12.00	.03	P4	C0	S1	DRY
12.00	14.00	.03	P4	C0	S1	DRY
14.00	16.00	.03	P4	C0	S1	DRY
16.00	18.00	.03	P4	C0	S1	DRY
18.00	20.00	.03	P4	C0	S1	DRY
20.00	22.00	.02	P4	C0	S1	DRY
22.00	24.00	.03	P4	C0	S1	DRY
24.00	26.00	.03	P4	C0	S1	DRY
26.00	28.00	.03	P4	C0	S0	DRY
28.00	30.00	.15	P4	C0	S0	DRY
30.00	32.00	2.52	P4	C0	S1	DRY
32.00	34.00	3.72	P3	C0	S1	DRY
34.00	36.00	1.91	P2	C0	S1	DRY
36.00	38.00	1.29	P2	C0	S1	DRY
38.00	40.00	.88	P2	C0	S1	DRY
40.00	42.00	.94	P1	C0	S1	DRY
42.00	44.00	1.58	P1	C0	S1	DRY
44.00	46.00	.47	P2	C0	S1	DRY
46.00	48.00	.46	P2	C0	S1	DRY
48.00	50.00	2.41	P2	C1	S1	DRY
50.00	52.00	1.43	P2	C1	S1	DRY
52.00	54.00	.01	P1	C0	S1	DRY
54.00	60.00					
54.00	56.00	.01	P0	C1	S0	DRY
56.00	58.00	.03	P0	C1	S1	DRY
58.00	60.00	.01	P0	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2181

NORTHING : 20920.1 EASTING : 19313 ELEVATION : 939.3

MAXDEPTH : 38 AZIMUTH : 333 DIP : -45

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>SH S1 2P4
4.00	24.00	SST	S2 Sk 2P4
24.00	34.00	SHG	S1 Sk 1P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2181

NORTHING : 20920.1 EASTING : 19313 ELEVATION : 939.3

MAXDEPTH : 38 AZIMUTH : 333 DIP : -45

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.23	P4	C0	S1	DRY
2.00	4.00	1.06	P4	C0	S1	DRY
4.00	6.00	1.33	P4	C0	S1	DRY
6.00	8.00	.07	P4	C0	S1	DRY
8.00	10.00	.08	P4	C0	S1	DRY
10.00	12.00	1.79	P4	C0	S2	DRY
12.00	14.00	1.92	P4	C0	S1	WET
14.00	16.00	1.28	P3	C0	S1	DRY
16.00	18.00	.57	P3	C0	S1	DRY
18.00	20.00	.09	P3	C0	S1	DRY
20.00	22.00	.55	P3	C0	S1	DRY
22.00	24.00	.24	P3	C0	S1	DRY
24.00	34.00					
24.00	26.00	.08	P2	C0	S1	DRY
26.00	28.00	.12	P2	C0	S1	DRY
28.00	30.00	.02	P1	C0	S1	DRY
30.00	32.00	.01	P1	C0	S1	DRY
32.00	34.00	.01	P1	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2182

NORTHING : 20984.6 EASTING : 19261.9 ELEVATION : 927.8

MAXDEPTH : 34 AZIMUTH : 333 DIP : -55

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.00	OB	=>MTUFF+SH S1 2P4
1.00	14.00	SHG	S2 Sk 2P4
14.00	18.00	SHG	S1 TRP4
18.00	22.00	LAQM	C1 S1 5P3
22.00	28.00	AQM	70:30 LAQM S1 4P1
28.00	30.00	AQM	S1 2P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2182

NORTHING : 20984.6 EASTING : 19261.9 ELEVATION : 927.8

MAXDEPTH : 34 AZIMUTH : 333 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.56	P4	C0	S1	DRY
2.00	4.00	1.21	P4	C0	S3	DRY
4.00	6.00	1.46	P4	C0	S2	DRY
6.00	8.00	.31	P4	C0	S1	DRY
8.00	10.00	.74	P4	C0	S1	DRY
10.00	12.00	.17	P4	C0	S2	DRY
12.00	14.00	.08	P4	C0	S0	DRY
14.00	16.00	.07	P4	C0	S0	DRY
16.00	18.00	.05	P4	C0	S1	DRY
18.00	20.00	.01	P3	C1	S1	DRY
20.00	22.00	.03	P2	C1	S1	DRY
22.00	24.00	.04	P1	C0	S1	DRY
24.00	26.00	.03	P1	C0	S1	DRY
26.00	28.00	.07	P1	C0	S1	DRY
28.00	30.00	.04	P1	C0	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2183

NORTHING : 20947 EASTING : 19346.2 ELEVATION : 937.2

MAXDEPTH : 40 AZIMUTH : 333 DIP : -50

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.00	OB	=>SH+MTUFF S1 2P4
5.00	22.00	SHG	S1 Sk 1P4
22.00	36.50	SHG	S1 TRP3
36.50	40.00	SST	C1 S1 2P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2183

NORTHING : 20947 EASTING : 19346.2 ELEVATION : 937.2

MAXDEPTH : 40 AZIMUTH : 333 DIP : -50

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.08	P4	C0	S0	DRY
2.00	4.00	.05	P4	C0	S1	DRY
4.00	6.00	.13	P4	C0	S1	DRY
6.00	8.00	.32	P4	C0	S1	DRY
8.00	10.00	.67	P4	C0	S1	DRY
10.00	12.00	.69	P4	C0	S1	DRY
12.00	14.00	.09	P4	C0	S1	DRY
14.00	16.00	.04	P4	C0	S0	DRY
16.00	18.00	.19	P4	C0	S1	DRY
18.00	20.00	.76	P4	C0	S1	DRY
20.00	22.00	.49	P4	C0	S1	DRY
22.00	24.00	.08	P3	C0	S1	DRY
24.00	26.00	.03	P3	C0	S0	DRY
26.00	28.00	.03	P3	C0	S1	DRY
28.00	30.00	.01	P3	C0	S1	DRY
30.00	32.00	.02	P3	C0	S1	DRY
32.00	34.00	.03	P3	C0	S0	DRY
34.00	36.00	.01	P3	C1	S1	DRY
36.00	38.00	.02	P2	C1	S1	DRY
38.00	40.00	.10	P1	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2184

NORTHING : 20953.9 EASTING : 19379.4 ELEVATION : 943.1

MAXDEPTH : 40 AZIMUTH : 333 DIP : -60

ZONE : MOOSEHEAD PURPOSE : INFILL LOGGED_BY : -1

FROM	TO	LITHOLOGY	MODIFIERS
.00	26.00	SH	:SS S1 2P4
26.00	30.00	LAQM	C1 S1 5P4
30.00	34.00	LAQM	60:40 AQM C1 S1 3P2 Qe
34.00	36.00	LAQM	90:10 AQM C1 S1 3P2
36.00	38.00	AQM	60:40 LAQM C1 S1 3P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2184

NORTHING : 20953.9 EASTING : 19379.4 ELEVATION : 943.1

MAXDEPTH : 40 AZIMUTH : 333 DIP : -60

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.06	P4	C0	S0	DRY
2.00	4.00	.12	P4	C0	S0	DRY
4.00	6.00	.02	P4	C0	S0	DRY
6.00	8.00	.04	P4	C0	S0	DRY
8.00	10.00	.01	P4	C0	S0	DRY
10.00	12.00	1.08	P4	C0	S1	DRY
12.00	14.00	.17	P4	C0	S0	DRY
14.00	16.00	2.60	P4	C0	S0	DRY
16.00	18.00	1.54	P4	C0	S0	DRY
18.00	20.00	.50	P4	C0	S0	DRY
20.00	22.00	4.43	P4	C0	S0	DRY
22.00	24.00	6.36	P4	C0	S0	DRY
24.00	26.00	1.49	P4	C0	S1	DRY
26.00	28.00	.01	P4	C0	S1	DRY
28.00	30.00	.01	P3	C1	S1	DRY
30.00	32.00	.01	P2	C1	S1	DRY
32.00	34.00	.11	P2	C1	S1	DRY
34.00	36.00	.06	P2	C1	S1	DRY
36.00	38.00	.05	P1	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2185

NORTHING : 19293.6 EASTING : 23370.3 ELEVATION : 860.2

MAXDEPTH : 106 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.50	OB	=>60 LAQM:40 ARG C2 P4
8.50	10.80	LAQM	->OB* C2 S1 Sk 5P4
10.80	15.00	ARGG	
15.00	18.60	FT	=>SH +Lm
18.60	24.00	LAQM	C3 1P4
24.00	26.00	ARGG	+Lm Ft*
26.00	34.00	LAQM	C3 1P4
34.00	37.50	LAQM	C3 S2 Sk 2P4
37.50	41.00	LAQM	50:50 AQM C1 S4 Sk 1P4
41.00	49.00	LAQM	C2 S3 Sk 10P4
49.00	53.90	LAQM	C2 3P4
53.90	64.00	LAQM	C2 S3 Sk 20P4 Sb
64.00	72.00	LAQM	C3 S3 Sk 5P4 Sb
72.00	78.00	LAQM	C1 S1 Sk 1P4
78.00	80.00	LAQM	C1 S3 Sk TrP4
80.00	89.00	ARGG	
89.00	91.80	LAQM	C1 S2 Sk 1P4
91.80	106.00	ARGG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2185

NORTHING : 19293.6 EASTING : 23370.3 ELEVATION : 860.2

MAXDEPTH : 106 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.10	P4	C2	S0	WET
2.00	4.00	.04	P4	C2	S0	WET
4.00	6.00	.32	P4	C1	S0	WET
6.00	8.00	.34	P4	C2	S0	WET
8.00	10.00	1.07	P4	C2	S1	WET
10.00	12.00	.35	P4	C1	S1	WET
12.00	14.00	.15	-1	C0	S0	WET
14.00	16.00	.10	-1	C0	S1	DRY
16.00	18.00	.04	P4	C0	S1	DRY
18.00	20.00	.17	P4	C1	S1	DRY
20.00	22.00	.27	P4	C3	S1	DRY
22.00	24.00	.09	P4	C3	S1	DRY
24.00	26.00	.09	P4	C0	S0	DRY
26.00	28.00	.22	P4	C2	S0	DRY
28.00	30.00	.46	P3	C3	S0	DRY
30.00	32.00	.27	P4	C3	S0	DRY
32.00	34.00	.81	P4	C3	S0	DRY
34.00	36.00	1.82	P4	C3	S2	DRY
36.00	38.00	3.08	P4	C3	S2	DRY
38.00	40.00	10.86	P4	C1	S4	DRY
40.00	42.00	10.74	P4	C1	S3	DRY
42.00	44.00	10.75	P4	C1	S3	DRY
44.00	46.00	16.81	P4	C1	S2	DRY
46.00	48.00	7.02	P4	C2	S3	DRY
48.00	50.00	2.97	P4	C3	S2	DRY
50.00	52.00	.65	P4	C1	S1	DRY
52.00	54.00	.97	P4	C2	S1	DRY
54.00	56.00	8.14	P4	C1	S3	DRY
56.00	58.00	4.63	P4	C2	S2	DRY
58.00	60.00	3.74	P4	C3	S2	DRY
60.00	62.00	2.84	P4	C2	S2	DRY
62.00	64.00	6.13	P4	C2	S3	DRY
64.00	66.00	.89	P4	C2	S2	DRY
66.00	68.00	.74	P4	C3	S3	DRY
68.00	70.00	.23	P4	C3	S2	DRY
70.00	72.00	.62	P4	C3	S2	DRY
72.00	74.00	.93	P4	C3	S1	DRY
74.00	76.00	3.17	P4	C1	S1	DRY
76.00	78.00	3.04	P4	C1	S3	DRY
78.00	80.00	.13	-1	C0	S0	DRY
80.00	82.00	.07	-1	C0	S0	DRY
82.00	84.00	.10	-1	C0	S0	DRY
84.00	86.00	.04	-1	C0	S0	DRY

86.00	88.00	.21	P1	C2	S0	DRY
88.00	90.00	.32	P1	C2	S1	DRY
90.00	92.00	.34	P1	C2	S0	DRY
92.00	94.00	.23	P0	C2	S0	DRY
94.00	96.00	.51	P1	C2	S0	DRY
96.00	98.00	.21	P1	C2	S0	DRY
98.00	100.00	.11	P1	C2	S0	DRY
100.00	102.00	.17	P1	C2	S0	DRY
102.00	104.00	.33	P0	C2	S1	DRY
104.00	106.00	.19	-1	C0	S2	DRY
106.00	108.00	.02	P2	C0	S3	DRY
108.00	110.00	.21	P3	C1	S2	DRY
110.00	112.00	.21	P3	C1	S1	DRY
112.00	114.00	.56	P1	C1	S1	DRY
114.00	116.00	.81	P1	C2	S0	DRY
116.00	118.00	.37	P1	C1	S0	DRY
118.00	120.00	.01	P1	C2	S0	DRY
120.00	122.00	.02	P0	C1	S2	DRY
122.00	124.00	.21	P0	C1	S1	DRY
124.00	126.00	.11	P0	C1	S1	DRY
126.00	128.00	.07	P1	C1	S0	DRY
128.00	130.00	.08	P1	C2	S0	DRY
130.00	132.00	1.51	P1	C0	S1	DRY
132.00	134.00	.25	P1	C0	S2	DRY
134.00	136.00	.23	P1	C0	S2	DRY
136.00	138.00	.20	P1	C0	S4	DRY
138.00	140.00	3.32	P1	C1	S2	DRY

0.0	8.5	OB	=>60 LAQM:40 ARG C2 P4 Overburden; mixed lithologies, consisting of <60% LAQM and < 40% ARGG; damp soil covered fragments <1.5 cm larger than typical chip size; likely pad material plus some overburden in situ, all samples contain organic material. LAQM: Limonitic altered quartz monzonite has variably strong to intense, even pervasive orange staining; original textures are very well preserved; k-spar phenocrysts <4 mm, not commonly preserved in place, frequently show very strong argillic alteration; moderate patchy clay alteration of modal feldspar; no modal quartz; no secondary quartz or quartz veining; very strong sericitization throughout-chips have felted to locally sucrosic, recrystallized texture; former biotite has generally altered to ragged, limonitic shreds, but some good orange-stained, sericitized pseudomorphs remain; several chips are so altered and weathered that they lack competence and can be crushed with tweezers; many fractures with dark pink to red hematitic patina. Trace to 3% pyrite has always altered completely to limonite; pyrite concentration steadily increases with depth and overall grain size increases from < 1/10 mm to > ¼ mm; limonite pseudomorphs are sub-cubic to distinctly rounded; former pyrite and some biotite is frequently coated with flowery black blobs of manganese oxide and tinier black specks; note: some fracture surfaces may contain > 10% fine, disseminated oxidized and /or manganese oxide coated pyrite. All alterations increase to lower contact. ARG: Dominantly non-graphitic argillite with lesser shale and siltstone; black argillite fragments are hared and siliceous – edges are sharp and fracture is often conchoidal; sericite development on fracture surfaces is very common; weak to moderate limonitic staining on fractures; milky quartz stockwork (veinlets sub-cm) – strong locally, but generally weak; quartz veinlets near top of interval are orange-stained and contain some void space; shale and siltstone are more strongly altered; softer.
8.5	10.8	LAQM	-> OB* C2 S1 Sk 5P4 Dark yellowish orange limonitic altered quartz monzonite; original igneous textures are very well discerned but intense alterations have blurred the original clarity; pervasive limonitic staining is strong; clay altered k-spar phenocrysts are not observed in situ; very strong to intense sericitization of modal feldspar and biotite has given rock a felted to sucrosic, distinctly recrystallized appearance; patchy argillic alteration causes opaque, waxy appearance; chips lack competence where alterations are strongest; biotite completed altered to oxide and sericite – usually not recognizable. Moderately to strongly calcareous matrix; reaction to HCl is slow to start but intensifies with time; calcite veinlets are not seen; rare clear quartz veinlets < ½ mm; quartz veinlets lack sulfides. >5% pyrite – disseminated and completely oxidized; at least 2 phases – one with anhedral dark red/purple to black pseudomorphs < ¼ mm to < 1/10 mm, the other with rounded dark red to black grains > ¼ to ½ mm; all limonite pseudomorphs after pyrite stand out in strong contrast to matrix of rock; manganese oxide is seen coated some former pyrite – more commonly on fractures; some fractures show greater sulfide concentrations. Manganese oxide coats some former biotite, but usually forms as sub-continuous, black coatings on fractures. Looks almost yummy…too bad it doesn't run. Note: Possibly still overburden or colluvium; samples are very wet and muddy; strong weathering.

10.8	15.0	ARGG	Dark grey to black silty argillite; weakly graphitic; finer grained horizons are more siliceous, harder and break with sharper edges; graphitic sheen occasionally observed – highest graphite content in 12-14m; graphite is best seen in unwashed tray; greenish sericite development on some surfaces is not uncommon; rare limonitic fractures. Not calcareous; no sulfide; very weak mm-scale milky quartz stockwork.
15.0	18.6	FT	=>SH +Lm Fault? Medium grey shale or intensely argillically altered argillite; all fragments have a distinct bleached appearance; all are soft and incompetent; very poor recovery throughout interval; greenish sericite development is common; several fractures with limonitic patina; minor graphite near top of interval. Non-calcareous; very rare disseminated pyrite < ¼ mm altered to dark red-black flecks of limonite; weak quartz stockwork locally – quartz remains as most resistant unit where alterations are most intense. 16-18 m: Intense alterations; possibly locations of faulting; quartz fragments in abundant clay.
18.6	24.0	LAQM	C3 1P4 Limonitic altered quartz monzonite; mottled cream, tan, yellow-orange and orange; pervasive limonitic staining is stronger and more even near upper contact, lack of coloration downhole is due to bleaching rather than an initial lack of staining. Original textures are discernible but blurred; grain boundaries are rounded; phyric k-spars phenocrysts < 4mm (rarely preserved) is always completely clay altered; no quartz eyes and very, very, rare modal quartz; biotite is poorly, but increasingly well, preserved as pinkish, sericitic pseudomorphic masses; below 22.0 m, biotite appears replaced by clusters of ultra-fine, bronzy, tarnished pyrite; minor manganese oxide coats former biotite locally. Strongly calcareous matrix; reaction to HCl intensifies with time after a slow start; no calcite veinlets; no quartz veinlets; 20-22 m: sub-vitreous luster and sub-translucence may be due to weak pervasive silicification; intense sericitization and moderate to strong localized argillic alteration; bleaching (argillic alteration) increasing to end of interval. < 1% pyrite – includes tarnished pyrite replacement of biotite; remaining pyrite as dark red, rounded flecks of limonite ¼ mm to < 1/10 mm – rarely coated with black manganese oxide.
24.0	26.0	ARG	+Lm Ft* Dark grey to black, no graphitic argillite; slightly silty with minor aphanitic (chert-like) component; most fragments show strong, greenish sericite development that is often orange-stained; <2% fragments with intense pervasive argillic alteration; not calcareous; very rare oxidized sulfide; very weak sub-mm quartz veining; most surfaces with limonitic coating; rare quartz-healed micro-breccia fragments; shear?
26.0	34.0	LAQM	C3 1P4 Monzonite; intense, even pervasive limonitic staining; colour variations are subtle, but range from orange-brown through pinkish orange-brown; feldspar-phyric textures are not well preserved but are still very easily discernible; rare phyric k-spar crystals <3 mm are occasionally viewed in situ – often lack pervasive orange-staining; no quartz eyes; biotite as imperfect to ragged limonitic, sericitic shreds and rare good pseudomorphs; strong sericitization of fine –grained equigranular modal feldspar (and biotite) has created felted, dusty appearance; underneath sericitic coating, rock retains sub-translucence; sericitization intensifies to end of interval; all in all, rock chips have fairly homogeneous appearance. No secondary quartz; no quartz veinlets; strongly calcareous – loud and vigorous reaction to HCl – intensifies with time – carbonate from matrix

(associated with sericite?) rather than from any identifiable calcite veinlets/fractures etc; <5% with pinkish, pervasive hematitic staining.
Trace to 1% disseminated pyrite < ¼ mm altered to rounded, dark red limonitic flecks that are very rarely coated with manganese oxide; concentrations of < 5% oxidized pyrite locally; 28-30 m; some pyrite is nearly completely oxidized – original textures easily discerned and grain boundaries are identifiable.

34.0 37.5 LAQM C3 S2 Sk 2P4
Dark orange monzonite, very much as 26.0-34.0; very strong to intense pervasive limonitic staining; very, very weakly feldspar (<3mm, clay altered) plus quartz (very rare clear quartz eyes 3mm) phyric; original textures very well preserved, although somewhat blurred; excellent pearly to sub-vitreous luster; fine yellowish to orange sericite after modal feldspar and biotite coats all surfaces; former biotite as variably preserved silver and silver/orange plus silver sericitic forms and pseudomorphs – very frequently coated with manganese oxide; < 10% chips with deep red-orange pervasive hematitic staining; > 10% patchy and spotty manganese oxide coats fractures, former biotite and former sulfide – note: manganese oxide content is significantly higher than that observed so far in hole.
Moderately to strongly calcareous matrix – reaction to HCl is intense but is slow to start; no visible calcite veinlets; very weak localized pervasive silification – as red and orange stained, vitreous angular fragments; quartz flooding also associated with mm-scale clear and cloudy quartz veinlets that often show moderate orange-staining; oxidized pyrite flecks are occasionally associated with secondary quartz.
<2% fine (< ¼ mm) disseminated pyrite has altered to dark red anhedral limonite flecks that are very often coated with manganese oxide; rare oxidized pyrite/limonite cubes < 1/2mm – likely a different phase; higher sulfide concentration locally (>5% on some chips).
Note: all alterations intensify to lower contact causing chips to develop a much more homogeneous appearance.

37.5 41.0 LAQM 50:50 AQM C1 S4 Sk 1P4
Rich, dark red-orange monzonite; < 50% of intrusive lacks pervasive limonitic staining; original textures destroyed due to intense silicification and sericitization; most chips break into angular glassy fragments; phyric textures are not seen; oxidized rock shows only trace to 1% fine (<< ¼ mm) disseminated, oxidized pyrite, but unoxidized fragments show < 7% tarnished pyrite locally; very weakly calcareous matrix where not silicified; ultra-fine quartz veining is observed; some leaching of colour toward lower contact.

41.0 49.0 LAQM C2 S3 Sk 10P4
Rich, dark red-orange monzonite; very, very strong to intense pervasive limonitic and hematitic staining; original textures are only faintly discernible due to intense pervasive silification and sericitization (phyllic alteration); homogeneous-looking chips have excellent vitreous luster with shimmery surface coating due to sericite; no phyric minerals; all biotite altered beyond recognition, except locally; rare k-spar phenocrysts lack staining, are completely altered to clay and may be adorned with fine, dendritic manganese oxide.
Intense pervasive silification, with quartz veinlet fragments < ½ cm – quartz veining also as very, very fine stockwork; very weakly to moderately calcareous matrix where not silicified – best reaction from unwashed powder.
< 10% former disseminated pyrite << ¼ mm has altered to anhedral dark red limonite flecks that are very difficult to see within intensely altered groundmass; note: not all chips show this percentage of sulfide – quantity assigned based on representation in some chips, and the intensity of alteration throughout; manganese oxide, often coating former sulfide, is most common on fracture surfaces where former sulfide concentrations were higher.
Yum.

49.0	53.9	LAQM	C2 3P4 Monzonite; dominantly dull, greyish orange-brown with darker orange, stronger pervasively stained component near upper and lower contacts; several k-spar phenocrysts < 3mm are very strongly clay altered ad lack limonitic staining – often with fine dendritic manganese oxide tracing; feldspar rich matrix shows moderate to locally very strong sericitization; moderate to strong patchy pervasive argillic alteration; moderately calcareous; no secondary quartz as flooding or stockwork; < 3% pyrite < ¼ mm altered to limonite – frequently coated with manganese oxide; sulfide on fractures are most common; increasingly, "yummy" to lower contact.
53.9	64.0	LAQM	C2 S3 Sk 20P4 Sb Rich, dark red-orange monzonite much as 41.0-49.0 m; very strong pervasive silicification and sericitization, but not as strong as in 41.0-49.0 m; most original textures overprinted or destroyed; most intense silicification near 'contacts' – angular, translucent glassy chips; discrete quartz veinlets are ubiquitous but not uncommon; intense pervasive hematitic and limonitic staining; no phyric textures; no biotite remains – usually sericitized and coated with manganese oxide. < 20% fine (< ¼ mm) disseminated pyrite oxidized to dark red limonite that is very often coated with manganese oxide, especially if occurrence is on fractures; former sulfide are often very, very difficult to discern in intensely altered groundmass; trace arsenopyrite in one piece of clear quartz 60-62 m; 62-64 m: 5% stibnite as fine disseminations within quartz and massive clusters < ½ cm associated with antimony ochre.
64.0	72.0	LAQM	C3 S3 Sk 5P4 Sb Dark orange and red-orange monzonite, much as 41.0-49.0m and 53.9-64.0m; slightly less pervasively silicified but with a much stronger mm-scale quartz stockwork; strong to intense sericitization; degree of hematitic, sericitic biotite pseudomorphs are increasingly well preserved; original textures are easily discerned but are blurred by alterations. < 5% disseminated pyrite, altered to limonite and coated with manganese oxide; minor pyrite has not altered completely (P3) and original shape is better preserved; trace to 2% stibnite as massive fragments < ½ cm. Looks good, but not as yummy as the earlier intervals.
72.0	78.0	LAQM	C1 S1 Sk 1P4 Rich red-orange monzonite, as 64.0-72.0m but with much less intense silicification and stockwork; weakly calcareous; < 1% disseminated oxidized pyrite; very strong to intense sericitization.
78.0	80.0	LAQM	C1 S3 Sk TrP4 Rich red-orange monzonite, as 64.0-72.0m; very strong silicification and stockwork; very, very strong sericitization; original textures blurred; trace fine (< ¼ mm) disseminated pyrite altered to limonite – interval likely contained higher sulfide concentrations, but evidence has been altered away; trace stibnite in quartz; excellent sub-vitreous luster. Yum.
80.0	89.0	ARGG	 Dark grey, slightly silty argillite with minor graphitic component that is increasingly apparent with depth; some chips with excellent graphitic sheen; rare limonitic fractures, especially near contacts; some whitish clay development on rare fractures; rare quartz veinlets; no sulfide; not calcareous. 84-86m: poor recovery of competent material; intensely graphitic – possible fault?
89.0	91.8	LAQM	C1 S2 Sk 1P4 Rich, bright dark orange monzonite; very strong, even pervasive limonitic staining; no phyric textures preserved; fine-grained equigranular feldspar-rich matrix is very strongly sericitized; causing easily discerned crystal boundaries

which become blurred; biotite altered to soft, ragged limonitic/sericitic masses and pseudomorphs – very occasionally coated with manganese oxide.

Weakly to moderately calcareous matrix; moderate pervasive silicification (as glassy angular, textureless chips) with weak to moderate clear and milky mm-scale quartz stockwork; most veinlets appear barren of sulfide except for smoky sub-cm veinlet and veinlet fragments that may host ultra-fine pyrite and stibnite in the matrix.

<1% fine (< ¼ mm) disseminated pyrite altered to subhedral dark red to black limonite and/or manganese oxide; sulfide concentrations higher in some chips.

Note: Interval is much 'juicer' looking bear the top contact as all alterations are stronger – more quartz, more stockwork, more hematitic staining, more sericite, more sulfide, etc.

91.8	106.0	ARGG	Sk

Black graphitic argillite; mostly hard, angular and siliceous, but also with a minor softer shale-like component; excellent graphitic sheen locally; moderate quartz stockwork locally – mm-scale milky veinlets are occasionally orange-stained and may contain limonitic void space.

100.0-104.0 m: strong quartz stockwork; patchy limonitic alteration; abundant clay altered bleached fragments 100.0-102.0 m, so possibly a shear? Limonitic fractures are slightly more common, but still not abundant.

Sulfides are very, very rare; not calcareous.

EOH

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2186

NORTHING : 19269.8 EASTING : 23420.3 ELEVATION : 868.9

MAXDEPTH : 140 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	NS	
4.00	14.00	ARG	->OB* 95:5 LAQM
14.00	21.90	ARGG	
21.90	22.00	LAQM	C1 S1 Sk TrP4
22.00	27.00	SHG	+Lm
27.00	28.80	ARGG	
28.80	30.00	LAQM	C1 S2 Sk 1P3
30.00	33.40	LAQM	C1 5P2
33.40	35.00	ARG	+Lm S4 Sk Ft*
35.00	41.50	LAQM	C1 2P2
41.50	53.50	AQM	95:5 LAQM C1 3P1
53.50	62.00	LAQM	80:20 AQM C3 S1 Sk 1P2 Sb
62.00	63.00	QM	C3
63.00	69.50	LAQM	95:5 AQM C2 S2 Sk 1P4
69.50	71.50	QZ	=>ARG+LAQM* +Lm S4 Sb
71.50	84.00	LAQM	60:40 AQM C2 S1 4P1
84.00	86.00	AQM	C3 1P0
86.00	90.00	AQM	85:15 LAQM C2 2P1
90.00	104.80	AQM	C2 3P1
104.80	108.70	ARGG	S2 Sk
108.70	112.00	LAQM	C1 S2 Sk TrP3
112.00	112.10	ARGG	S2 Sk
112.10	118.00	AQM	C1 7P1
118.00	120.20	AQM	C2 5P1
120.20	127.80	ARGG	S2 Sk 6P0
127.80	130.30	AQM	C2 10P1
130.30	139.50	ARGG	S2 Sk 5P0
139.50	140.00	AQM	->SS* S4 50P0 Ft

0.0	4.0	NS	No sample recovered.
4.0	14.0	ARG	->OB* 95:5 LAQM Dark grey to black argillite, siliceous matrix; slightly silty locally; original bedding laminations are often evident; breakage tends to honour grain boundaries and broken edges are smooth, rather than sharp; very minor carbonaceous component; strong greenish to orange-stained sericite development on several surfaces; not stockworked, although rare milky quartz veinlet fragments < ½ cm are seen; not calcareous; no sulfides. >5% dark orange limonitic altered quartz monzonite, weakly calcareous; good textures; trace oxidized pyrite – higher concentrations on fractures. Note: This material is likely all fill for the pad.
14.0	21.9	ARGG	Dark grey and black argillite; weakly to increasingly graphitic; tends strongly toward coarser-grained siltstone locally; very strong greenish to orange-stained sericite development on many, many surfaces; siliceous; hard angular swirls and rare mm-scale sharp-sided veinlets; no sulfides.
21.9	22.0	LAQM	C1 S1 Sk TrP4 Bright, dark orange monzonite; weakly calcareous; intense pervasive limonitic staining; very strongly sericitized; original textures discernible; no phyric textures preserved; weak sub-mm clear and cloudy quartz veinlet stockwork; trace dark red, sub-cubic limonite flecks < ¼ mm after former disseminated pyrite.
22.0	27.0	SHG	+Lm Dark grey shale, moderately carbonaceous – good graphitic luster is not often evident; soft, platy fragments; slightly bleached appearance; most flat surfaces (fractures/bedding planes) show thin limonitic patina and some mm-scale horizons are pervasively stained; very rare cubic limonite pseudomorphs < ½ mm, coated with manganese oxide, on rare limonitic surfaces. Transitional into:
27.0	28.8	ARGG	Black, strongly graphitic argillite; siliceous; weak quartz veining and flooding; hard, angular fragments with sharp edges; very rare limonitic boxworks; very rare limonitic fractures; silicification increases to lower contact; no visible sulfide.
28.8	30.0	LAQM	C1 S2 Sk 1P3 Bright yellowish – orange limonitic altered quartz monzonite; unwashed powder is dull orange; original textures are very well preserved – feldspar margins are clear, phyric k-spar crystals < 3 mm are weakly stained and strongly clay altered, and biotite has altered to limonitic/sericitic masses and some good pseudomorphs; overall pearly to waxy luster; all surfaces coated with sericite; very rare clear quartz eyes < 3mm; weakly calcareous – subtle non to HCl. >1% disseminated pyrite and pyrite clusters (< ½ mm) that is strongly oxidized, but not completely altered to limonite – good crystal shapes are still recognizable; former sulfide and biotite are occasionally coated with black to dark brown manganese oxide.
30.0	33.4	LAQM	C1 5P2 Monzonite; tan to light yellowish orange; slightly mottled due to variability in pervasive limonitic staining; excellent igneous textures; moderately clay-altered k-spar phenocrysts are commonly viewed in situ; biotite exists as ragged, orange-stained sericitic shreds – often coated with flowery dots of manganese oxide; most surfaces show sericitization, but underlying pearly luster is retained. <5% pyrite – most occurring as partially oxidized (tarnished to weakly rusted – P2) clusters to 2mm that appear to have replaced former biotite, and re often subsequently replaced/coated with manganese oxide; < 1% of total pyrite occurs

as fine (1/4 – 1/10 mm) disseminations that are completely altered to dark red limonite flecks; occasional fractures with > 10% altered sulfide.

33.4 35.0 ARG +Lm S4 Sk Ft*
Dark grey, non-graphitic argillite; intensely silicified near upper contact to strongly silicified and argillically altered near lower contact – possibly represents a shear or fault.

35.0 41.5 LAQM C1 2P2
Light orange-brown to tan monzonite, much as 30.0-33.4m; weakly calcareous matrix; not silicified; original textures are very well represented although most biotite has altered to ragged, sericitic shreds that remain in situ; modal feldspar is weakly to locally more strongly sericitized; matrix is generally weakly orange-stained (darkest colouration from altered biotite) and retains pearly luster and sub-translucence; pretty boring-looking rock.
<2% pyrite occurs as partially oxidized, fine-grained clusters <3mm that have replaced former biotite; very, very ultra-fine (1/4 to < 1/10 mm) dark red flecks of limonite after disseminated (possibly Au – bearing) pyrite.
Gradational into:

41.5 53.5 AQM 95:5 LAQM C1 3P1
Light gray altered quartz monzonite with < 5% chips with moderate to strong pervasive limonite staining that is related to oxidation along fractures; staining is strongest near upper and lower contacts.
Original textures are very well preserved; lacks obvious phyric textures; no quartz eyes; biotite frequently viewed in situ as silvery to champagne sericite pseudomorphs – occasionally orange-stained; fine-grained feldspar-rich matrix has good pearly to sub-vitreous luster and tends to remain sub-translucent; strongly sericitized – creates grey coating on chip surfaces occasionally obscuring some features.
Weakly to moderately calcareous matrix; no calcite veinlets; no quartz flooding; very, very rare sub-cm clear quartz veinlets; greenish roscolite after feldspar near upper contact.
Strongly sulfidic (>6% pyrite) near upper contact, but steadily decreasing to bottom of interval; pale yellow and silvery yellow pyrite occurs mostly as mm-scale clots and clusters that appear to have replaced biotite locally; lesser quantities of pyrite (<1%) as fine (<1/4 mm) disseminations and localized concentrations on fractures; most pyrite is very weakly tarnished to fresh – oxidation is stronger near contacts.
All alterations increase with depth.
From 49.0 m: <25% chips with more vitreous luster and decreased sericitization; increasingly feldspar – phyric – altered to white, waxy clay.

53.5 62.0 LAQM 80:20 AQM C3 S1 Sk 1P2 Sb
Monzonite; >80% chips with moderate to strong pervasive limonitic staining; remaining chips lack pervasive staining but have orange staining on fractures and as mm-scale envelopes around fractures; represents an oxidation environment where only cores of rock remain unaltered.
All textures are very well preserved; waxy white k-spar phenocrysts <3mm are weakly to moderately clay altered and frequently lack orange stain; no clear quartz eyes; low modal quartz; modal feldspar typically show alteration to sericite – acquire felted to micro-sucrosic texture and rock is opaque; biotite is usually sericitized and orange-stained, but good pseudomorphs are ubiquitous; all alterations are decreased in unstained (AQM) rock; strongly calcareous – reaction to HCl is best from unwashed powder and is slow to start in all samples; calcite veinlets are not seen; ubiquitous but non-plentiful mm-scale clear quartz veinlets with minor associated flooding; some veinlets are smoky due to saturation with ultra fine sulfides – likely S0.
>1% pyrite as 1) ultra-fine (<<1/4 mm) disseminations in intensely stained groundmass that has altered completely to dark orange and red anhedral limonite

			flecks, 2) fine disseminations in unstained rock that are weakly oxidized with tarnish to light rust and retain good crystal form, 3) as tarnished to slightly more strongly tarnished pyrite concentrations along fractures and occasionally associated with quartz veinlets, and as 4) larger (1/2 mm), partially oxidized (light rust), striated, cubic pyrite crystals; note; wide variability in oxidation state of pyrite – P2 is assigned as an average; trace (<2% locally) stibnite as ultra-fine saturations within quartz veinlets. 56-60m: <40% unoxidized monzonite; contain stibnite in quartz. 60-62m: intense pervasive limonitic staining, with very strong sericitization but excellent preservation of feldspar micro-phyric textures; k-spar crystals < 2 mm are soft, unstained and in place; trace spotty manganese oxide – not typical for rest of interval.
62.0	63.0	QM	C3 Blue grey quartz monzonite with <15% fine (1mm), fresh black biotite; biotite and biotite books show minor alteration along rims; excellent pearly luster and preservation of original textures; minor weak sericitization; very strongly calcareous matrix.
63.0	69.5	LAQM	95:5 AQM C2 S2 Sk 1P4 Rich, dark orange monzonite; intense, even, pervasive orange-stained matrix; numerous 1-2mm feldspar crystals lack staining and stand out as soft, clay-altered, white pecks in a dark matrix; no quartz eyes; biotite completely altered – remains are rarely identifiable; very strongly sericitized – chip surfaces all appear re-crystallized, felted or dirty; moderately to strongly calcareous matrix. Weak to moderate quartz stockwork and associated flooding, especially near contacts; trace to 2% disseminated pyrite and concentrations on fractures – very strongly to completely oxidized; dark red, rounded limonite flecks are often difficult to differentiate from strongly stained matrix; 1% pyrite assigned as average. Note: lower contact is arbitrarily assigned, where silicification intensifies.
69.5	71.5	QZ	=>ARG+LAQM +Lm S4 Sb Intensely silicified interval; dominant mineral is quartz although much appears and completely pervasive silicification within argillite and lesser monzonite; other quartz, hosting fine, plentiful stibnite with associated red kermesite; smoke-grey fragments break into angular fragments with smooth surfaces; strongly resembles chert locally and rare chips are quartz-healed micro-breccia. Near upper contact, silica occurs as quartz flooding and abundant discrete veinlets within strongly stained intrusive (note: some overlap of assigned contact); greyish veinlet and veinlet fragments < 1cm contain stibnite and km; it can't determined if pyrite exists. Near lower contact, silica floods probable sediments; <10% black argillite is extremely silicified and contains <1% fresh, yellow cubic pyrite < 1/5 mm; silicified monzonite contains trace, tarnished, striated pyrite crystal < ¾ mm. Note: rock on either side of interval is affected by silicification and exact contacts are indistinct. Looks yummy, but NO gold.
71.5	84.0	LAQM	60:40 AQM C2 S1 4P1 Quartz monzonite; transitional phase where < 60% fragments are strongly pervasively limonite-stained and the remaining chips show staining along fractures as mm-scale alteration envelopes; unit is more siliceous than uphole (more modal quartz) and also appears weakly (to locally moderately) silicified; excellent sun-vitreous luster and sub-translucence; all original textures are very well preserved – k-spar phenocrysts < 4mm are weakly clay altered; matrix shows weak and moderate sericitization; biotite altered to orange, silver and orange and silver, sericitic pseudomorphs that aren't abundant; former biotite is also replaced by pyrite; moderately calcareous matrix; note: staining represents

			alteration associated with fractures that has pervaded rock matrix except for cores between fractures. LAQM: Rich, dark orange; very strong, even, pervasive limonitic staining; pervasively silicified near upper contact – original textures overprinted; >1% pyrite, variably oxidized (usually P2-P3 = partially to nearly complete) as rare fine disseminations, but most typically as ultra-fine clusters (mm-scale) that appear to replace former biotite, note: higher sulfide concentrations may exist, but evidence is obscured or overprinted. AQM: Blue grey with orange margins; trace to >5% pyrite as tarnished to fresh ultra-fine clusters after former biotite, an as fine (<1/4mm) disseminations. Manganese oxide occasionally coats former biotite and biotite/pyrite. Overall sulfide content increases to lower contact; lower contact assigned where AQM becomes dominant lithology.
84.0	86.0	AQM	C3 1P0 Medium to dark grey altered quartz monzonite; excellent original igneous textures and luster; abundant former biotite as silver and white, sericitized pseudomorphs; resembles rock that has just changed from QM; ultra-fine silvery, fresh pyrite partially replaces some biotite; <1% pyrite as fresh disseminations < 1/4mm; intensely calcareous; not silicified. Note: differentiated form adjacent rock due to nature of biotite.
86.0	90.0	AQM	85:15 LAQM C2 2P1 Medium grey altered quartz monzonite with <15% limonitic chips; limonitic staining associated with alteration along fractures – quantity decreases to end of interval; original features very well preserved; no quartz eyes; moderately sericitized feldspar-rich matrix; biotite as silver to white sericitic pseudomorphs that are occasionally partially replaced by fine, fresh to tarnished pyrite clusters; 1-3% pyrite, as just described, and as fine (<1/4 mm) cubic dissemination – fresh to tarnish; pyrite rarely as yellowish clusters >1mm; moderately calcareous; no silicified. 88-90m: One smoky, pyritic angular quartz fragments < ½ cm. Transitional into:
90.0	104.8	AQM	C2 3P1 Medium grey altered quartz monzonite; very, very weak pervasive limonitic staining locally – volumetrically insignificant; original textures are discernible but slightly blurred; phyric textures are not represented; no quartz eyes; good pearly to sub-vitreous luster; translucent where no sericitized; biotite as silvery, micaceous pseudomorphs Moderately calcareous; positive reaction to HCl is slow to start, even from unwashed powder; weak sericitization throughout – locally stronger; rare patchy argillic alteration creates opaque, soft, waxy, clay-rich chips; rare feldspar altered to roscolite (especially 92-96m); <5% chips (98-104m) with mm-scale limonitic fractures and stained envelopes; not silicified. 2-5% pyrite (3% as average assigned for interval) as 1) fresh, yellowish to silvery, weakly tarnished fine, cubic disseminations, 2) greyish, ultra-fine tarnished clusters that have replaced former biotite, 3) as larger (<1/2mm) yellowish, striated disseminated cubes and as 4) rare dark orange, rounded limonite flecks < ¼ mm; overall sulfide content increases and oxidation decreases to end of interval. 90-92m: yellow pyrite cubes with striate (cubes < 1/4mm) dominate over all other sulfide occurrence – also occur as clusters. From 100m: notable increase in pyrite cube quality and quantity.
104.8	108.7	ARGG	S2 Sk Black, strongly graphitic argillite; slightly silty; good greasy luster; non-calcareous; <15% secondary quartz as milky, barren quartz veinlets <1/2cm and as lesser associated matrix flooding; hard, siliceous, sub-angular to angular

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2186

NORTHING : 19269.8 EASTING : 23420.3 ELEVATION : 868.9

MAXDEPTH : 140 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	NS	
4.00	14.00	ARG	->OB* 95:5 LAQM
14.00	21.90	ARGG	
21.90	22.00	LAQM	C1 S1 Sk TrP4
22.00	27.00	SHG	+Lm
27.00	28.80	ARGG	
28.80	30.00	LAQM	C1 S2 Sk 1P3
30.00	33.40	LAQM	C1 5P2
33.40	35.00	ARG	+Lm S4 Sk Ft*
35.00	41.50	LAQM	C1 2P2
41.50	53.50	AQM	95:5 LAQM C1 3P1
53.50	62.00	LAQM	80:20 AQM C3 S1 Sk 1P2 Sb
62.00	63.00	QM	C3
63.00	69.50	LAQM	95:5 AQM C2 S2 Sk 1P4
69.50	71.50	QZ	=>ARG+LAQM* +Lm S4 Sb
71.50	84.00	LAQM	60:40 AQM C2 S1 4P1
84.00	86.00	AQM	C3 1P0
86.00	90.00	AQM	85:15 LAQM C2 2P1
90.00	104.80	AQM	C2 3P1
104.80	108.70	ARGG	S2 Sk
108.70	112.00	LAQM	C1 S2 Sk TrP3
112.00	112.10	ARGG	S2 Sk
112.10	118.00	AQM	C1 7P1
118.00	120.20	AQM	C2 5P1
120.20	127.80	ARGG	S2 Sk 6P0
127.80	130.30	AQM	C2 10P1
130.30	139.50	ARGG	S2 Sk 5P0
139.50	140.00	AQM	->SS* S4 50P0 Ft

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2186

NORTHING : 19269.8 EASTING : 23420.3 ELEVATION : 868.9

MAXDEPTH : 140 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00		-1	-1	-1	-1
2.00	4.00		-1	-1	-1	-1
4.00	6.00	.53	-1	C1	S0	DRY
6.00	8.00	.10	-1	C0	S0	DRY
8.00	10.00	.08	-1	C0	S0	DRY
10.00	12.00	.04	-1	C0	S0	DRY
12.00	14.00	.03	-1	C0	S0	DRY
14.00	16.00	.01	-1	C0	S0	DRY
16.00	18.00	.03	-1	C0	S0	DRY
18.00	20.00	.01	-1	C0	S0	DRY
20.00	22.00	.55	P4	C1	S1	WET
22.00	24.00	.08	P4	C0	S0	WET
24.00	26.00	.78	P4	C0	S0	WET
26.00	28.00	1.59	P4	C0	S0	DRY
28.00	30.00	.27	P3	C1	S2	DRY
30.00	32.00	.15	P2	C1	S0	DRY
32.00	34.00	.11	P4	C1	S2	DRY
34.00	36.00	.06	P4	C1	S1	DRY
36.00	38.00	.06	P4	C1	S0	DRY
38.00	40.00	.16	P2	C1	S1	DRY
40.00	42.00	.08	P2	C1	S0	DRY
42.00	44.00	.36	P0	C1	S0	DRY
44.00	46.00	.26	P0	C2	S1	DRY
46.00	48.00	.09	P0	C1	S0	DRY
48.00	50.00	.05	P1	C2	S0	DRY
50.00	52.00	.05	P1	C3	S0	WET
52.00	54.00	.13	P2	C3	S1	WET
54.00	56.00	.21	P2	C3	S1	DRY
56.00	58.00	1.08	P2	C3	S1	DRY
58.00	60.00	.51	P2	C2	S1	DRY
60.00	62.00	.23	P4	C2	S0	DRY
62.00	64.00	.36	P4	C3	S0	DRY
64.00	66.00	1.06	P3	C2	S2	DRY
66.00	68.00	.72	P4	C2	S0	DRY
68.00	70.00	.26	P4	C2	S3	DRY
70.00	72.00	.08	P0	C2	S4	DRY
72.00	74.00	.65	P3	C2	S1	DRY
74.00	76.00	.38	P3	C2	S1	DRY
76.00	78.00	.25	P1	C2	S1	DRY
78.00	80.00	.21	P2	C2	S1	DRY
80.00	82.00	.48	P1	C2	S1	DRY
82.00	84.00	.16	P1	C2	S1	DRY
84.00	86.00	.43	P0	C3	S0	DRY

86.00	88.00	.21	P1	C2	S0	DRY
88.00	90.00	.32	P1	C2	S1	DRY
90.00	92.00	.34	P1	C2	S0	DRY
92.00	94.00	.23	P0	C2	S0	DRY
94.00	96.00	.51	P1	C2	S0	DRY
96.00	98.00	.21	P1	C2	S0	DRY
98.00	100.00	.11	P1	C2	S0	DRY
100.00	102.00	.17	P1	C2	S0	DRY
102.00	104.00	.33	P0	C2	S1	DRY
104.00	106.00	.19	-1	C0	S2	DRY
106.00	108.00	.02	P2	C0	S3	DRY
108.00	110.00	.21	P3	C1	S2	DRY
110.00	112.00	.21	P3	C1	S1	DRY
112.00	114.00	.56	P1	C1	S1	DRY
114.00	116.00	.81	P1	C2	S0	DRY
116.00	118.00	.37	P1	C1	S0	DRY
118.00	120.00	.01	P1	C2	S0	DRY
120.00	122.00	.02	P0	C1	S2	DRY
122.00	124.00	.21	P0	C1	S1	DRY
124.00	126.00	.11	P0	C1	S1	DRY
126.00	128.00	.07	P1	C1	S0	DRY
128.00	130.00	.08	P1	C2	S0	DRY
130.00	132.00	1.51	P1	C0	S1	DRY
132.00	134.00	.25	P1	C0	S2	DRY
134.00	136.00	.23	P1	C0	S2	DRY
136.00	138.00	.20	P1	C0	S4	DRY
138.00	140.00	3.32	P1	C1	S2	DRY

fragments; very rare, very weakly rusted pyrite as veinlet-style clusters of fine (<<1/4 mm) cubic pyrite – near lower contact.
Silicification intensifies and becomes strongly pervasive near lower contact.

108.7	112.0	LAQM	C1 S2 Sk TrP3 Light tannish –orange limonitic altered quartz monzonite; limonitic staining is even and pervasive; original textures discernible but blurred mostly due to intense to moderate (decreasing with depth) pervasive silicification with associated mm-scale smoky quartz veinlets; no veinlets textures preserved; biotite as subtle sericitized, stained pseudomorphs. Weakly calcareous – reaction to HCl is subtle and slow to start; no calcite veinlets; moderate, ubiquitous sericitization. <1% (locally) disseminated pyrite is nearly completely altered to limonite – crystal form is usually preserved; very rare dark red limonite pseudomorphs; sulfide decreases to end of interval; smoky quartz veinlets likely contain some sulfide.
112.0	112.1	ARGG	S2 Sk Siliceous, stockworked graphitic argillite, as 101.8-108.7m.
112.1	118.0	AQM	C1 7P1 Grey altered quartz monzonite, very much as 90.0-104.8m; k-spar phenocrysts >3mm are white, waxy and variably clay altered; sub-translucent feldspar-rich matrix is weakly sericitized; no quartz eyes; discernible but blurred textures; pearly to sub-vitreous luster; former biotite as subtle creamy sericitic pseudomorphs; very, very weak pervasive limonitic staining locally; at upper contact – one chips shows micro-clast of the 'overlying' argillite – breccia. Weakly calcareous – reaction to HCl, although distinctly positive, is slow to start, even from unwashed powder; not silicified or stockworked – minor secondary quartz near upper contact. <7% pyrite, typically tarnished, in variable occurrences; most silvery, tarnished pyrite as anhedral disseminations and disseminated clusters < ¼ mm – occasionally coated with fine manganese oxide4 – also as fresh, yellowish pyrite; remaining pyrite as ultra-fine clusters (tarnished) that replace former biotite, as ultra-fine (< 1/10 mm) disseminations that are very subtle, and as very rare dark orange limonite flecks. All alterations increase to 'lower contact' – unit is increasingly opaque and homogeneous – looking.
118.0	120.2	AQM	C2 5P1 Dull beige monzonite; opaque, dominantly featureless, homogenous, sericitized rock; original features and textures are blurred; one sub-angular cloudy quartz eye < 3mm; former biotite as very subtle creamy, sericitic pseudomorphs; moderately calcareous matrix; no calcite veinlets; no quartz stockwork or flooding. <5% pyrite as silvery, black, imperfect, tarnished flecks << ¼ mm that look like remnants of former 'good' sulfides; very, very rare dark red limonite flecks after pyrite. Bleh.
120.2	127.8	ARGG	S2 Sk 6P0 Black argillite; strongly graphitic – excellent oily luster and graphitic sheen; variably aphanitic to silty; typically very strongly siliceous and silicified; milky mm-scale quartz stockwork decreases to lower contact; hard; not calcareous. 2-10% fresh yellow pyrite as 1)disseminated cubes < 1/4mm, 2) as mm-scale, diagenetic, pyritic horizons, 3) as sub-cm massive clusters representing thicker pyritic horizons, and 4) as ultra-fine (<< ¼ mm) dissemination within very strongly silicified chips; 6% pyrite assigned as average.
127.8	130.3	AQM	C2 10P1 Beige to white, pyritic, altered quartz monzonite as 112.1-118.0m; very, very faint limonitic staining along rare fractures; moderate sericitization – rock varies

			From sub-translucent to sub-opaque; original textures are discernible but blurred; moderately calcareous matrix; not silicified <10% pyrite as cubic to anhedral disseminations ¼ mm to < 1/10 mm – occasionally as clusters; sulfide are typically tarnished but are also fresh; very rare completely oxidized crystals; minor pyrite replaces former biotite. Strongly silicified near lower contact.
130.3	139.5	ARGG	S2 Sk 5P0 Very strongly graphitic, intensely silicified argillite, as 120.2-127.8 m; silicification increases to lower contact; excellent graphitic sheen; some quartz-healed minor breccia; < 5% fresh pyrite (as described 120.2-127.8m).
139.5	140.0	AQM	->SS* S4 50P1 Ft Dark grey, intensely sericite and clay-altered, fine-grained (<1mm) equigranular rock; resembles both (really wrecked) altered quartz monzonite and quartz-rich sandstone; assigned AQM as major lithology due to carbonaceous content in matrix; intensely silicified in some chips; >50% cubic pyrite completely saturates most chips-fresh to very slightly tarnished. Intensely 'screwed up' nature of rock suggests that interval represents a fault. Note: > 3.32 gpt/2m therefore likely higher. Hole stopped (AQM difficult to recognize in graphitic matrix) and rods stuck might be worth re-entering hole.
EOH			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2187

NORTHING : 19971.7 EASTING : 22484.7 ELEVATION : 854.7

MAXDEPTH : 148 AZIMUTH : 248 DIP : -55

ZONE : LG GAP PURPOSE : EXPLORATION LOGGED_BY : C. Germain

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.50	OB	=>SLT
3.50	20.00	SST	95:5 ARG S1 Sk TRP2
20.00	22.00	ARG	C1 S1 Sk TRP3
22.00	32.00	SST	C1 S1 Sk TRP2
32.00	36.00	SST	1P1
36.00	45.50	SST	1P2
45.50	68.00	SST	TRP1
68.00	96.00	SST	5P1
96.00	104.50	SST	2P1
104.50	118.00	ARG	C1 1P1
118.00	132.00	SST	S1 Sk 1P1 Bx
132.00	140.50	SST	C1 1P1
140.50	148.00	ARG	S1 Sk 2P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2187

NORTHING : 19971.7 EASTING : 22484.7 ELEVATION : 854.7

MAXDEPTH : 148 AZIMUTH : 248 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00		-1	C0	S0	DRY
2.00	4.00	.03	P3	C0	S0	DRY
4.00	6.00	.02	P1	C0	S0	DRY
6.00	8.00	.02	P2	C0	S1	DRY
8.00	10.00	.02	P2	C0	S1	DRY
10.00	12.00	.03	P2	C0	S1	DRY
12.00	14.00	.02	P2	C0	S1	DRY
14.00	16.00	.02	P2	C0	S1	DRY
16.00	18.00	.03	P2	C0	S1	DRY
18.00	20.00	.04	P3	C0	S1	DRY
20.00	22.00	.01	P3	C0	S1	DRY
22.00	24.00	.02	P3	C0	S1	WET
24.00	26.00	.03	P3	C0	S1	WET
26.00	28.00	.02	P3	C0	S1	WET
28.00	30.00	.02	P2	C0	S1	DRY
30.00	32.00	.03	P2	C0	S1	DRY
32.00	34.00	.03	P1	C0	S0	WET
34.00	36.00	.03	P1	C0	S0	DRY
36.00	38.00	.03	P1	C0	S0	WET
38.00	40.00	.03	P2	C0	S0	DRY
40.00	42.00	.03	P1	C0	S0	WET
42.00	44.00	.03	P2	C0	S0	DRY
44.00	46.00	.02	P2	C0	S0	DRY
46.00	48.00	.03	P2	C0	S0	WET
48.00	50.00	.02	P3	C0	S0	WET
50.00	52.00	.03	P2	C0	S0	WET
52.00	54.00	.04	P1	C0	S0	WET
54.00	56.00	.03	P1	C0	S0	WET
56.00	58.00	.01	P1	C0	S0	WET
58.00	60.00	.01	P1	C0	S0	WET
60.00	62.00	.01	P1	C0	S0	WET
62.00	64.00	.01	P1	C0	S0	WET
64.00	66.00	.02	P1	C0	S0	WET
66.00	68.00	.02	P1	C0	S0	WET
68.00	70.00	.03	P1	C0	S0	WET
70.00	72.00	.03	P1	C0	S0	WET
72.00	74.00	.01	P1	C0	S0	WET
74.00	76.00	.04	P1	C0	S0	WET
76.00	78.00	.03	P1	C0	S0	WET
78.00	80.00	.03	P1	C1	S0	DRY
80.00	82.00	.03	P1	C0	S0	DRY
82.00	84.00	.01	P1	C0	S0	WET
84.00	86.00	.02	P1	C0	S0	WET

86.00	88.00	.03	P1	C0	S0	WET
88.00	90.00	.02	P1	C0	S0	WET
90.00	92.00	.02	P1	C0	S0	WET
92.00	94.00	.01	P1	C0	S0	WET
94.00	96.00	.01	P1	C0	S0	WET
96.00	98.00	.02	P1	C0	S1	WET
98.00	100.00	.01	P1	C0	S1	WET
100.00	102.00	.01	P1	C0	S0	WET
102.00	104.00	.01	P1	C0	S0	WET
104.00	106.00	.01	P1	C1	S0	WET
106.00	108.00	.01	P1	C1	S0	WET
108.00	110.00	.01	P1	C1	S0	WET
110.00	112.00	.01	P1	C1	S0	WET
112.00	114.00	.01	P1	C1	S1	WET
114.00	116.00	.02	P1	C1	S0	WET
116.00	118.00	.02	P1	C0	S0	WET
118.00	120.00	.03	P1	C0	S1	WET
120.00	122.00	.01	P1	C0	S1	WET
122.00	124.00	.01	P1	C0	S1	WET
124.00	126.00	.01	P1	C0	S1	WET
126.00	128.00	.01	P1	C0	S1	WET
128.00	130.00	.01	P1	C0	S1	WET
130.00	132.00	.02	P1	C0	S1	WET
132.00	134.00	.03	P1	C1	S1	WET
134.00	136.00	.02	P1	C1	S0	WET
136.00	138.00	.01	P1	C1	S0	WET
138.00	140.00	.02	P1	C1	S0	WET
140.00	142.00	.02	P1	C0	S1	WET
142.00	144.00	.03	P1	C0	S1	WET
144.00	146.00	.02	P1	C0	S1	WET
146.00	148.00	.03	P1	C0	S0	WET

0.0	3.5	OB	=>SLT Dark grey siltstone; non-calcareous; S0; non to very weak limonitic alteration along fractures; no visible pyrite.
3.5	20.0	SST	95:5 ARG S1 Sk TrP2 Dark grey siltstone; non-calcareous; S1 stockwork and veinlets; non to very, very weakly limonitic alteration along fractures; trace of pyrite (fine) showing moderate oxidation to iron oxide (P2).
20.0	22.0	ARG	C1 S1 Sk TrP3 Dark grey argillite; weakly calcareous; S1 stockwork and veinlets; non to weak limonitic alteration along fractures; trace pyrite showing strong oxidation to iron oxide (P3).
22.0	32.0	SST	C1 S1 Sk TrP2 Light to medium grey siltstone; brecciated; weakly calcareous; S1 stockwork and flooding of fragments; no limonitic alteration; trace pyrite showing moderate oxidation to iron oxide (P2).
32.0	36.0	SST	1P1 Dark grey siltstone; non-calcareous; S0; non to very weak limonitic alteration along fractures; 1% pyrite showing weak oxidation to iron oxide (P1).
36.0	45.5	SST	1P2 Medium to light grey siltstone; non-calcareous; S0; pseudo-brecciated with veinlets and stockwork of sulfides; non to weak limonitic alteration along fractures; 1% pyrite showing moderate oxidation to iron oxide (P2).
45.5	68.0	SST	TrP1 Dark grey siltstone; non-calcareous; S0; non to weak limonitic alteration along fractures; trace to 1% pyrite showing weak oxidation to iron oxide (P1); pyrite is slightly tarnished.
68.0	96.0	SST	5P1 Light to medium grey siltstone; non-calcareous; S0; non to weak limonitic alteration along fractures; 5% fine pyrite showing weak oxidation (P1); pyrite is slightly tarnished. Sulphide stockwork and veinlets (?).
96.0	104.5	SST	2P1 Light to medium grey siltstone; non-calcareous; S0 (S1 sometimes); brecciated (angular fragments of SST in a matrix of sulfides); non to very weak limonitic alteration along fractures; 2% pyrite showing weak oxidation (P1); pyrite is slightly tarnished.
104.5	118.0	ARG	C1 1P1 Dark grey argillite; weakly calcareous; S0; no limonitic alteration; 1% pyrite showing weak oxidation (P1) to iron oxide; pyrite is slightly tarnished.
118.0	132.0	SST	S1 Sk 1P1 Dark and light grey siltstone; non-calcareous; S1 stockwork and veinlets; non to weak limonitic alteration along fractures; 1% pyrite showing weak oxidation state to iron oxide (P1); pyrite is slightly tarnished. Presence of breccia-like texture in interval.
132.0	140.5	SST	C1 1P1 Light grey siltstone; weakly calcareous; S0; veinlets and stockwork of sulfides; no limonitic alteration; 1% pyrite showing weak oxidation state to iron oxide (P1); pyrite is slightly tarnished; sulfide stockwork and veinlets (?).
140.5	148.0	ARG	S1 Sk 2P1 Dark grey argillite; non-calcareous; S1 stockwork and veinlets. Non to very weak oxidation state to iron oxide (P1); pyrite is only slightly tarnished.

EOH

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2188

NORTHING : 20761.6 EASTING : 17617 ELEVATION : 835

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

ZONE : PACIFIC PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=> LAQM + SLT S1 TrP4
3.00	4.50	SLT	S1
4.50	6.10	SLT	TrP4
6.10	10.30	SS	+Lm
10.30	16.10	SS	80:20 SLT TrP4
16.10	22.00	SLT	+Lm
22.00	27.50	SLT	+Lm TrP4
27.50	38.00	SLTG	C1 S1
38.00	50.00	SLT	S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2188

NORTHING : 20761.6 EASTING : 17617 ELEVATION : 835

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.10	P4	C0	S1	WET
2.00	4.00	.09	P4	C0	S1	DRY
4.00	6.00	.17	P4	C0	S0	DRY
6.00	8.00	.08	-1	C0	S1	DRY
8.00	10.00	.07	-1	C0	S1	DRY
10.00	12.00	.03	-1	C0	S0	DRY
12.00	14.00	.02	P4	C0	S1	DRY
14.00	16.00	.05	P4	C0	S0	DRY
16.00	18.00	.02	-1	C0	S0	DRY
18.00	20.00	.04	-1	C0	S0	DRY
20.00	22.00	.01	-1	C0	S1	DRY
22.00	24.00	.02	P4	C0	S1	DRY
24.00	26.00	.01	P4	C0	S0	DRY
26.00	28.00	.02	P3	C0	S0	DRY
28.00	30.00	.02	P0	C1	S0	DRY
30.00	32.00	.22	-1	C1	S1	DRY
32.00	34.00	.02	P0	C1	S1	DRY
34.00	36.00	.02	-1	C1	S1	DRY
36.00	38.00	.01	-1	C1	S0	WET
38.00	50.00					
38.00	40.00	.02	-1	C0	S1	DRY
40.00	42.00	.01	-1	C0	S1	DRY
42.00	44.00	.02	-1	C0	S1	WET
44.00	46.00	.05	-1	C0	S1	WET
46.00	48.00	.02	-1	C0	S1	DRY
48.00	50.00	.03	-1	C0	S1	DRY

0.0	3.0	OB	=>LAQM +SLT S1 TrP4 Overburden, as determined by drill technicians; mixed lithologies consist of 1) pale orange, weak to moderately pervasive limonite altered quartz monzonite; luster ranges from dull slightly earthy to cloudy, opaque to translucent silicified appearance; texture mostly destroyed; trace white sericitized anhedral k-spar phenocrysts; very trace biotite pseudomorphs remnants coated with manganese oxide; no quartz eyes; soft orange patchy limonite (anhedral phenocrysts?); minor silicified flooding in only some ships; non-calcareous; trace very fine (¼ mm) disseminated blebs and cubes of pyrite, P4, altered to dark red limonite; 2) dark grey to black, medium to coarse grained siltstone (could be a fine sandstone? Mud?); some chips moderate limonite coated, others soft patchy limonite, non-calcareous, non-graphitic; a few chips appear medium to dark grey due to minor silicified flooding from S1quartz veinlets/micro-veinlets); no sulphide appears to be minor manganese oxide.
3.0	4.5	SLT	S1 Dark grey to black, medium to coarse grained siltstone; chance it could be a silty argillite, but appears to be too grainy; no weak bedding laminations; fragments small, hard and angular; no platy; patchy orange limonite on chips surfaces; non-calcareous, non-graphitic; weak S1 quartz veinlet/micro-veinlets, mm-scale no visible sulphides.
4.5	6.1	SLT	TrP4 Fine to medium grained, uniform, siltstone with a whitish tan to light grey bleached-looking outer coating (pervasive through many chips) but a few chips with a fine uniform dark grey core??; definitely a siltstone, Earn or Road River (I'm not sure); fragments very platy, smooth surfaces with sub-rounded edges; soft to clay altered; unwashed tray very, very weakly calcareous; appears to be uniformly siliceous; 40-50% chips have weak pervasive limonite, others weak to moderate fracture; possibly very weak laminations; trace very fine disseminated pyrite (¼ mm), P4, altered to mottled limonite blebs; no quartz stockwork.
6.1	10.3	SS	+Lm Dark grey to black, small, hard angular fragments of fine grained sandstone (to grainy to be argillite); no platy, surface bumpy with sharp jagged edges, hard!! to siliceous; non-calcareous; non-graphitic; soft orange patchy limonite on fracture surfaces, especially in pits between grains; very trace thin (mm-scale) quartz micro-veinlets; no visible sulphides; no S0 laminations.
10.3	16.1	SS	80:20 SLT TrP4 Dark grey to black, hard angular fragments of medium to coarse grained sandstone, coarser than SS above; bumpy surface with sharp jagged edges; fine, sub-rounded to rounded grains of pure quartz, argillite and siltstone; moderate equigranular; yellowy-orange soft patchy limonite on may surfaces, 14.0-16.0 m strong orange limonite fracture; weakly interbedded with thin units of fine, uniform, white to light grey (bleached) and dark grey black siltstone; can see good bedding laminations; soft, weakly clay altered; weak pervasive limonite of some SLT chips, weak to moderate limonite fracture another SLT chips; non-calcareous; trace very fine (< ¼ mm) pyrite, P4, altered to manganese oxide and limonite, as disseminated and conchoidal blebs as fracture coatings.
16.1	22.0	SLT	+Lm Al Dark grey to black, medium to coarse grained platy fragments of siltstone; occasional very weak bedding laminations, weakly clay altered, slightly softer than usual; many fracture surfaces have patchy, soft, yellow clay coating; a few pieces very weakly graphitic; some yellow clay coatings overprinted with orange limonite; occasional limonite fracture coating; non-calcareous; no quartz stockwork (20.0-22.0 m, very minor chips of quartz from larger vein); no sulphide.

22.0	27.5	SLT	+Lm TrP4 Dark grey to black, medium grained siltstone as above; platy fragments with sub-angular to sub-rounded edges; very weak bedding laminations; no argillic alteration and no yellow clay coatings as 10.1-22.0 m; moderate dark orange limonite fracture coatings; non-calcareous; very trace pyrite, as weak fracture coating and disseminated P4, altered to limonite; no quartz stockwork,
27.5	38.0	SLTG	C1 S1 Black, medium grained, weakly calcareous, fresh, siltstone; no limonite; weak graphitic luster (noticeable in unwashed tray, darker than surrounding siltstone); very weak thin S1 quartz veinlets/micro-veinlets, with very minor quartz chips from larger veins; 36-38 m, very poor recovery (¼ of tray) =>fault?, very trace disseminated yellow cubes of fresh pyrite (some striated) and as blebs in or along quartz units.
38.0	50.0	SLT	S1 Dark grey to black, medium to sometimes coarse grained, non-calcareous, non-graphitic siltstone; platy, angular to sub-rounded fragments; slightly harder than previous siltstones due to an increase in mm-scale milky quartz veinlets/micro-veinlets, tends to increase towards 50 m; 42.0-44.0 m and 46.0-50.0 m, very fine anhedral, slender crystals of clear quartz on some fracture, some radiating (*), other surfaces disseminated crystalline powdery quartz; no limonite; no sulphide.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2188

NORTHING : 20761.6 EASTING : 17617 ELEVATION : 835

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

ZONE : PACIFIC PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=> LAQM + SLT S1 TrP4
3.00	4.50	SLT	S1
4.50	6.10	SLT	TrP4
6.10	10.30	SS	+Lm
10.30	16.10	SS	80:20 SLT TrP4
16.10	22.00	SLT	+Lm
22.00	27.50	SLT	+Lm TrP4
27.50	38.00	SLTG	C1 S1
38.00	50.00	SLT	S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2188

NORTHING : 20761.6 EASTING : 17617 ELEVATION : 835

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.10	P4	C0	S1	WET
2.00	4.00	.09	P4	C0	S1	DRY
4.00	6.00	.17	P4	C0	S0	DRY
6.00	8.00	.08	-1	C0	S1	DRY
8.00	10.00	.07	-1	C0	S1	DRY
10.00	12.00	.03	-1	C0	S0	DRY
12.00	14.00	.02	P4	C0	S1	DRY
14.00	16.00	.05	P4	C0	S0	DRY
16.00	18.00	.02	-1	C0	S0	DRY
18.00	20.00	.04	-1	C0	S0	DRY
20.00	22.00	.01	-1	C0	S1	DRY
22.00	24.00	.02	P4	C0	S1	DRY
24.00	26.00	.01	P4	C0	S0	DRY
26.00	28.00	.02	P3	C0	S0	DRY
28.00	30.00	.02	P0	C1	S0	DRY
30.00	32.00	.22	-1	C1	S1	DRY
32.00	34.00	.02	P0	C1	S1	DRY
34.00	36.00	.02	-1	C1	S1	DRY
36.00	38.00	.01	-1	C1	S0	WET
38.00	50.00					
38.00	40.00	.02	-1	C0	S1	DRY
40.00	42.00	.01	-1	C0	S1	DRY
42.00	44.00	.02	-1	C0	S1	WET
44.00	46.00	.05	-1	C0	S1	WET
46.00	48.00	.02	-1	C0	S1	DRY
48.00	50.00	.03	-1	C0	S1	DRY

0.0	3.0	OB	=>LAQM +SLT S1 TrP4 Overburden, as determined by drill technicians; mixed lithologies consist of 1) pale orange, weak to moderately pervasive limonite altered quartz monzonite; luster ranges from dull slightly earthy to cloudy, opaque to translucent silicified appearance; texture mostly destroyed; trace white sericitized anhedral k-spar phenocrysts; very trace biotite pseudomorphs remnants coated with manganese oxide; no quartz eyes; soft orange patchy limonite (anhedral phenocrysts?); minor silicified flooding in only some ships; non-calcareous; trace very fine (¼ mm) disseminated blebs and cubes of pyrite, P4, altered to dark red limonite; 2) dark grey to black, medium to coarse grained siltstone (could be a fine sandstone? Mud?); some chips moderate limonite coated, others soft patchy limonite, non-calcareous, non-graphitic; a few chips appear medium to dark grey due to minor silicified flooding from S1quartz veinlets/micro-veinlets); no sulphide appears to be minor manganese oxide.
3.0	4.5	SLT	S1 Dark grey to black, medium to coarse grained siltstone; chance it could be a silty argillite, but appears to be too grainy; no weak bedding laminations; fragments small, hard and angular; no platy; patchy orange limonite on chips surfaces; non-calcareous, non-graphitic; weak S1 quartz veinlet/micro-veinlets, mm-scale no visible sulphides.
4.5	6.1	SLT	TrP4 Fine to medium grained, uniform, siltstone with a whitish tan to light grey bleached-looking outer coating (pervasive through many chips) but a few chips with a fine uniform dark grey core??; definitely a siltstone, Earn or Road River (I'm not sure); fragments very platy, smooth surfaces with sub-rounded edges; soft to clay altered; unwashed tray very, very weakly calcareous; appears to be uniformly siliceous; 40-50% chips have weak pervasive limonite, others weak to moderate fracture; possibly very weak laminations; trace very fine disseminated pyrite (¼ mm), P4, altered to mottled limonite blebs; no quartz stockwork.
6.1	10.3	SS	+Lm Dark grey to black, small, hard angular fragments of fine grained sandstone (to grainy to be argillite); no platy, surface bumpy with sharp jagged edges, hard!! to siliceous; non-calcareous; non-graphitic; soft orange patchy limonite on fracture surfaces, especially in pits between grains; very trace thin (mm-scale) quartz micro-veinlets; no visible sulphides; no S0 laminations.
10.3	16.1	SS	80:20 SLT TrP4 Dark grey to black, hard angular fragments of medium to coarse grained sandstone, coarser than SS above; bumpy surface with sharp jagged edges; fine, sub-rounded to rounded grains of pure quartz, argillite and siltstone; moderate equigranular; yellowy-orange soft patchy limonite on may surfaces, 14.0-16.0 m strong orange limonite fracture; weakly interbedded with thin units of fine, uniform, white to light grey (bleached) and dark grey black siltstone; can see good bedding laminations; soft, weakly clay altered; weak pervasive limonite of some SLT chips, weak to moderate limonite fracture another SLT chips; non-calcareous; trace very fine (< ¼ mm) pyrite, P4, altered to manganese oxide and limonite, as disseminated and conchoidal blebs as fracture coatings.
16.1	22.0	SLT	+Lm Al Dark grey to black, medium to coarse grained platy fragments of siltstone; occasional very weak bedding laminations, weakly clay altered, slightly softer than usual; many fracture surfaces have patchy, soft, yellow clay coating; a few pieces very weakly graphitic; some yellow clay coatings overprinted with orange limonite; occasional limonite fracture coating; non-calcareous; no quartz stockwork (20.0-22.0 m, very minor chips of quartz from larger vein); no sulphide.

22.0	27.5	SLT	+Lm TrP4 Dark grey to black, medium grained siltstone as above; platy fragments with sub-angular to sub-rounded edges; very weak bedding laminations; no argillic alteration and no yellow clay coatings as 10.1-22.0 m; moderate dark orange limonite fracture coatings; non-calcareous; very trace pyrite, as weak fracture coating and disseminated P4, altered to limonite; no quartz stockwork,
27.5	38.0	SLTG	C1 S1 Black, medium grained, weakly calcareous, fresh, siltstone; no limonite; weak graphitic luster (noticeable in unwashed tray, darker than surrounding siltstone); very weak thin S1 quartz veinlets/micro-veinlets, with very minor quartz chips from larger veins; 36-38 m, very poor recovery (¼ of tray) =>fault?, very trace disseminated yellow cubes of fresh pyrite (some striated) and as blebs in or along quartz units.
38.0	50.0	SLT	S1 Dark grey to black, medium to sometimes coarse grained, non-calcareous, non-graphitic siltstone; platy, angular to sub-rounded fragments; slightly harder than previous siltstones due to an increase in mm-scale milky quartz veinlets/micro-veinlets, tends to increase towards 50 m; 42.0-44.0 m and 46.0-50.0 m, very fine anhedral, slender crystals of clear quartz on some fracture, some radiating (*), other surfaces disseminated crystalline powdery quartz; no limonite; no sulphide.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2189

NORTHING : 20781.2 EASTING : 17636.7 ELEVATION : 835.1

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

ZONE : PACIFIC PURPOSE : EXPLORATION LOGGED_BY : C. Germain

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=>SLT S1 Sk TRP3
3.00	8.00	GW	S1 Sk TRP3
8.00	14.00	SLT	
14.00	22.00	SLT	TRP3
22.00	50.00	ARG	S1 Sk TRP1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2189

NORTHING : 20781.2 EASTING : 17636.7 ELEVATION : 835.1

MAXDEPTH : 50 AZIMUTH : 48 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.09	P3	C0	S1	DRY
2.00	4.00	.10	P3	C0	S1	DRY
4.00	6.00	.07	P3	C0	S0	DRY
6.00	8.00	.03	P3	C0	S1	DRY
8.00	10.00	.18	-1	C0	S0	DRY
10.00	12.00	.02	-1	C0	S0	DRY
12.00	14.00	.02	-1	C0	S0	DRY
14.00	16.00	.01	P4	C0	S0	DRY
16.00	18.00	.01	P4	C0	S0	DRY
18.00	20.00	.02	P4	C0	S0	DRY
20.00	22.00	.03	P2	C0	S0	DRY
22.00	50.00					
22.00	24.00	.01	P1	C0	S0	DRY
24.00	26.00	.02	P1	C0	S0	DRY
26.00	28.00	.02	P1	C0	S1	DRY
28.00	30.00	.02	P1	C0	S1	DRY
30.00	32.00	.01	P1	C0	S1	DRY
32.00	34.00	.01	P1	C0	S1	DRY
34.00	36.00	.03	P1	C0	S1	DRY
36.00	38.00	.03	P1	C0	S1	DRY
38.00	40.00	.04	P1	C0	S1	DRY
40.00	42.00	.02	P1	C0	S1	DRY
42.00	44.00	.02	P1	C0	S1	DRY
44.00	46.00	.02	P1	C0	S1	DRY
46.00	48.00	.02	P1	C0	S1	DRY
48.00	50.00	.03	P1	C0	S1	DRY

0.0	3.0	OB	
3.0	8.0	GW	S1 Sk TrP3 Light grey-beige greywacke; non-calcareous; S1 veinlets and stockwork; very weak pervasive/semi-spotty limonite alteration of the matrix; veinlets are limonite-altered; trace pyrite showing strong oxidation to iron oxide (P3).
8.0	14.0	SLT	Medium grey siltstone; non-calcareous; S0; weak to moderate limonitic alteration along fractures; no visible pyrite.
14.0	22.0	SLT	TrP3 Medium grey siltstone; non-calcareous; S0; weak limonitic alteration along fractures; trace pyrite showing complete oxidation (P4; voids) or moderate oxidation (P2) towards the last 3m of the interval. Has been averaged to 3 here (P3).
22.0	50.0	ARG	S1 Sk TrP1 Black argillite; non-calcareous; S1 stockwork and veinlets; no limonitic alteration; trace pyrite showing weak oxidation state to iron oxide (?); pyrite is slightly tarnished; the pyrite is contained in the veinlets and stockwork.

EOH

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2190

NORTHING : 19952.5 EASTING : 22458.8 ELEVATION : 839

MAXDEPTH : 132 AZIMUTH : 248 DIP : -55

ZONE : LG GAP PURPOSE : EXPLORATION LOGGED_BY : C. Germain

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>ARG S1 Sk TRP3
4.00	23.00	SST	95:5 SLT C1 1P2
23.00	43.00	ARG	TRP1
43.00	54.00	SST	TRP2
54.00	68.00	SST	C1 TRP1
68.00	83.50	SST	80:20 ARG+SLT 3P1
83.50	100.00	ARG	:SST
100.00	116.00	SSTS	:SST S1 Sk 1P1
116.00	121.00	SST	90:10 ARG 1P1
121.00	125.00	ARG	C1 S1 Sk 1P1
125.00	132.00	SST	TRP2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2190

NORTHING : 19952.5 EASTING : 22458.8 ELEVATION : 839

MAXDEPTH : 132 AZIMUTH : 248 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.01	-1	C0	S1	DRY
2.00	4.00	.01	P3	C0	S1	WET
4.00	6.00	.03	P4	C0	S0	WET
6.00	8.00	.01	P3	C0	S1	WET
8.00	10.00	.01	P2	C1	S1	WET
10.00	12.00	.01	P2	C1	S1	WET
12.00	14.00	.01	P2	C1	S0	WET
14.00	16.00	.01	P3	C1	S0	DRY
16.00	18.00	.01	P2	C1	S0	WET
18.00	20.00	.01	P2	C1	S0	WET
20.00	22.00	.02	P2	C1	S0	WET
22.00	24.00	.01	P2	C0	S0	WET
24.00	26.00	.02	P2	C0	S0	WET
26.00	28.00	.01	P1	C0	S0	WET
28.00	30.00	.01	P1	C0	S0	WET
30.00	32.00	.01	P1	C0	S0	WET
32.00	34.00	.01	P1	C0	S0	WET
34.00	36.00	.03	P1	C0	S0	WET
36.00	38.00	.04	P2	C0	S0	WET
38.00	40.00	.04	P1	C0	S0	WET
40.00	42.00	.06	P1	C0	S0	WET
42.00	44.00	.06	P2	C0	S0	WET
44.00	46.00	.07	P2	C0	S0	WET
46.00	48.00	.02	P2	C0	S0	WET
48.00	50.00	.03	P2	C0	S0	WET
50.00	52.00	.02	P1	C0	S0	WET
52.00	54.00	.01	P1	C0	S0	WET
54.00	56.00	.02	P1	C1	S0	WET
56.00	58.00	.02	P0	C1	S0	WET
58.00	60.00	.02	P0	C1	S0	WET
60.00	62.00	.03	P1	C1	S0	WET
62.00	64.00	.02	P1	C1	S0	WET
64.00	66.00	.03	P1	C1	S0	WET
66.00	68.00	.02	P2	C1	S0	WET
68.00	70.00	.02	P2	C0	S0	WET
70.00	72.00	.03	P1	C0	S0	WET
72.00	74.00	.02	P1	C0	S1	WET
74.00	76.00	.02	P1	C0	S0	WET
76.00	78.00	.02	P1	C0	S0	DRY
78.00	80.00	.03	P1	C0	S0	DRY
80.00	82.00	.02	P1	C0	S1	WET
82.00	84.00	.02	P1	C0	S1	WET
84.00	86.00	.02	P1	C0	S0	WET

86.00	88.00	.05	P1	C0	S1	WET
88.00	90.00	.04	P1	C0	S1	WET
90.00	92.00	.02	P1	C0	S1	WET
92.00	94.00	.04	P1	C0	S1	WET
94.00	96.00	.03	P1	C0	S0	WET
96.00	98.00	.04	P1	C0	S1	WET
98.00	100.00	.03	P1	C0	S1	WET
100.00	102.00	.05	P1	C0	S1	WET
102.00	104.00	.03	P1	C0	S1	WET
104.00	106.00	.03	P1	C0	S1	WET
106.00	108.00	.03	P1	C0	S1	WET
108.00	110.00	.05	P1	C0	S1	WET
110.00	112.00	.05	P1	C0	S1	WET
112.00	114.00	.04	P1	C0	S1	WET
114.00	116.00	.03	P1	C0	S1	WET
116.00	118.00	.05	P1	C0	S0	DRY
118.00	120.00	.05	P1	C0	S0	DRY
120.00	122.00	.04	P1	C0	S1	WET
122.00	124.00	.02	P1	C1	S1	WET
124.00	126.00	.03	P1	C1	S1	WET
126.00	128.00	.03	P1	C0	S0	WET
128.00	130.00	.02	P2	C0	S0	WET
130.00	132.00	.04	P2	C0	S0	WET

0.0	4.0	OB	ARG S1 Sk TrP3 Dark grey argillite; non-calcareous; S1 stockwork and veinlets non to very, very weak limonitic alteration along fractures; trace pyrite showing strong oxidation state to iron oxide (P3).
4.0	23.0	SST	95:5 SLT C1 1P2 Light grey siltstone; weakly calcareous; S0; non to weak limonitic alteration along fractures looks siliceous (SSTC look); 1% pyrite showing moderate oxidation to iron oxide (P2); sulfide stockwork and veinlets. Dark grey siltstone ; weakly calcareous; S0; non to very weak limonitic alteration; no visible pyrite.
23.0	43.0	ARG	TrP1 Black argillite; non-graphitic; non-calcareous; S0; trace of pyrite showing weak oxidation to iron oxide (P1); pyrite is only slightly tarnished.
43.0	54.0	SST	TrP2 Light grey siltstone; non-calcareous; S0; non to very weak limonitic alteration along fractures; trace of pyrite showing moderate oxidation to iron oxide (P2); stockwork of sulfides (?) black dark grey colored.
54.0	68.0	SST	C1 TrP1 Dark grey, wispy laminated siltstone; weakly calcareous; S0; weak limonitic alteration along fractures; trace pyrite showing weak oxidation to iron oxide (P1); pyrite is slightly tarnished; some 2m intervals have breccia-like chips in which angular fragments are in a sulphide (?) dark grey matrix (58-60; 62-64).
68.0	83.5	SST	70:20 ARG + SLT 3P1 Light grey siltstone; non-calcareous; S0; non to weak limonitic alteration along fractures; 3% pyrite showing weakly oxidized pyrite (P1); black argillite/siltstone.
83.5	100.0	ARG	:SST S1 Sk 7P1 Black argillite; non-calcareous; S1 stockwork and veinlets; non to very, very weak limonitic alteration along fractures; 7% pyrite showing weak oxidation to iron oxide (P1); pyrite is slightly tarnished. Light grey siltstone; non-calcareous; S0; non to extremely weak limonitic alteration along fractures; sulphide (?) (dark grey) stockwork with sulfides (P1-P0) with
100.0	116.0	SSTS	:SST S1 Sk 1P1 Dark grey siltstone; non-calcareous; S1 stockwork and veinlets; non to extremely weak limonitic alteration along fractures; 1% pyrite showing weak oxidation to iron oxide (P1); pyrite is slightly tarnished. Light grey siltstone; wispy laminations; siliceous (looks); non-calcareous; S0; no limonitic alteration; 1% pyrite with weak oxidation state (P1) where pyrite is slightly tarnished. In interval 112-114, breccia texture present and quartz veinlet cross cut this texture (the veinlet doesn't seem to carry pyrite, but the breccia does) (matrix).
116.0	121.0	SSTS	:SST S1 Sk 1P1 Light grey siltstone; wispy laminations; non-calcareous; S0; no limonitic alteration; 1% pyrite disseminated showing weak oxidation to iron oxide (P1); pyrite is slightly tarnished.
121.0	125.0	ARG	C1 S1 Sk 1P1 Black argillite; weakly calcareous; S1 stockwork and veinlets; no limonitic pyrite grains showing weak oxidation state to iron oxide (P1); pyrite is very slightly tarnished.
125.0	132.0	SST	TrP2 Light grey siltstone; wispy laminations; non-calcareous; S0; non to very weak limonitic alteration along fractures; trace pyrite showing weak to strong oxidation state (P1-P3) [P2 was put here to average the oxidation state].
EOH			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2191

NORTHING : 19337.8 EASTING : 23372.5 ELEVATION : 847.5

MAXDEPTH : 104 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	=>OBLAQM P4
2.00	6.00	LAQM	->OB* C3 2P4
6.00	16.50	LAQM	C3 S1 Sk 5P4
16.50	20.50	LAQM	C3 1P4
20.50	23.00	LAQM	C3 2P4
23.00	31.00	LAQM	C2 S2 Sk 10P4
31.00	35.00	LAQM	C2
35.00	44.00	LAQM	C3 S2 Sk P4
44.00	48.10	ARGG	
48.10	50.50	LAQM	C2 7P2 Ft*
50.50	57.00	AQM	90:10 LAQM C2 S1 10P0
57.00	60.00	LAQM	90:10 AQM C2 S2 Sk 5P2
60.00	66.50	AQM	85:15 LAQM C2 3P1
66.50	68.00	AQM	C2 7P1
68.00	70.20	AQM	C2 10P0
70.20	78.00	SLTG	C1
78.00	84.00	SLTG	Sk 5P0
84.00	96.00	SLTG	70:30 SSTS P0
96.00	104.00	SLTG	S1 1P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2191

NORTHING : 19337.8 EASTING : 23372.5 ELEVATION : 847.5

MAXDEPTH : 104 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.20	P4	C0	S1	DRY
2.00	4.00	.62	P4	C3	S1	DRY
4.00	6.00	.37	P4	C3	S1	DRY
6.00	8.00	.30	P3	C3	S1	DRY
8.00	10.00	.13	P4	C3	S1	DRY
10.00	12.00	.27	P4	C3	S2	DRY
12.00	14.00	.29	P4	C3	S2	DRY
14.00	16.00	.95	P4	C3	S1	DRY
16.00	18.00	.33	P4	C3	S1	DRY
18.00	20.00	.24	P4	C3	S0	DRY
20.00	22.00	.79	P4	C3	S1	DRY
22.00	24.00	.66	P4	C3	S1	DRY
24.00	26.00	3.30	P4	C2	S2	DRY
26.00	28.00	14.51	P4	C1	S3	DRY
28.00	30.00	9.19	P4	C1	S2	DRY
30.00	32.00	1.11	P4	C2	S0	DRY
32.00	34.00	.32	P4	C2	S0	DRY
34.00	36.00	1.93	P4	C1	S1	DRY
36.00	38.00	.20	P4	C2	S2	DRY
38.00	40.00	.73	P4	C3	S2	DRY
40.00	42.00	1.33	P4	C3	S2	DRY
42.00	44.00	1.78	P0	C2	S2	DRY
44.00	46.00	.14	P0	C1	S2	DRY
46.00	48.00	.35	P0	C0	S1	DRY
48.00	50.00	.18	P2	C2	S1	DRY
50.00	52.00	.04	P0	C2	S1	DRY
52.00	54.00	.03	P0	C3	S0	DRY
54.00	56.00	.03	P0	C2	S1	DRY
56.00	58.00	.17	P1	C2	S2	DRY
58.00	60.00	.24	P2	C2	S2	DRY
60.00	62.00	.02	P1	C1	S2	DRY
62.00	64.00	.80	P1	C2	S1	DRY
64.00	66.00	.14	P1	C2	S1	DRY
66.00	68.00	.09	-1	C2	-1	DRY
68.00	70.00	.20	P1	C2	S0	DRY
70.00	72.00	.23	P0	C2	S1	DRY
72.00	74.00	.04	P0	C1	S0	DRY
74.00	76.00	.04	-1	C2	S1	DRY
76.00	78.00	.03	-1	C1	S1	DRY
78.00	80.00	.03	P0	C1	S1	DRY
80.00	82.00	.03	P0	C0	S1	DRY
82.00	84.00	.09	P0	C0	S1	DRY
84.00	86.00	.04	P0	C1	S1	DRY

86.00	88.00	.04	P0	C1	S1	DRY
88.00	90.00	.10	P0	C1	S1	DRY
90.00	92.00	.05	P0	C1	S1	DRY
92.00	94.00	.03	P0	C2	S1	DRY
94.00	96.00	.03	P0	C2	S1	DRY
96.00	104.00					
96.00	98.00	.05	P0	C0	S1	DRY
98.00	100.00	.05	P0	C0	S1	DRY
100.00	102.00	.06	P0	C0	S1	DRY
102.00	104.00	.02	P0	C0	S1	DRY

0.0	2.0	OB	=>LAQM P4 Displaced surface material – logged as overburden; but is pad fill; unwashed chips are large (>1 cm) with soil covered surfaces; no organics; definitely not good bedrock in situ. Dominantly (>95%) limonitic altered quartz monzonite with minor shale, argillite and unoxidized intrusive. LAQM: Dark orange-brown with 5-10% chips a darker pink-red; all staining is very strong, even and pervasive; original textures and luster very well preserved; obviously phyric minerals are absent; biotite completely altered to sericitic/limonitic masses and rare good, silvery pseudomorphs – very commonly coated with dark brown to black manganese oxide; all chip surfaces are strongly sericitized – like 'siltskins' not calcareous; matrix is slightly siliceous but not silicified; very rare sub-mm clear quartz veinlets; all visible pyrite (up to 5% on some chips and concentrated along fractures on others) has altered to dark purple-red sub-cubic pseudomorphs < ¼ mm that are occasionally coated with manganese oxide. SH: Light grey shale; soft; bleached-looking; good bedding laminations; strongly sericitized; some clayey, limonitic surfaces. AQM: White to off-white intrusive fragments lack pervasive limonitic staining; textures are very well preserved; biotite as shimmery, creamy, sericitic pseudomorphs; trace sub-mm boxworks (non-limonitic) and very rare dark orange limonite flecks < 1/10 mm after disseminated pyrite. Transitional into:
2.0	6.0	LAQM	->OB* C3 2P4 Dark orange to red-orange limonitic altered quartz monzonite, much as 0.0-2.0m; abundance of larger, soil-coated fragments in a finer crushed rock matrix suggest that the rock is loose, waxed bedrock in situ – I don't think its fill, overburden or colluvium. Slightly mottled where pervasive limonitic staining, although usually strong, is less well developed; abundance of manganese oxide (10-15% locally) creates black speckling throughout. Original textures discernible but blurred; white, waxy, moderately clay-altered k-spar phenocrystals < 3mm are occasionally viewed in situ; luster varies from waxy, to pearly to sub-vitreous; biotite altered to unrecognizable orange, sericitic masses and to better preserved silvery pseudomorphs – almost always at least partially coated with manganese oxide. Very strongly calcareous – instantaneous, rolling reaction to HCl comes from powder on chip surfaces and is much stronger in unwashed tray; no calcite veinlets; rare cloudy quartz veinlets < ½ mm – associated with some flooding of adjacent groundmass locally; very strong to locally intense sericitization – all chip surfaces have felted to sucrosic coating; < 15% black manganese oxide as irregular splotches, flowery specks and occasional continuous coatings on former biotite, some pyrite lining some fractures; manganese oxide also as dendritic tracings on some larger k-spar phenocrystals; all alterations seem to intensify to lower contact; incompetent where intensely sericitized. >2% (average) sub-cubic, disseminated pyrite < ¼ mm throughout – some chips with >5%, but most commonly concentrated on fracture surfaces; all sulfide have altered completely to dark orange to red limonite and are frequently coated with manganese oxide; note: overall sulfide content is possibly under estimated.
6.0	16.5	LAQM	C3 S1 Sk 5P4 Rich dark orange to red-orange limonitic altered quartz monzonite; very strong, even, pervasive limonitic staining; original textures are discernible and k-spar phenocryst phyric texture is crudely preserved throughout; k-spar phenocrystals are variably clay altered – usually waxy, lightly orange-stained and easy to

scratch; no quartz eyes; biotite has altered to sericitic, limonitic shreds and good pseudomorphs – often partially coated with manganese oxide.

Very strongly to intensely sericitized – felted to opaque, sucrosic, recrystallized texture; sericitization seems to intensify toward 'lower contact'; sericite development blurs original textures; ubiquitous but non-abundant (<5%) clear, cloudy and occasionally orange-stained quartz veinlets; localized pervasive silicification throughout – combine with sericite to create good phyllic alteration.

10.0-14.0m: Stronger silicification; >5% silicified fragments (smoky to dark, clear quartz) <3mm that may contain ultra, ultra-fine disseminated sulfide – stibnite?

Very strongly calcareous – unwashed sample provides instantaneous, rolling reaction to HCl; washed sample reacts very strongly; no visible calcite veinlets.

3-5% disseminated pyrite (sulfide content increases to 'lower contact') as subhedral dark red to red-black limonite pseudomorphs ¼ mm to < 1/10 mm; crystal shape is often well preserved and pitted surfaces are recognized; slightly less than complete oxidation at 6.0-8.0m; former sulfide are occasional coated with black manganese oxide; manganese oxide – coated sulfide often form higher concentrations on micro-fracture surfaces ->20% rarely; minor stibnite (< 2%) as mm veinlet within silicified groundmass right near 'lower contact'.

'Contact' assigned based on textural change.

16.5 20.5 LAQM C3 1P4

Dark orange-brown monzonite; very fine-grained feldspar-rich, equigranular matrix has opaque, homogeneous appearance with strong, even, pervasive limonitic staining – strongly sericitized; variably sericitized and/or clay-altered k-spar phenocrysts < 3mm (cloudy to creamy, waxy) lack orange staining and stand out in strong contrast to rest of matrix; all biotite has altered to sericite – crystal form is almost never recognizable; all surfaces coated with wispy orange-stained sericite; rare manganese oxide.

Strongly calcareous; no visible calcite veinlets; not silicified.

4% pyrite as subtle dark red-brown sub-cubic limonite pseudomorphs < 1/6 mm.

Uniform, boring-looking rock.

20.5 23.0 LAQM C3 2P4

Dark orange-brown monzonite; very strong, even, pervasive limonitic staining; original textures are vaguely preserved – waxy, partially clay-altered crystals < 3 mm are common; no quartz eyes; all biotite completely sericitized and stained – crystal shape is very, very rarely recognizable- very, very partially coated with black manganese oxide; very strong, calcareous; feldspar-rich matrix is very strongly sericitized – all surfaces coated with dusty coated and rock commonly has micro-granular, recrystallized appearance.

< 5% chips with hematitic staining and minor silicification; otherwise unsilicified.

Difficult to establish former sulfide – some chips show < 2% cubic limonitic and/or manganese oxide coated shapes < ¼ mm; concentration seem higher on fractures.

Transitional into:

23.0 31.0 LAQM C2 S2 Sk 10P4

Quartz monzonite; mottled colouration – cream, brown, orange and red due to variations in alteration intensify; dominantly hematitic staining; staining, where not bleached, is always very strong; preservation of original textures is quite variable, depending on degree of local alterations – usually discernible; k-spar phenocryst are occasionally observed; biotite altered beyond recognition; variably calcareous – depends on local silicification.

Strongest alterations are sericitization and silicification (phyllic); strong to intense sericitization throughout – coats all surfaces and is frequently intensely

pervasive; clear quartz tends to pervade the groundmass and is associated with deep red hematitic staining and very strong sericitization; higher concentrations of manganese oxide are also locally associated with strong silicification; discrete quartz veinlets are present but not hugely abundant (silicified rock looks gorgeous!).

Quantity of sulfide is very difficult to determine due to intense alteration of groundmass; likely contains >10% sulfide – most completely oxidized, but some ultra-fine (<< ¼ mm) fresh pyrite (and/or stibnite) is likely to be contained within some quartz; 10% pyrite is arbitrarily assigned based on quantities of sulfide observed in some fragments and the overall intensity of limonitic staining.

(Delicious-looking interval!)

26.0-28.0m: < 20% rock is leached of colour; strongly clay and sericite altered; possible fault/shear?

Transitional contact.

31.0	35.0	LAQM	C2 Sericitic monzonite as 20.5-23.0m; very strong, even pervasive limonitic staining; very strongly sericitized, blurred textures; moderately calcareous; minor oxidized disseminated pyrite; homogeneous, micro-sucrosic texture; minor spotty manganese oxide, very, very rare localized silicification; some white, waxy feldspar- phenocrysts < 3mm as contrast.
35.0	44.0	LAQM	C3 S2 Sk P4 Dark orange to rich red-orange monzonite; all pervasive limonitic staining is strong; all original textures are recognizable, but are distinctly blurred due to strong to locally intense alterations. Intense sericitization as dominate alteration; wisps on chip surfaces and micro-sucrosic granular textures; some chips with intense pervasive sericitization and argillic alteration are deep, soil, (Jack-o-lantern orange) opaque orange; 10-20% manganese oxide on most fractures and surfaces – significantly more abundant than that seen elsewhere ; black speckling is abundant and obvious – especially where other alterations are strongest. Moderate to strong pervasive silicification is strongly associated with red-orange staining; strongest sericitization and manganese oxide. Quantity of (former) sulfide can't be accurately determined, but some chips show up to 10% very subtle, dark red rounded flecks of limonite, rarely coated with manganese oxide, that reflect former sulfide. (Looks interesting). 38.0-40.0m: possible shear? Much stronger pervasive clay and sericite alteration; very abundant manganese oxide. Vitreous luster improves with depth; probable stibnite veinlets right at lower contact. Quantity of manganese oxide decreases significantly below 41.0m.
44.0	48.1	ARGG	Black silty argillite; excellent oily luster; hard fragments with sharp edges; siliceous; intensely silicified at upper contact, but quartz flooding and veining decreases sharply from 46.0m; 44.0-46.0m: >10% yellow pyrite as clumps, horizons and disseminated; < 20% pyritic Steel Formation Siltstone; interfingered relationship with limonitic monzonite (above), very siliceous; numerous limonitic patches and some fractures. From 46.0: uniform appearance.
48.1	50.5	LAQM	C2 7P2 Ft* Medium yellow-orange monzonite; limonitic staining is even and pervasive but appears bleached, due to strong pervasive argillic and sericitic alteration; stronger staining on some fractures; all original textures are preserved but are muted by alterations; biotite altered beyond recognition; unit has opaque

			Weakly to moderately calcareous, as above; no calcite veinlets; very rare sub-mm clear quartz veinlets; no quartz flooding; weak sericitization throughout; rare green roscolite after feldspar. >10% fine (< ¼ mm) disseminated pyrite – fresh and yellow to silvery, slightly tarnished; anhedral to euhedral; occasional chips completely saturated with sulfide; some ultra-fine clusters appear to replace former biotite. Stronger sericitization near sharp lower contact.
70.2	78.0	SLTG	C1 Black graphitic siltstone to silty argillite; hard, angular fragments in which ultra-fine grains are evident (argillite is typically finer-grained to aphanitic); platy to angular fragments; original bedding laminations are often evident – cleavage equals bedding; excellent graphitic luster; weakly calcareous matrix – better reaction from unwashed sample; weak sub-mm quartz veining throughout – veinlets may contain some dolomite.
78.00	84.0	SLTG	Sk 5P0 Strongly graphitic siltstone, as 70.2-78.0m; excellent graphitic sheen and graphite crystals are viewed on most surfaces; slightly increased sub-mm milky quartz stockwork; not calcareous; > 5% yellow pyrite occurs as massive sub-cm chips that represent cm-scale horizons of diagenetic pyrite; rare, fine disseminations < ¼ mm. Overall graphite content decreased to end of interval.
84.0	96.0	SLTG	70:30 SSTS P0 Interbedded black graphitic siltstone (to argillite) with grey, siliceous Steel Formation Siltstone. SLTG: Typically silty, but finer grained and more argillitic locally; hard, angular fragments with sharp edges; excellent graphitic luster locally; weak to locally stronger clear and milky sub-mm quartz veining; some micro breccia; minor but ubiquitous fine, fresh yellow pyrite. SSTS: Dove grey; hard, siliceous; typical appearance; moderately to weakly calcareous – much better reaction to HCl when powdered, fine wispy lamination; ubiquitous fresh pyrite as ultra-fine (< 1/10 mm) disseminations and stratabound wisps and lenses; commonly occurs as breccia clasts < ½ cm within graphitic siltstone; > 50% pyrite in matrix locally. Transitional contacts.
96.0	104.0	SLTG	S1 1P0 Siliceous, graphitic siltstone to silty argillite; hard, angular fragments; much as 70.2-78.0m; no calcareous; ubiquitous sub-cm milky quartz stockwork; sub-cm chips of massive, yellow diagenetic pyrite, excellent graphitic luster. < 5% light grey, very siliceous, pyritic Steel Formation Siltstone.
E.O.H			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2192

NORTHING : 19317.8 EASTING : 23369.7 ELEVATION : 847.9

MAXDEPTH : 86 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	7.80	SLTG	
7.80	11.90	LAQM	
11.90	12.10	ARGG	S2 Sk
12.10	16.00	LAQM	2P4
16.00	20.00	LAQM	C3 S1 TRP4
20.00	22.50	LAQM	C1 S4 Sk P4 Sb
22.50	27.00	LAQM	C3 2P4
27.00	29.50	LAQM	C1 1P4
29.50	42.00	LAQM	C3 S2 5P4
42.00	42.80	AQM	C3 2P2
42.80	44.20	ARGG	S2 Sk
44.20	45.60	SST	50:50 LSST +Lm S1 Sk 4P4
45.60	50.50	ARGG	C1
50.50	52.00	LAQM	C3 8P4
52.00	57.70	LAQM	C3 1P4
57.70	58.10	AQM	+Lm C1 5P1
58.10	66.00	LAQM	C2 S3 Sk 1P4
66.00	70.00	LAQM	C2
70.00	82.00	ARGG	C2 Ck S1 Sk
82.00	86.00	SSTS	70:30 ARGG C1 5P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2192

NORTHING : 19317.8 EASTING : 23369.7 ELEVATION : 847.9

MAXDEPTH : 86 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.32	-1	C0	S0	DRY
2.00	4.00	.42	-1	C0	S0	DRY
4.00	6.00	.58	-1	C0	S1	DRY
6.00	8.00	.33	P4	C0	S1	DRY
8.00	10.00	.19	P4	C0	S1	DRY
10.00	12.00	.08	P4	C0	S1	DRY
12.00	14.00	.26	P4	C0	S0	DRY
14.00	16.00	.15	P4	C0	S0	DRY
16.00	18.00	.07	P4	C3	S1	DRY
18.00	20.00	.08	P4	C3	S2	DRY
20.00	22.00	5.42	P4	C1	S4	DRY
22.00	24.00	1.81	P4	C3	S1	DRY
24.00	26.00	.44	P4	C3	S1	DRY
26.00	28.00	.13	P4	C3	S0	DRY
28.00	30.00	.10	P4	C1	S0	DRY
30.00	32.00	.19	P4	C3	S1	DRY
32.00	34.00	.48	P4	C3	S1	DRY
34.00	36.00	1.86	P4	C3	S2	DRY
36.00	38.00	3.60	P4	C3	S3	DRY
38.00	40.00	.32	P4	C3	S1	DRY
40.00	42.00	1.14	P4	C3	S3	DRY
42.00	44.00	.18	P2	C2	S2	DRY
44.00	46.00	.04	P4	C1	S2	DRY
46.00	48.00	.02	P4	C0	S1	DRY
48.00	50.00	.03	P4	C1	S1	DRY
50.00	52.00	.05	P4	C3	S1	DRY
52.00	54.00	.05	P4	C3	S1	DRY
54.00	56.00	.01	P4	C3	S0	DRY
56.00	58.00	.01	P4	C3	S0	DRY
58.00	60.00	.02	P4	C3	S2	DRY
60.00	62.00	.13	P4	C3	S3	DRY
62.00	64.00	.05	P4	C2	S2	DRY
64.00	66.00	.15	P4	C2	S3	DRY
66.00	68.00	.01	P4	C2	S0	DRY
68.00	70.00	.26	P2	C2	S0	DRY
70.00	72.00	.26	-1	C1	S0	DRY
72.00	74.00	.02	-1	C2	S1	DRY
74.00	76.00	.02	-1	C2	S1	DRY
76.00	78.00	.03	-1	C2	S1	DRY
78.00	80.00	.01	-1	C2	S1	DRY
80.00	82.00	.02	P0	C1	S1	DRY
82.00	86.00					
82.00	84.00	.01	P0	C1	S1	DRY

84.00	86.00	.03	P0	C1	S1	DRY

0.0	7.8	SLTS	Dark grey and black siltstone; moderately graphitic – graphite crystals are not often observed and interval only shows good oily luster below 4.0 m; siliceous; hard, angular chips broken mostly along bedding planes; fine (sub-mm) bedding laminations are strongly evident; minor shale component; minor greenish sericite development on several fractures; a few limonitic fractures, especially above 4.0m; a rare sub-mm, milky quartz veinlets; not calcareous; no visible sulfide. Note: Drill technicians log indicates this to be overburden, but neither washed or unwashed sample shows any traits characteristic of overburden. 2.0-4.0 m: <1% bleached monzonite chips.
7.8	12.0	LAQM	Quartz monzonite; dominantly cream-coloured to pales and orange with <25%with intense pervasive limonitic staining; 'unstained' chips are bleached – looking and possibly contained orange – colourations that has subsequently been leached; strongest limonitic staining is related to micro-fractures. Original textures are strongly evident, but alterations have emphasized the grain boundaries; numerous k-spar phenocrystals 1-3 mm have altered to soft, white clay and/or sericite; pearly luster is retained but argillic and sericitic alteration are very strong locally – where strongest, unit has developed an incompetent-looking, micro-sucrosic recrystallized appearance; biotite has altered to subtle champagne – coloured to orange sericite – good pseudomorphs are often seen; no quartz eyes. Not calcareous; no flooding of groundmass; ubiquitous but non-abundant, sub-mm, clear quartz veinlets. Trace dark orange rounded limonite flecks < ¼ mm and rare boxworks represent possible, former, disseminated pyrite, it is possible that the evidence representing more abundant sulfide has been altered and washed away.
11.9	12.1	ARGG	S2 Sk Silicified and stockworked graphitic argillite.
12.1	16.0	LAQM	2P4 Rich, dark but bright, orange monzonite with very strong, even, pervasive limonitic staining; original textures are discernible but are blurred by very strong sericitization of feldspar-rich matrix to create opaque, felted to micro-granular recrystallized unit; abundant spotty manganese oxide (> 10% throughout – decreasing from top of interval) completely coats some surfaces and fractures and coats former biotite and pyrite – gives unit a darker, dirty-looking appearance, biotite, always sericitized, is variably orange-stained and the quality of crystals ranges from good to very poor, weakly feldspar phyric; no quartz eyes. Not calcareous; no quartz veining. <2 % pyrite as disseminated cubes < ¼ mm that have altered to dark red and orange, rounded limonitic flecks that are often difficult to differentiate from stained groundmass; minor pyrite as bronzy, pitted crystals that haven't completely altered to limonitic (P2-P3) – rare crystals < 1mm; some former sulfide are coated with black manganese oxide.
16.0	20.0	LAQM	C3 S1 TrP4 Manganese; dark orange and reddish orange; very strong pervasive limonitic staining; colour is very different than in 12.1-16.0 m; original textures are discernible but are less well preserved to end of interval; strong pearly to sub-vitreous luster, sub-translucent; very strong to locally intense sericitization; possible weak quartz flooding – phyllic alteration? biotite altered to sericite and limonitic and is often partially coated with spotty manganese oxide; phyric minerals are not preserved; no quartz eyes.

Very strongly calcareous matrix – instantaneous, rolling reaction to HCl from unwashed sample; intense sericitization – granular micro-texture; increasingly silicified, but no discrete quartz veinlets.

Trace dark red limonite flecks < ¼ mm after former disseminated pyrite; some chips contain < 5% sulfide; pyrite content may be under-represented do to strong alterations.

Starting to look good.

20.0 22.5 LAQM C1 S4 Sk P4 Sb

Rich, dark red to red-orange monzonite; intense pervasive hematitic staining of intensely pervasively silicified feldspar-rich matrix; original textures blurred but discernible very strong to locally intense sericitization; good vitreous luster, micro-sucrosic texture; yellowish grey to pale orange, angular, quartz veinlet fragments < 3mm may contain ultra fine disseminated sulfide within matrix; abundant manganese oxide, especially as complete coatings on microfractures; all biotite has altered beyond recognition; very weakly calcareous matrix in non-silicified chips.

Quantity of (former) sulfides is very different to estimate due to the intense alterations; very rare chips show dark red, sub-cubic, disseminated limonite flecks < ¼ mm after pyrite, that are difficult to differentiate from groundmass; based on intensity of staining, I'd guess that the rock once (still does ?) contained >10% pyrite; cloudy quartz veinlet fragments likely contain ultra fine stibnite.

Very yummy.

22.5 27.0 LAQM C3 2P4

Dark orange and orange-brown monzonite; very strong, even limonitic staining, weak feldspar-phyric texture – crystals are creamy, waxy and moderately clay altered; very strong sericitization of fine-grained feldspar-rich matrix – grainy, recrystallized appearance through which original textures are discernible, but blurred; former biotite altered to ragged limonite-stained, sericite shreds that are frequently partially coated with dark brown and black manganese oxide. Strongly calcareous; minor secondary quartz – 10-20% manganese oxide – ubiquitous throughout – coats fractures, former biotite and pyrite and forms fine dendritic tracings on feldspar-crystals; abundance of manganese oxide causes chips to have a dirty-looking appearance.

Trace to 3% (2% average) pyrite < ¼ altered to limonite and often coated with manganese oxide; higher sulfide concentration along fractures – usually manganese oxide-coated.

(Looks like it should carry some grade).

27.0 29.5 LAQM C1 1P4

Bleached-looking, medium yellowish orange monzonite; numerous waxy, unstained, moderately clay altered k-spar phenocrystals < 3mm in situ; all biotite altered beyond recognition; original textures are well preserved but intense sericitization and lesser argillic alteration has created micro-granular, softer, incompetent-looking, bleached rock; weakly calcareous locally; no secondary quartz; minor manganese oxide on fractures; < 1% pyrite (best concentrations on fracture surfaces) altered to orange limonite and/or coated with flowery specks of manganese oxide.

Shear or fault?

29.5 42.0 LAQM C3 S2 5P4

Dark orange to reddish orange monzonite, much as described from 16.0m; overall sub-vitreous luster, but all surfaces coated with abundant orange-stained sericite; unit has a micro-sucrosic, recrystallized-looking texture; all biotite altered to orange sericite pseudomorphs and shreds that remain on surfaces; overall dirty and speckled appearance is due to abundance of manganese oxide (10-20% locally) that coats and replaces nearly everything; phyric textures weakly preserved – altered feldspar crystals lack staining and are patterned with

			fine, dendritic manganese oxide tracings; patchy argillic alteration creates opaque, soft, waxy looking chips; intense sericitization persists with end of interval. Moderate to increasingly strong pervasive silicification to end of interval, discrete quartz veinlets are rare – quartz floods groundmass 36.0-38.0m; < 40% chips are intensely silicified, strongly sericitic, textureless and are very strongly hematitic-stained; possibly contain abundant ultra-fine sulfide in matrix, but none are identifiable. Yummers! Fault here? < 5% pyrite < ¼ altered to limonite and/or coated with manganese oxide; highest sulfide content on fractures; altered sulfide (limonite) are often difficult to identify within intensely altered matrix. 38.0-40.0m: Blah-looking; no silicification, rare sulfide. 40.0-42.0m: Very strongly silicified, as 36.0-38.0m; yummers even more!
42.0	42.8	AQM	C3 2P2 White to grey monzonite; surface speckled with orange-stained sericitic biotite pseudomorphs, all textures are well preserved; < 2% partially oxidized pyrite and usually as clusters that appear to replace former biotite; slightly more strongly oxidized disseminations. < ½ mm calcareous non-silicified, sharp lower contact.
42.8	44.2	ARGG	S2 Sk Black argillite; very strongly graphitic excellent oily luster and graphite crystals are easily identified; ranges from aphanitic to slightly silty; silicified fragments are hard and break into angular fragments with sharp edges; rare chert-like fragments break with conchoidal fracture. Non-calcareous; moderate to strong multi-phase mm-scale quartz stockwork – as sharp edged clear to milky veinlets, as hairline lenses and wisps and as pervasive swirls and blobs; some creamy veinlets may contain dolomite. Minor greenish sericitization on rare fractures; rare limonitic, crystalline quartz and very rare dark red-orange sub-cubic limonite flecks < ½ mm; very rare sulfide.
44.2	45.6	SST	50:50 LSST +Lm C2 S1 Sk 4P4 Steel Formation Siltstone; medium grey; < 50% fragments with pervasive orange staining; most fractures with orange to red-orange limonitic coating; ranges from soft and bleached-looking to very siliceous and chert-like; moderately calcareous matrix; no obvious calcareous veinlets; good platy fragments; bedding laminations are strongly evident; yellowish/greenish sericitic development on several planes – especially evident in siliceous chips; moderate cloudy to milky quartz stockwork – veinlets (often orange-stained) – fragments < ½ cm. < 4% ultra-fine (<< ¼ mm) disseminated pyrite altered to dark orange (often subtle) limonite specks; sulfide tend to form higher concentrations along some fractures – often coated with black manganese oxide.
45.6	50.5	ARGG	C1 Black silty argillite; very strongly graphitic – excellent greasy luster and graphite crystals are evident on all surfaces; water mixed with rock creates oil slick, weakly calcareous; rare sub-mm milky quartz veinlets, rare limonitic fractures that are associated with completely oxidized sulfide; minor sericitic fractures/planes locally increased limonitic fractures toward lower contact.
50.5	52.0	LAQM	C3 8P4 Dark orange-brown to slightly reddish-orange monzonite; intensely sericitized and argillically altered, pervasive limonitic staining is very strong and even, fine-grained feldspar-rich matrix shows intense sericitization – sugary, incompetent – looking, opaque, soft and bleached due to intense localized argillic alteration – easily crushed with tweezers, original textures are discernible but blurred, no phyric minerals remain; all biotite altered beyond recognition, very homogeneous (and boring) appearance; rare clear eyes < 3mm.

Strongly calcareous matrix – reaction to HCl is very positive but is not the same as that observed higher in the hole; no calcite veinlets; no quartz veining or flooding; spotty manganese oxide (< 1% throughout) coats some former sulfide.

>8% disseminated pyrite ¼ mm to < 1/10 mm as dark red and black subhedral to anhedral limonite pseudomorphs that stand out in strong contrast to groundmass; occasional pyrite crystals are not completely oxidized (P3) – crystal form is usually well preserved.

52.0 57.7 LAQM C3 1P4

Dark (but dull) orange-brown monzonite; homogeneous, boring appearance – very much as 50.5-52.0m; strong sericitization but no argillic alteration; fragments are harder and more competent; pearly to slightly waxy luster, no (preserved) phyric k-spar phenocryts, very rare clear quartz eyes < 3mm biotite as sericitic/limonitic shreds that are occasionally identifiable by good pseudomorphs, minor manganese oxide on rare fractures; moderately to strongly calcareous – best reaction from unwashed sample; no quartz stockwork or flooding.

< 1% dark red to black (when manganese oxide – coated) sub-cubic limonite flecks < ¼ mm after ?? sulfide concentrations are often higher on fractures.

Sulfidic but not too interesting-looking.

57.7 58.1 AQM

Dark orange limonitic altered quartz monzonite as 52.0-57.7m; very strong even pervasive limonitic staining; homogenous – looking, very strongly sericitized. fine-grained, feldspar-rich matrix – original textures easily discerned; weakly feldspar phyric – crystals are moderately clay altered, several clear quartz eyes; biotite as orange-stained sericite pseudomorphs and barely recognizable shreds; pearly luster, but micro-sucrosic to felted appearance due to intensity of sericitization; minor localized argillic alteration.

Weakly to moderately calcareous matrix – reaction to HCl is much stronger from unwashed powder; strongly silicified with < 20% secondary quartz as cloudy, smoky, slightly limonite-stained locally, quartz veinlet fragments < ½ cm as well as weak quartz flooding of groundmass; rare, trace fine (< 1/5 mm) oxidized pyrite within some veinlets; possible ultra-fine stibnite; minor quartz-healed micro-brecciation.

Trace to 5% (locally) pyrite as fine (< ¼ mm) cubic to rounded disseminations that have altered to dark purple-red limonite, higher sulfide concentrations occur on fractures and are usually coated with manganese oxide; 1% sulfide, as average.

60.0-62.0m: Very strong silicification; < 25% secondary quartz as angular veinlet fragments.

64.0-66.0m: Very strong pervasive hematitic and limonitic staining; intense sericitization and silicification; warm, pearly to sub-vitreous luster; < 15% lack staining except as mm-scale envelopes on fractures; < 5% disseminated pyrite – as silvery, ultra-fine disseminations and as replacement of biotite in unstained fragments; as subhedral dark red flecks < 1/5 mm and rarer boxworked crystals < ½ mm in stained fragments; intensely silicified with slightly less strong stockwork; looks super and yummy, but only 0.15 gpt.

Could be fault?

66.0 70.0 LAQM C2

Dark orange-brown, homogeneous-looking monzonite, as 52.0-57.7m; strong sericitization, moderately calcareous, rare clay altered k-spar phenocrysts < 2mm; no quartz eyes; no quartz stockwork or flooding; trace disseminated, oxidized pyrite – manganese oxide – coated concentrations (< 10% surface area) on fractures.

68.0-70.0m: < 2% unstained fractures; on chip (6mm) is saturated with (<50%) weakly oxidized (P2) pyrite and pyrite clusters – crystals surfaces are corroded but form is reasonably well preserved.

70.0	82.0	ARGG	C2 Ck S1 Sk Black argillite; weakly carbonaceous near upper contact but strongly graphitic (with excellent oily luster and graphite crystals) by 74.0m; occasional limonitic fractures to 74.0m; weakly to moderately calcareous matrix; weak to locally moderate quartz-carbonaceous (dolomite?) veining – mm-scale; quartz is clear to milky; carbonate is opaque and creamy (when dolomite) and white (when calcite – not associated with quartz) rare pyrite. Transitional into:
82.0	86.0	SSTS	70:30 ARGG C1 5P0 Interbedded Steel Formation Siltstone and graphitic argillite – marks contact between Road River and Earn Group sediments; Siltstone becomes increasingly dominant toward lower contact. SST: Even dove grey; strongly siliceous; hard angular fragments; 1-20% ultra-fine (< 1/10 mm) fresh disseminated pyrite – some chips are completely saturated. ARGG: As 70.0-82.0m; trace fresh disseminated pyrite; strong clear quartz stockwork near 'upper contact'; sediment types are interwoven on mm-scale with micro-fingers of each type 'intruding' into the other; Siltstone has numerous black stringers (sub-mm) and veinlets. Neato-looking rocks.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2193

NORTHING : 19311.1 EASTING : 23346.1 ELEVATION : 847.2

MAXDEPTH : 130 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	=>LAQM C3 3P4
2.00	4.00	NS	=>OB
4.00	8.00	OB	=>SH +Lm
8.00	13.00	SH	80:20 SLT +Lm
13.00	18.30	SLT	85:15 SH
18.30	26.00	LAQM	S1 TRP4
26.00	29.10	ARGG	+Lm S1 Sk
29.10	31.80	LAQM	C3 1P4
31.80	32.10	ARGG	S1 Sk
32.10	37.00	LAQM	C3 2P3 Qe
37.00	39.00	LAQM	C3 4P4
39.00	44.00	LAQM	C1 3P4
44.00	45.00	QM	C3
45.00	48.10	LQM	C1
48.10	49.00	QM	C3
49.00	49.70	LQM	C3
49.70	52.30	QM	C3
52.30	57.80	LQM	->LAQM C3
57.80	64.00	QM	85:15 LAQM C3
64.00	70.00	QM	C3
70.00	72.00	LQM	85:15 QM C1
72.00	81.80	LAQM	C2
81.80	83.80	AQM	70:30 LAQM C2 S2 Sk 6P0
83.80	84.30	ARGG	Sk 5P0
84.30	86.20	AQM	70:30 LAQM C2 S2 Sk 10P1
86.20	87.90	AQM	+Lm C3 1P0
87.90	88.10	ARGG	Sk 5P0
88.10	92.30	LAQM	90:10 AQM C2 S3 Sk 5P0 Sb*
92.30	96.00	SLTG	C1
96.00	109.00	SLTG	C1
109.00	121.00	SLTG	50:50 SSTS C1 P0
121.00	127.00	SLTG	C1 P0
127.00	130.00	SSTS	C1 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2193

NORTHING : 19311.1 EASTING : 23346.1 ELEVATION : 847.2

MAXDEPTH : 130 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.29	P4	C3	S0	DRY
2.00	4.00	.34	P4	C3	S0	WET
4.00	6.00	-1.00	-1	-1	-1	WET
6.00	8.00	.04	P4	C0	S0	WET
8.00	10.00	.02	P4	C0	S1	DRY
10.00	12.00	.02	P4	C0	S0	DRY
12.00	14.00	.01	-1	C0	S0	DRY
14.00	16.00	.10	-1	C0	S0	DRY
16.00	18.00	.16	-1	C0	S0	DRY
18.00	20.00	1.02	P4	C0	S1	DRY
20.00	22.00	1.27	P4	C0	S1	DRY
22.00	24.00	.53	P4	C0	S1	DRY
24.00	26.00	.83	P4	C0	S1	DRY
26.00	28.00	.16	P4	C0	S1	DRY
28.00	30.00	.10	P4	C1	S1	DRY
30.00	32.00	.04	P4	C3	S0	DRY
32.00	34.00	.04	P3	C3	S0	DRY
34.00	36.00	.03	P3	C3	S1	DRY
36.00	38.00	.04	P3	C3	S1	DRY
38.00	40.00	.07	P4	C3	S0	DRY
40.00	42.00	.31	P4	C3	S1	DRY
42.00	44.00	.10	P4	C1	S0	DRY
44.00	46.00	.02	P4	C2	S0	DRY
46.00	48.00	.02	P4	C1	S0	DRY
48.00	50.00	.01	P4	C2	S0	DRY
50.00	52.00	.04	P4	C3	S0	DRY
52.00	54.00	.06	P4	C3	S0	DRY
54.00	56.00	.08	P4	C3	S0	DRY
56.00	58.00	.03	P4	C3	S0	DRY
58.00	60.00	.08	P4	C3	S0	DRY
60.00	62.00	.01	P4	C3	S0	DRY
62.00	64.00	.02	P4	C2	S0	DRY
64.00	66.00	.02	-1	C3	S0	DRY
66.00	68.00	.02	-1	C3	S0	DRY
68.00	70.00	.04	P4	C3	S0	DRY
70.00	72.00	.01	-1	C1	S0	DRY
72.00	74.00	.17	P3	C2	S1	DRY
74.00	76.00	.20	P4	C2	S0	DRY
76.00	78.00	.05	P4	C2	S0	DRY
78.00	80.00	.05	P1	C2	S1	DRY
80.00	82.00	.31	P1	C2	S1	DRY
82.00	84.00	.39	P0	C2	S2	DRY
84.00	86.00	.35	P0	C2	S2	DRY

86.00	88.00	1.51	P0	C2	S1	DRY
88.00	90.00	1.53	P0	C2	S2	DRY
90.00	92.00	1.28	P1	C2	S3	DRY
92.00	94.00	.70	P0	C2	S1	DRY
94.00	96.00	.10	-1	C1	S1	DRY
96.00	98.00	.04	-1	C1	S0	DRY
98.00	100.00	.05	-1	C1	S0	DRY
100.00	102.00	.07	-1	C1	S0	DRY
102.00	104.00	.05	-1	C2	S0	DRY
104.00	106.00	.02	-1	C1	S0	DRY
106.00	108.00	.01	P0	C0	S0	DRY
108.00	110.00	.01	P0	C1	S0	DRY
110.00	112.00	.02	P0	C1	S0	DRY
112.00	114.00	.01	P0	C1	S0	DRY
114.00	116.00	.01	P0	C1	S0	DRY
116.00	118.00	.01	P0	C1	S0	DRY
118.00	120.00	.06	P0	C2	S0	DRY
120.00	122.00	.01	P0	C1	S0	DRY
122.00	124.00	.01	P0	C1	S0	DRY
124.00	126.00	.03	P0	C1	S0	DRY
126.00	128.00	.04	P0	C1	S0	DRY
128.00	130.00	.07	P0	C1	S0	DRY

0.0	2.0	OB	=>LAQM C3 3P4 Overburden; dominantly limonitic altered quartz monzonite with < 5% argillite; unwashed sample composed of large (< 1cm) soil-coated; damp fragments. LAQM: Dark orange to orange-brown; feldspar phyric texture is very well preserved; waxy, creamy, moderately clay-altered k-spar phenocrysts <4mm are often marked with fine, dendritic manganese oxide tracings; biotite altered to orange sericitic pseudomorphs – occasionally partially coated with manganese oxide; feldspar-rich matrix moderately sericitized; strongly calcareous – instantaneous, vigorous reaction to HCl; no secondary quartz; >10% manganese oxide on fractures, former biotite, pyrite and feldspar; 1-5% pyrite (3% as average) as dark red limonite disseminations < ½ mm, often coated with black manganese oxide – often concentrated on fractures.
2.0	4.0	NS	=>OB No sample; likely overburden – no technicians log; unknown lithology.
4.0	8.0	OB	=>SH +Lm Overburden; damp soil-covered chips; shale with limonitic fractures, as described below.
8.0	13.0	SH	80:20 SLT +Lm Medium grey, soft fissile shale with >20% harder, black siltstone very weak carbonaceous component; bedding laminations evident; limonitic fractures and bedding plans; rare oxidized sulfide on fractures; minor weakly orange-stained, mm-scale, milky quartz veining; greenish sericitization locally; not calcareous. 10-12.0m: very soft and bleached; weak pervasive limonitic staining; poor recovery of competent material; increased sericitization; possible shear or fault.
13.0	18.3	SLT	85:15 SH Dark grey, very fine-grained siltstone with < 15% soft, medium grey shale; platy; fractures along bedding; sericite and clay development on many surfaces; very rare limonite; not calcareous; no stockwork; no sulfide.
18.3	26.0	LAQM	S1 TrP4 Limonitic altered quartz monzonite; rich dark orange becoming increasingly red-orange toward lower contact; feldspar-phyric texture is moderately well preserved; strong to intense sericitization of fine-grained equigranular feldspar-rich matrix – unit has felted to sugary texture; sub-translucent to opaque, depending on the degree of alteration; overall sub-vitreous to pearly luster; biotite altered completely to limonitic, sericitic pseudomorphs and masses – locally coated with manganese oxide; all alterations increase to lower contact, and textures are less well preserved. Weak pervasive silicification with rare cloudy and orange-stained mm-scale quartz veinlet fragments; silicification is strongest near contacts; not calcareous. Trace dark red (and occasionally manganese oxide-coated) limonite cubes < ¼ mm after disseminated and fracture-fill pyrite; difficult to identify in strongly altered groundmass, so may be under-estimated 22.0-24.0m: significantly increased manganese oxide content - >10% coats fractures and former biotite and pyrite; <5% chips with intense argillic alteration to create bleach, soft rock. 24.0-26.0m: more hematitic; yummer-looking.
26.0	29.1	ARGG	+Lm S1 Sk Black argillite; silty and siliceous; orange-stained, greenish sericite development on most broken surfaces; milky and cloudy mm-scale quartz veining (multiphase?) increases to lower contact; lightly orange-stained veinlets (and swirls and blobs) occasionally contain ultra-fine (< 1/10 mm) disseminations of oxidized pyrite. Increasingly siliceous, limonitic and sericitic to lower contact; likely an intrusive contact rather than a structural one.

29.1	31.8	LAQM	C3 1P4 Yellowish, medium orange limonitic altered quartz monzonite; matrix shows moderate to weak (decreasing from upper contact) pervasive limonitic staining; strongest orange colouration due to numerous biotite flecks on chips surfaces that have altered to orange sericite; some sericite after modal feldspar also shows weak staining. Strongly calcareous matrix; no carbonate veinlets; 10-20% spotted manganese oxide throughout makes rock look dark, dirty and speckled – line fractures, coats former biotite and pyrite and partially laces some feldspar; not silicified. 1-2% disseminated pyrite ¼ mm to < 1/10 mm is partially to completely oxidized (P2-P4) and is often coated with flowery splotches of manganese oxide; occasional clusters of ½ mm, striated, partially oxidized pyrite.
31.8	32.1	ARGG	S1 SK Siliceous, stockworked graphitic argillite as 26.0-29.1m.
32.1	37.0	LAQM	C3 2P3 Qe Pale, greyish orange quartz monzonite, much as 29.1-31.8m; weak, but generally even, pervasive limonitic staining; more siliceous than other rock seen so far in hole; numerous clear and smoky quartz eyes < 4mm appear chert-like and almost secondary in nature; phyric k-spar phenocrystals are also observed; biotite altered to orange sericite – responsible for most orange colouration of rock. < 5% manganese oxide; strongly calcareous matrix; weak to moderate sericitization throughout. 1-2% pyrite – mostly as bronzey partially oxidized (P3) mm-scale interstitial clusters that apparently replace biotite locally; other pyrite as fine (<< ¼ mm) dark red and black, oxidized disseminations. Lower 'contact' assigned where quantity of manganese oxide changes.
37.0	39.0	LAQM	C3 4P4 Manganese oxide-rich monzonite, very much as described 29.1-31.8m; 3-5% oxidized disseminated pyrite – usually coated with black manganese oxide; 10-20% manganese oxide.
39.0	44.0	LAQM	C1 3P4 Dark orange monzonite with very strong, even pervasive limonitic staining; original textures are discernible but are blurred by very strong sericitization of feldspar-rich matrix; opaque, micro-granular recrystallized appearance – leads to homogeneity; no quartz eyes and significantly decreased modal quartz content; completely sericitized, orange-stained biotite is completely destroyed – rare pseudomorphs preserved; weakly calcareous; no secondary quartz; >5% spotty manganese oxide (over former biotite and pyrite and along fractures) throughout; < 3% disseminated oxidized pyrite < ¼ mm is often coated with manganese oxide – forms much higher concentrations along some fractures; abrupt lower contact.
44.0	45.0	QM	C3 Blue grey, nearly fresh quartz monzonite with abundant fresh black biotite; very strongly calcareous – smelly reaction to HCl; some biotite altered to good silvery pseudomorphs; very weak patchy sericitization of feldspar-rich matrix; sub-mm limonite-stained envelopes along fractures; no secondary quartz; no sulfide.
45.0	48.1	LQM	C1 Dark orange monzonite, much as 39.0-44.0m, but with abundant (>10%) fresh black biotite (with variably altered rims); good textures; no modal quartz; no phyric k-spar phenocrysts; moderate to increasingly strong sericitization of feldspar-rich matrix; weakly calcareous; biotite more altered with depth; trace oxidized, manganese oxide coated disseminated pyrite; blech.

48.1	49.0	QM	C3 Blue-grey calcareous monzonite, as 44.0-45.0m; note: contacts defined by drill site technician – percentages are not well represented in chip trays.
49.0	49.7	LQM	C3 Limonitic, bioititic monzonite, as 45.0-48.1m; very strongly calcareous; rare sulfide.
49.7	52.3	QM	C3 Unoxidized biotic monzonite, as 48.1-49.0m; very strong, smelly reaction to HCl.
52.3	57.8	LQM	->LAQM C3 Orange monzonite as 45.0-48.1m; better feldspar phyric texture – whitish, soft, clay-altered crystals < 3mm; no quartz eyes; < 5% fresh black biotite – significantly less than described above; numerous sericitized and limonitic pseudomorphs and imperfect masses; rock tends toward 'altered'; strong sericitization; very strongly calcareous; very rare oxidized sulfide; no secondary quartz.
57.8	64.0	QM	85:15 LAQM C3 Monzonite; mixed dark blue grey and light grey-white; up to 10% fresh black biotite – best preserved and most abundant in darker blue-grey chips; < 15% chips with limonitic staining as mm-scale alteration envelopes around fractures; all textures are very well preserved; lighter grey-white chips are more strongly sericitized and more strongly argillically altered; strongly calcareous; no secondary quartz; rare sulfide. 58.0-60.0m: 60% dark blue-grey: 40% white grey. 60.0-62.0m: 95% dark blue-grey. 62.0-64.0m: 95% white-grey with limonitic portions.
64.0	70.0	QM	C3 Dark blue-grey, fresh quartz monzonite with abundant fresh black biotite; biotite rims after altered to silver; very strongly calcareous matrix – very strong, instantaneous, smelly reaction to HCl; 5% increasing to 15% chips with limonitic staining – alteration associated with fractures; no sulfide; no secondary quartz.
70.0	72.0	LQM	85:15 Qm C1 Biotic, limonitic monzonite, as 45.0-48.1m.
72.0	81.8	LAQM	C2 Yellowish orange-brown limonitic altered quartz monzonite; textures steadily improve, but they're not great near upper contact; excellently k-spar phenocryst – phyric – whitish crystals < ¾ cm typically lack pervasive limonitic staining and have a waxy luster due to weak to moderate argillic alteration, some clear feldspar crystals < 3mm are also seen; rare, hard, rounded clear quartz eyes < 2 mm from 76.0m; equigranular, fine-grained feldspar-rich matrix is very strongly sericitized throughout – grain boundaries are always discernible but are slightly blurred; sericite as yellow and orange wispy coatings on surfaces to much stronger and more pervasive creating grainy recrystallized-looking appearance; rare chips are yellow and bleached due to strong, localized argillic alteration; all biotite sericitized beyond recognition; very strong even pervasive limonitic staining of groundmass; moderately calcareous – very positive reaction to HCl takes several seconds to start, but intensifies with time; very, very rare clear quartz veinlets < 1mm. Trace disseminated pyrite – usually completely altered to limonite, but also as only partially oxidized crystals (in those parts of the intrusive that are slightly less oxidized). (Not very thrilling!!) 74.0-80.0m: < 5% bleached fragments.

96.0	109.0	SLTG	C1 Black siltstone; very strongly graphitic – excellent oily luster; hard, angular siliceous fragments; fine bedding laminations are occasionally observed; very rare mm-size milky quartz veinlets; one chips (106.0-18.0m) of massive yellow diagenetic pyrite; weakly calcareous matrix; no variation throughout interval.
109.0	121.0	SLTG	50:50 SSTS C1 P0 Interbedded (overall equal, but locally variable ratio) black, graphitic siltstone (to argillite) and dove grey Steel Formation Siltstone; all siltstones are very siliceous; SST show some wispy laminations locally; SST contains trace to > 10% (locally) ultra-fine; (<< 1/10 mm) fresh disseminations; Steel Formation becoming more dominant with depth; hard; platy; weakly calcareous; no quartz veining or obvious quartz flooding; no oxidization.
121.0	127.0	SLTG	C1 P0 Siliceous black siltstone; weakly carbonaceous; minor Steel Formation Siltstone; ultra-fine fresh disseminated pyrite and rare mm-scale massive chunks.
127.0	130.0	SSTS	C1 P0 Dove grey, siliceous Steel Formation Siltstone; minor argillite; some wispy laminations; hard; platy; no oxidation; weakly calcareous; ultra-fine fresh pyrite throughout matrix.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2194

NORTHING : 19322.9 EASTING : 23422.4 ELEVATION : 853.8

MAXDEPTH : 92 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	NS	=>OB
2.00	14.00	SH	80:20 SLT +Lm
14.00	20.00	LAQM	C3 1P4
20.00	22.00	LAQM	95:5 AQM C3 S1
22.00	27.80	LAQM	C3 S1 2P4 Sb
27.80	31.90	LQM	90:10 QM C3
31.90	36.00	LAQM	95:5 AQM C3 S2 Sk TRP4 Sb
36.00	40.00	LAQM	95:5 LQM C3
40.00	43.00	LAQM	50:50 LSSTS+ARG C3 S3 5P4
43.00	46.50	LAQM	C3
46.50	49.00	LAQM	C3 S2 Sk P4 As Sb
49.00	54.00	LAQM	50:50 AQM C2 S2 Sk 10P2 As
54.00	60.00	LAQM	90:10 AQM C2 S2 Sk 10P2 As
60.00	64.10	SLTG	+Lm S1 Sk 7P1
64.10	65.90	SLTG	+Lm S4 Sk 2P1
65.90	70.00	LAQM	80:20 AQM C2 S2 Sk 6P1 As Sb*
70.00	76.00	AQM	70:30 LAQM C1 S1 5P1 As+Sb*
76.00	78.10	AQM	C1 8P0
78.10	80.00	ARGG	C2 Ck S2 Sk 5P1
80.00	92.00	ARGG	C2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2194

NORTHING : 19322.9 EASTING : 23422.4 ELEVATION : 853.8

MAXDEPTH : 92 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	-1.00	-1	-1	-1	-1
2.00	4.00	.03	-1	C0	S0	DRY
4.00	6.00	.01	-1	C0	S0	DRY
6.00	8.00	.01	-1	C0	S0	DRY
8.00	10.00	.02	-1	C0	S0	DRY
10.00	12.00	.01	-1	C0	S0	DRY
12.00	14.00	.02	-1	C0	S0	DRY
14.00	16.00	.29	P4	C3	S1	DRY
16.00	18.00	.59	P4	C3	S0	DRY
18.00	20.00	.15	P4	C3	S0	DRY
20.00	22.00	.26	P4	C3	S1	DRY
22.00	24.00	.36	P4	C3	S0	DRY
24.00	26.00	.20	P4	C3	S1	DRY
26.00	28.00	.44	P4	C3	S1	DRY
28.00	30.00	.29	P4	C3	S1	DRY
30.00	32.00	.16	P3	C3	S1	DRY
32.00	34.00	1.34	P4	C3	S2	DRY
34.00	36.00	.24	P4	C3	S2	DRY
36.00	38.00	.03	P4	C3	S0	DRY
38.00	40.00	.11	P4	C3	S0	DRY
40.00	42.00	.79	P4	C3	S3	DRY
42.00	44.00	1.97	P4	C3	S2	DRY
44.00	46.00	.20	P4	C3	S0	DRY
46.00	48.00	1.35	P4	C3	S1	DRY
48.00	50.00	2.01	P4	C3	S3	DRY
50.00	52.00	2.94	P4	C2	S2	DRY
52.00	54.00	.90	P1	C2	S2	DRY
54.00	56.00	.72	P1	C2	S2	DRY
56.00	58.00	.81	P1	C2	S2	DRY
58.00	60.00	6.17	P1	C2	S2	DRY
60.00	62.00	1.49	P1	C0	S1	DRY
62.00	64.00	.54	P2	C0	S1	DRY
64.00	66.00	.09	P1	C0	S4	DRY
66.00	68.00	1.30	P1	C2	S2	DRY
68.00	70.00	1.81	P1	C2	S2	DRY
70.00	72.00	.96	P1	C1	S1	DRY
72.00	74.00	.58	P1	C2	S1	DRY
74.00	76.00	.39	P1	C1	S1	DRY
76.00	78.00	.19	P0	C1	S1	DRY
78.00	80.00	.06	P1	C0	S1	DRY
80.00	92.00					
80.00	82.00	.03	P1	C2	S1	DRY
82.00	84.00	.01	P1	C2	S1	DRY

84.00	86.00	.01	P1	C2	S0	DRY
86.00	88.00	.02	P1	C2	S0	DRY
88.00	90.00	.01	P0	C2	S0	DRY
90.00	92.00	.01	P0	C1	S0	DRY

0.0	2.0	NS	=>OB No sample recovered, possible loosely consolidated overburden.
2.0	14.0	SH	80:20 SLT +Lm Medium grey shale; < 20% darker grey, interbedded siltstone; soft; fissile; orange limonite coating on most fractures – decreasing with depth; sericite development occasionally orange-stained, on many fractures – especially from 10.0m, bedding laminations are strikingly evident; siltstone is harder and blockier; non-graphitic. Very rare oxidized sulfide on fractures/bedding planes; not calcareous; no quartz stockwork or flooding. 12.0-14.0m: Larger more angular, hard, siliceous siltstone dominantly; yellow to orange sericite on many surfaces; Steel Formation-like. Sharp contact.
14.0	20.0	LAQM	C3 1P4 Rich dark orange monzonite with very strong, even, pervasive limonitic staining, original feldspar-phyric texture is well preserved – waxy, often unstained k-spar phenocrystals < 3mm are moderately clay and/or sericite-altered and are frequently patterned with fine, dendritic manganese oxide; fine-grained feldspar-rich matrix is intensely sericitized; all biotite has altered to masses and imperfect pseudomorphs of orange-stained sericite – very commonly coated with patchy and semi-continuous manganese oxide; no quartz eyes; 5-10% (locally) manganese oxide on most fractures and coating former biotite and pyrite. Very strongly calcareous – instantaneous, almost rolling reaction to HCl from sericitic – carbonate powder that coats chips; intense sericitization – all surfaces coated with thick orange-stained sericite; very rare clear quartz veinlets (mm-scale) near upper contact but generally unsilicified. < 1% disseminated pyrite < 1/3 mm altered to dark red limonite flecks, often coated with manganese oxide; up to 10% pyrite on some fractures – completely to partially (P3) oxidized – also often coated with manganese oxide; overall sulfide content decreases to lower contact. Lower contact assigned where texture and manganese oxide content change.
20.0	22.0	LAQM	95:5 AQM C3 S1 Dark orange, very strongly sericitized monzonite, as 14.0-20.0m, but without strongly phyric texture and only minor manganese oxide, homogeneous, opaque chips; >5% white, grey fragments lack orange-staining and are textureless; weakly silicified – strongly affected chips (not many are more hematite stained); trace disseminated oxidized pyrite; one sub-cm chip has altered completely to yellowish clay, possible shear? Very strongly calcareous.
22.0	27.8	LAQM	C3 S1 2P4 Sb Bright deep orange-brown monzonite, much as both previously described intervals; original textures are easily discerned even though feldspar-rich matrix shows intense sericitization; chips have opaque, micro-sucrosic recrystallized appearance overall pearly luster is retained; numerous, subhedral, white opaque, waxy and earthy, clay and/or sericite-altered k-spar phenocrystals <6mm lack limonitic staining and stand out in strong contrast to strong staining of matrix; quartz-poor, no quartz eyes, biotite altered to often unrecognizable limonitic sericitic shreds – rare good pseudomorphs – blend into sericitic matrix and are often irregularly coated with manganese oxide. Very strongly calcareous matrix – strong, instantaneous reaction to HCl from powdery chip surfaces; no calcite veinlets. Weakly silicified from 24.0; secondary quartz occurs as pervasive vein-like flooding of matrix and rare discrete smoky grey quartz fragments; usually associated with hematitic staining quartz from 26.0m contains abundant (< 1% for interval) ultra-fine disseminated stibnite.

			< 2% (<5% locally) disseminated oxidized pyrite ¼ mm to < 1/10 mm – also occasionally coated with manganese oxide.
27.8	31.9	LQM	90:10 Qm C3 Monzonite with very strong, even, pervasive limonitic staining and abundant fresh black to partially, altered biotite; < 10% blue-grey chips lack staining; moderately to strikingly sericitized; phyric textures not preserved; quartz-poor; leopard-spotty appearance. Strongly calcareous; not silicified; very rare disseminated oxidized pyrite. Rare unoxidized fragments contain >5% ultra-fine yellowish pyrite clusters that appear to replace former biotite.
31.9	36.0	LAQM	95:5 AQM C3 S2 Sk TrP4 Sb Dark orange-brown to red-orange monzonite, much as 22.0-27.8m; discernible but blurry textures; very strong to intense sericitization – sugary, pearly appearance; biotite altered beyond recognition and occasionally coated with manganese oxide; no quartz eyes; white k-spar phenocrystals <2mm are clay altered. Strongly calcareous; moderate to strong quartz veining and associated groundmass flooding; angular veinlet and silica-rich fragments are often hematite-stained and may contain stibnite near upper contact. < 1% disseminated, oxidized pyrite – often difficult to identify; unstained fragments contain trace to 5% secondary pyrite after biotite. Looks good even though not sulfidic.
36.0	40.0	LAQM	95:5 LQM C3 As described in 22.0-27.8m; <5% fragments with fresh (and nearly fresh) black biotite, no silicified, rare oxidized disseminated pyrite but < 10% manganese oxide-coated flecks < ¼ mm on some fractures.
40.0	43.0	LAQM	50:50 LSSTS +ARG C3 S3 4P4 Weird interval with mixed lithologies; dominantly silicified monzonite (as described 46.5-49.0m) mixed with intensely silicified; pervasively limonitic Steel Formation Siltstone, < 10% intensely silicified and stockworked argillite; breccia zone? Sediments appear intergrown, but relationship with intrusive is not evident. LAQM: Rich, deep orange-red; very strongly silicified, sericitized with strong hematitic staining and >5% completely oxidized disseminated pyrite (plus possible As) abundant manganese oxide; blurred textures; some chips so altered that they are incompetent and easily crushed. LSST: Medium orange with greyish underhue; smooth surfaces with angular corners; < 5% oxidized cubic pyrite and limonite boxworks; very siliceous; moderately calcareous locally.
43.0	46.5	LAQM	C2 Medium to dark yellowish orange-brown monzonite with very good feldspar-phyric textures; strong pervasive limonitic staining affects all minerals except for waxy cream to tan, k-spar phenocrysts < 4mm that are altering to clay and/or sericite in situ; feldspar-rich matrix is strongly sericitized and moderately clay-altered – slightly bleached-looking, micro-sucrosic, opaque recrystallized appearance; biotite altered to silver and orange sericitic masses and pseudomorphs, quartz-poor, no quartz eyes. Calcite – strongest reaction to HCl from unwashed sample; not silicified; very, very rare hairline (sub-mm) clear quartz veinlets; < 3% manganese oxide occurs mainly as spotty and dendritic tracings on altered k-spar phenocrysts and less commonly as partial coating on former biotite. Trace disseminated pyrite < ¼ mm as dark orange/orange-red limonite flecks; rare.

46.5	49.0	LAQM	C3 S2 Sk P4 As Sb Dark orange to increasingly red-orange monzonite; original textures, as 43.0-46.5m, are vaguely discernible but are blurred and overprinted by strong quartz flooding and sub-mm quartz stockwork; fine quartz veinlets are clear, crystalline, sharp-side and occasionally contain ultra-fine silvery sulfides along selvages; secondary quartz dominantly as silica that invades groundmass and is occasionally crosscut by clear hairline quartz veinlets; secondary quartz, as flooding, is usually variable limonite and hematite stained and carries in excess of 15% ultra-fine fresh sulfide – some subhedral pyrite and abundant acicular crystals that may be stibnite or arsenopyrite – very subtle and difficult to see, except on highest power; former pyrite (< 1%) is represented as dark red rounded limonite pseudomorphs < ¼ mm- overall quantities of sulfides is difficult to estimate as all alterations are so intense; good warm, glassy appearance. Looks truly yummy – especially toward lower contact.
49.0	54.0	LAQM	50:50 AQM C2 S2 Sk 0P2 As Quartz monzonite; contains equal quantities of stained and unstained material. LAQM: Rich, dark red-orange; warm-seeming, strongly pervasive limonitic staining that likely originated as alteration envelopes around fractures, original textures are easily discerned; creamy, earthy to waxy, clay-altered k-spar phenocrysts < 3mm are viewed in situ – often patterned with flowery spots and dendritic tracings of manganese oxide (pyrolucite); excellent pearly to vitreous luster; sub-translucent to opaque; no quartz eyes; biotite altered to orange-stained sericite. Very strong sericitization throughout chips have a micro-sucrosic re-crystallized appearance moderately calcareous matrix – strong reaction to HCl is slow to start; moderate quartz stockwork with associated quartz flooding of groundmass; veinlets are < 1/mm are clear to orange-stained and contain minor oxide pyrite < ¼ mm; silicified fragments show stronger hematitic staining; strong vitreous luster, lack sharply defined textures are associated with sericitization and usually contain abundant ultra-fine (<< 1/10 mm) disseminated sulfide. 5-10% sulfide, variably oxidized; ultra-fine pyrite that replaces former biotite is strongly (P3) to completely (P4) oxidized; ultra-fine disseminations of pyrite and arsenopyrite are oxidized and no longer visible; larger pyrite crystals (< ¼ mm) appear as dark red subhedral limonite pseudomorphs of pyrite. AQM: Mostly as described above; medium blue-grey well preserved texture but increasingly sericitized (and argillically altered) to end of interval; < 10% sulfide – fresh to lightly tarnished; pyrite as fine (< ¼ - 1/10 mm) disseminations through matrix, in similar occurrences to ultra-fine, acicular arsenopyrite (decreases with depth); pyrite also as rims around – variable replacement of former biotite, as rare stringer and clots tarnish on sulfide increases with depth. Note: Sulfide oxidization varies from none to complete, therefore, an average of P2 is assigned. Transitional contacts. (Looks juicy).
54.0	60.0	LAQM	90:10 AQM C2 S2 Sk 10P2 As Rich, warm orange-red, silicified, stockworked and sulfidic monzonite as just described 49.0-54.0m; gradual decrease in unoxidized material to lower contact; better quartz veining – mm scale; all alterations increase to lower contact; lower contact is a possible fault/shear – poor recovery of competent washed material and more abundant clay, < 10% fresh to completely oxidized pyrite > as - sericite above description for occurrence; moderately calcareous. Yum!

E.O.H

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2195

NORTHING : 19294.8 EASTING : 23370.9 ELEVATION : 861.5

MAXDEPTH : 84 AZIMUTH : 0 DIP : -90

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	OB	=>50 SLT:50 LAQM C2
6.00	7.00	LAQM	->CV C1 1P4
7.00	9.90	ARGG	->CV +Lm
9.90	10.50	LAQM	->CV C1 5P4
10.50	14.00	SLTG	->CV* +Lm
14.00	15.90	SH	+Lm
15.90	17.00	SLTG	Ft*
17.00	21.50	LAQM	C2 6P4
21.50	27.70	SHG	->SLTG P0
27.70	28.00	LAQM	P4
28.00	28.20	ARGG	50P0
28.20	34.00	LAQM	S3 Sk 15Sb 3P2
34.00	37.70	LAQM	C2 8P2
37.70	39.00	ARGG	->QZ S4 Sk
39.00	44.00	AQM	50:50 LAQM C2 6P3
44.00	48.50	AQM	+Lm C2 6P1
48.50	52.00	LAQM	C1 1P2
52.00	58.50	AQM	70:30 LAQM C2 2P1
58.50	60.20	AQM	+Lm C2 S1 3P1
60.20	62.00	ARGG	->QZ S3 Sk P0
62.00	70.00	AQM	C2 S1 Sk 8P0
70.00	73.80	SLTG	C1 P0
73.80	84.00	SST	50:50 SLT C2 10P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2195

NORTHING : 19294.8 EASTING : 23370.9 ELEVATION : 861.5

MAXDEPTH : 84 AZIMUTH : 0 DIP : -90

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.02	P4	C0	S0	DRY
2.00	4.00	.03	P4	C1	S0	DAMP
4.00	6.00	.10	P4	C3	S0	DRY
6.00	8.00	.18	P4	C0	S0	DAMP
8.00	10.00	.27	P4	C1	S0	DAMP
10.00	12.00	.11	P4	C0	S0	DAMP
12.00	14.00	.06	P4	C0	S0	DAMP
14.00	16.00	.02	P4	C0	S0	DRY
16.00	18.00	.42	P4	C0	S1	DRY
18.00	20.00	.31	P4	C1	S0	DRY
20.00	22.00	.26	P4	C3	S0	DRY
22.00	24.00	.02	-1	C0	S0	DRY
24.00	26.00	.01	P0	C0	S0	DRY
26.00	28.00	.10	P0	C0	S0	DRY
28.00	30.00	.08	P0	C0	S1	DRY
30.00	32.00	.16	P2	C0	S3	DRY
32.00	34.00	.13	P2	C1	S2	DRY
34.00	36.00	.05	P2	C2	S1	DRY
36.00	38.00	.03	P2	C2	S1	DRY
38.00	40.00	.05	P1	C2	S3	DRY
40.00	42.00	.03	P3	C2	S0	DRY
42.00	44.00	.05	P3	C2	S0	DRY
44.00	46.00	.05	P1	C2	S0	DRY
46.00	48.00	.02	P1	C2	S0	DRY
48.00	50.00	.02	P2	C1	S0	DRY
50.00	52.00	.02	P2	C1	S1	DRY
52.00	54.00	.04	P1	C2	S0	DRY
54.00	56.00	.07	P1	C1	S0	DRY
56.00	58.00	1.96	P1	C2	S1	DRY
58.00	60.00	.21	P1	C2	S1	DRY
60.00	62.00	.44	P1	C1	S2	DRY
62.00	64.00	.38	P0	C1	S1	DRY
64.00	66.00	.96	P0	C2	S1	DRY
66.00	68.00	.48	P0	C2	S1	DRY
68.00	70.00	.13	P0	C2	S1	DRY
70.00	72.00	.03	P0	C1	S1	DRY
72.00	74.00	.03	P0	C2	S1	DRY
74.00	76.00	.01	P0	C2	S0	DRY
76.00	78.00	.01	P0	C2	S0	DRY
78.00	80.00	.02	P0	C2	S0	DRY
80.00	82.00	.02	P0	C2	S0	DRY
82.00	84.00	.01	P0	C2	S0	DRY

0.0	6.0	OB	=>50 SLT :50 LAQM C2 Overburden, as determined by drill site technician; large damp soil-covered chips; mixed lithologies; minor organic material to 4.0m; pad fill material. 0.0-4.0m: 80 SLT :20 LAQM C1 Dominantly black, finely laminated siltstone and shale; greenish to orange-stained sericite development on most surfaces; not calcareous; weak quartz veining – veinlets < ½ cm; limonitic fractures and bedding horizons; < 20% calcareous intrusive as described next. 4.0-6.0m: 85 LAQM :15 SLT C3 1P4 Dark orange-brown limonitic altered quartz monzonite; very strong, even, pervasive limonitic staining; homogeneous, fine-grained feldspar-rich matrix shows strong sericitization; biotite altered to orange sericite – some good pseudomorphs are still visible; hard, angular chips; very strongly calcareous matrix; no calcite veinlets; no quartz veins or flooding; irregular manganese oxide coats some fractures; < 1% disseminated pyrite < ¼ mm altered to subhedral, dark red-brown limonite flecks that often retain good crystal form; some fractures show >5% oxidized sulfide.
6.0	7.0	LAQM	->Cv C1 1P4 Extremely dark orange monzonite, as described 4.0-6.0m, but much more intensely sericitized and argillically altered; locally bleached and entirely altered to clay; other chips are sugary and incompetent-looking; original textures are discernible; all biotite altered beyond recognition; no phyric minerals; 15-20% manganese oxide throughout – partially coats all surface and gives chips and speckled, dirty appearance (reminds me of tiger-stripe ice-cream) weakly calcareous; not silicified; at least 1% disseminated pyrite altered to limonite – some chips show >5%, but due to intense alterations the quantity can't be accurately estimated. Possible colluvium or overburden – unwashed sample is damp and muddy – resembles overburden.
7.0	9.9	ARG	->Cv +Lm Dark grey and black, siliceous argillite and silty argillite; weak carbonaceous component; hard, angular fragments with sharp edge – locally chert-like, with conchoidal fractures; faint greenish sericite development on most surfaces, minor limonite development on some planar fracture surfaces; not calcareous; very rare, subtle, clear quartz veinlets; trace oxidized pyrite. Possible colluvium – unwashed sample is overburden-like damp larger, soil-covered fragments.
9.9	10.5	LAQM	->Cv C1 5P4 Dark orange and orange-red monzonite; intensely altered; see 6.0-7.0; < 5% oxidized, disseminated pyrite; very weakly calcareous. Possible colluvium.
10.5	14.0	SLTG	->Cv* +Lm Black, graphitic siltstone with <5% shale, intrusive and one spruce needle; possibly colluvium? limonite and/or sericite on most surfaces; patchy sericite and clay alteration of modal feldspar – as fine (¼ mm) speckles on surfaces; not calcareous; minor micro-brecciation; rare milky quartz veinlet fragments <2mm; indistinct contacts.
14.0	15.9	SH	+Lm Medium grey, soft, fissile, sericitic shale with sericitic/limonitic coating on bedding cleavage planes and other fractures; not calcareous or silicified; very, very rare, trace quartz veinlet fragments; very, very rare oxidized pyrite crystals on fractures. Entering into fault?; recovery of competent washed sample steadily decreases.

15.9	17.0	SLTG	Ft* Graphitic siltstone; fault? – almost no recovery of competent washed material; not calcareous; rare secondary quartz.
17.0	21.5	LAQM	C2 6P4 Dark yellowish orange limonitic altered quartz monzonite; intense sericitization and lesser argillic alteration has affected entire rock mass; bleached-looking where clay-rich; sucrosive, opaque and recrystallized-looking where sericitization is strongest; original textures of feldspar-rich matrix are preserved but blurred; no preserved phyric k-spar phenocrysts; no quartz eyes; very low modal quartz; all former biotite has altered beyond recognition – often blending into thick sericitic coating on chip surfaces and less abundantly coated with patchy manganese oxide, partially replaced by ultra-fine pyrite and occasionally leaving orange-stained biotite-book-shaped voids. Moderately calcareous matrix – best reaction to HCl from unwashed powder and intensifies to end of interval; not silicified but contains minor quartz veining – observed as hairline micro-veinlets and as one orange-stained, phyric fragment < 3mm; manganese oxide is ubiquitous but not abundant – forms black, bearly continuous coatings on some fractures and less commonly coats some former biotite and pyrite. 5% to >7% disseminated pyrite < ¼ mm to < 1/10 mm disseminated throughout – higher concentration in some fragments; all pyrite is strongly oxidized, with most altered to subhedral dark red and purple limonite and lesser amounts almost completely altered (P3) but retaining better crystal form; some former sulfide are coated with manganese oxide; minor quantities of pyrite appear to be secondary after biotite – also oxidized. 20-21.5m: >10% chips with pinkish staining. Really ragged, altered looking rock!
21.5	27.7	SHG	->SLTG P0 Dark grey to black, soft, fissile graphitic shale containers minor quantities of and then grading into more competent, grainier siltstone; quantity of graphite increases to lower contact; minor limonitic surfaces near upper contact; not calcareous; very weak quartz veining as soft-looking, opaque, milky wisps and veinlets < 1mm. 24.0-28.0m: Several chips saturated with whitish-yellow ultra-fine (<< 1/10 mm) pyrite – likely diagenetic.
27.7	28.0	LAQM	P4 Intrusive, as described below.
28.0	28.2	ARGG	50 P0 Siliceous, hard, angular graphitic argillite; minor quartz swirls and wisps; > 50% of interval composed of sub-cm chips of massive yellowish pyrite that appear to be additionally cemented with clear and milky quartz; surfaces of phyric chips show minor manganese oxide; uncertain if origin is diagenetic (most likely) or is a secondary, contact-related even.
28.2	34.0	LAQM	S3 Sk 15Sb 3P2 Silicified, stibnite-quartz veined intrusive, as described below. Medium orange limonitic altered quartz monzonite; intensity of pervasive limonitic staining decreases with depth; excellent igneous textures; k-spar phenocrysts viewed in situ are weakly to moderately argillically altered, no quartz eyes; biotite altered to limonitic, sericitic masses and occasional good pseudomorphs; good pearly luster; translucence increases to end of interval. Not calcareous; strongly sericitized near upper contact, decreasing to weakly sericitized near lower contact (where most sericite is after biotite, not after modal feldspar); ubiquitous but minor manganese oxide coats some fractures; transitional rock. Very strongly silicified; stibnite-bearing quartz completely floods matrix so discrete quartz veinlet and veinlet fragments are not common; 10-20% stibnite

as massive clots < ½ cm, as saturation associated with quartz and kermesite in silica-flooded intrusive, as quartz fragments saturated with massive and/or disseminated stibnite; minor argillite associated with quartz-stibnite; kermesite is much more abundant than antimony ochre.

< 3% disseminate pyrite < ¼ mm – usually only partially altered with slight to moderate alteration to limonite (with associated surface and periteral staining) to tarnished; very few show complete oxidization to dark orange and red limonite; minor partially oxidized ultra-fine pyrite as partial replacement of former biotite.

Looks decent – but silicification is associated with stibnite, so possibly no gold.

34.0 37.7 LAQM C2 8P2

Quartz monzonite; light orange; limonitic staining is even and pervasive, but weak; rock is transitional; pearly sub-translucent, fine-grained equigranular feldspar-rich matrix retains original textures; moderately clay-altered, creamy, earthy to waxy k-spar phenocrysts < 4mm are common; no quartz eyes; all biotite altered orange sericite pseudomorphs and shreds that remain in situ and provide strongest orange colouration of rock.

Moderately calcareous – slow reaction to HCl is best seen in unwashed sample; no calcite veinlets; very weakly silicified near 'upper contact'; minor ubiquitous manganese oxide; patchy sericitization – generally weak, but < 10% chips with very strong sericitization; minor argillic alteration.

8% pyrite – dominantly as clusters < 4mm of ultra-fine (<< ¼ mm), partially oxidized (bronze to black, often with pitted surfaces, weak surface staining/coating of limonite with some staining of groundmass) sulfides that appear to be a replacement of former biotite; remaining pyrite occurs as partially oxidized (P2), cubic disseminations < ¼ mm – pitted, corroded and oxidized surfaces; minor sulfide have altered to dark orange limonite; rarely coated with manganese oxide; definitely a transitional phase!

36.0-37.7m: minor roscolite after feldspar; rare clear quartz veinlets < 1mm.

37.7 39.0 ARG ->Qz S4 Sk

Intensely siliceous; silicified and brecciated argillite with >50% smoky (chert-like) quartz; quartz fragments contain black cubic flecks << ¼ mm, that are likely disseminated pyrite.

Another quartz vein.

39.0 44.0 AQM 50:50 LAQM C2 6P3

Monzonite; mottled light-grey and dark orange due to equal quantities of stained and unstained material; all original textures are well preserved with good clay-altered k-spar phenocrysts < 3mm; no quartz eyes; biotite strongly but variably altered to limonite and sericite; transitional phase.

Moderately calcareous matrix – increasingly strong reaction to HCl is very slow to start but persists for a long time; no calcite veinlets; no quartz veinlets or flooding; strongly sericitized – especially in stained, more oxidized rock.

AQM: Light grey, excellent textures; k-spar phenocrystals very weakly altered, weak to moderate sericitization of modal feldspar; biotite as creamy sericite pseudomorphs; no quartz eyes; >6% silver to black, tarnished (P1) disseminated pyrite < ¼ mm – some really ragged-looking pieces; limonitic staining as mm-scale envelopes along fractures; some fresh pyrite as sub-cm clusters of good, fine cubes.

LAQM: Strong, even pervasive orange-staining; much more strongly sericitized than AQM; sucrosic and sericitic-opaque; biotite as orange sericitic shreds that are often partially replaced by partially oxidized, ultra-fine pyrite; >6% disseminated pyrite < ¼ mm nearly completely oxidized (P3) – oxidation varies from tarnish to completely limonite.

44.0	48.5	AQM	+Lm C2 6P1 Light grey-white altered quartz monzonite; much as just described (39.0-44.0m) but with slightly stronger sericitization and/or argillic alteration – gives rock a sub-opaque, micro-granular appearance locally; sub-mm orange-stained envelopes around fractures and rare fractures with dark orange limonite patina - < 5% total, decreasing to lower contact. Moderately calcareous; not silicified, rare manganese oxide. >6% blackish, slightly tarnished to fresh, pyrite; as ultra-fine secondary clusters after biotite, as fine (¼ mm) anhedral disseminations and as disseminated clots of fresher pyrite to < 1mm; rare completely oxidized flecks with mm-scale orange-stained aureole in groundmass; sulfide content decreases to end of interval.
48.5	52.0	LAQM	C1 1P2 Homogeneous-looking quartz monzonite with moderate, even, pervasive limonitic staining; yellowish orange; variable sericitization; original textures muted but discernible; no quartz eyes; porphyritic texture not represented; pearly to sub-vitreous; sub-translucent; warm-looking; similar to 44.0-48.5m, but with staining. Weakly calcareous; no quartz veining and no obvious quartz flooding; no manganese oxide. <1% pyrite as disseminations and partial replacement of former biotite; tarnished to slightly more oxidized (P1-P2); much fewer sulfide than see higher in hole. Transitional contacts.
52.0	58.5	AQM	70:30 LAQM C2 2P1 Mottled light-grey and dark orange monzonite; much as 39.0-44.0m, but with unoxidized material much more abundant. 2-7% very weakly oxidized pyrite in similar occurrences as described above – 2% as average; to ragged crystals; possibly silicified near lower contact; good sub-vitreous to vitreous luster; limonitic staining as envelopes around fractures.
58.5	60.2	AQM	+Lm C2 S1 3P1 White-grey monzonite, as 44.0-48.5m; < 3% ragged, tarnished disseminated pyrite; minor limonite staining along few fractures; good textures; moderate to strong sericitization; weak silicification at lower contact; moderately calcareous.
60.2	62.0	ARGG	->Q2 S3 Sk P0 Graphitic argillite; hard, angular fragments with excellent oily luster; intensely silicified with many chert-like fragments; some breccian; much as 37.7-39.0m, but not so strong, fabric is rare chips suggests shearing; 5-10% fresh, pale yellow pyrite clumps < ½ cm; (shear/fault?)
62.0	70.0	AQM	C2 S1 Sk 8P0 Light grey altered quartz monzonite; feldspar phyric textures are excellently displayed; no quartz eyes; sub-translucent; good sub-vitreous luster; barely altered; biotite as good cream and silver sericite pseudomorphs. Weakly to moderately calcareous matrix – reaction to HCl is positive but very slow to start, even from unwashed powder; no calcite veinlets; very weak sericitization locally; few limonitic fractures at upper contact and around 68.0m. Not pervasively silicified; weak quartz stockwork – most commonly observed as sub-mm clear quartz veinlets with strongly phyric selvages; veinlets are more common nearer upper contact. 8-10% pyrite, usually fresh, as disseminated crystals < ½ mm, as mm-scale clots composed of ultra-fine (¼ mm to < 1/10 mm) pyrite, as linings along selvages (excellent yellow crystals < 1/10 mm) and as ultra-fine masses that appear to replace some former biotite (especially form 66.0m); several chips are completely saturated with pyrite; rare specks of rounded limonite after pyrite; sulfides develop slight tarnish and crystal form is less well preserved from 66.0m; no other sulfide are positively identified.

			All alterations increase slightly to lower contact. At 68.0: thin sliver of silicified, stockwork graphitic argillite. Very sharp lower contact.
70.0	73.8	SLTG	C1 P0 Black, strongly graphitic siltstone; excellent oily luster; very weakly calcareous matrix; weak sub-mm milky quartz veining; hard, angular fragments with sharp edges; variable quantities of fresh, yellow diagenetic pyrite. Transitional lower contact.
73.8	84.0	SST	50:50 SLT C2 10P0 Interbedded Steel Formation Siltstone (Road River) and portrait lower contact siltstone (Earn); transitional at contact; horizons on cm to m-scale. SST: Medium dove grey; siliceous; hard; angular; fine bedding laminations; some wispy laminations; moderately calcareous; > 10% ultra-fine (< 1/20 mm) often barely visible disseminated, fresh yellow pyrite; pyrite also coats fractures; some fragments contain >50% sulfide in a very siliceous groundmass; massive pyrite as chips < ½ cm represent pyritic horizons – diagenetic. SLT: Black; not graphitic; rare quartz veining; hard; angular; siliceous; less pyritic than SST. 50% of each rock type, but one type dominates per 2m interval – i.e. one sample interval will be mostly SST, the other SLT.

E.O.H

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2196

NORTHING : 19269.4 EASTING : 23371.1 ELEVATION : 866.7

MAXDEPTH : 107 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
1.00	12.00	OB	=>LAQM:ARGG C1
12.00	17.00	CV	=>50 LAQM:50 ARGG
17.00	19.90	LAQM	1P4
19.90	22.20	ARGG	80:20 SH S1 Sk
22.20	25.80	LAQM	S4 Sk 1P4
25.80	28.80	ARGG	S2 Sk
28.80	33.90	LAQM	C1 S1 Sk 2P4
33.90	45.90	AQM	80:20 LAQM C2 S1 Sk 6P1 As Sb
45.90	48.30	SLTG	5P0 Ft*
48.30	50.00	SST	C2 Ck 5P0 Ft*
50.00	58.10	AQM	C2 S1 Sk 5P0 Sb
58.10	60.60	SLTG	C2 Ck S2 Sk 2P0
60.60	73.00	AQM	C2 3P1
73.00	75.20	AQM	95:5 QM C3
75.20	88.00	AQM	C2 2P1
88.00	98.00	AQM	C1 4P1
98.00	99.00	QM	C2
99.00	107.00	QM	C3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

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MAXDEPTH : 107 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.22	P4	C1	S0	DAMP
2.00	4.00	.15	P4	C2	S0	DAMP
4.00	6.00	.07	P4	C2	S0	WET
6.00	8.00	.05	P4	C1	S1	WET
8.00	10.00	.07	P4	C1	S1	DAMP
10.00	12.00	.03	P4	C1	S1	DAMP
12.00	14.00	.04	P4	C1	S1	DRY
14.00	16.00	.07	P4	C0	S1	DRY
16.00	18.00	.38	P4	C0	S1	DRY
18.00	20.00	.16	P4	C0	S1	DRY
20.00	22.00	.69	-1	C0	S1	DRY
22.00	24.00	8.10	P4	C0	S4	DRY
24.00	26.00	12.57	P4	C0	S4	DRY
26.00	28.00	1.22	-1	C0	S2	DRY
28.00	30.00	.74	P4	C0	S1	DRY
30.00	32.00	1.29	P4	C0	S1	DRY
32.00	34.00	.88	P4	C2	S1	DRY
34.00	36.00	2.12	P0	C2	S1	DRY
36.00	38.00	1.05	P0	C2	S1	DRY
38.00	40.00	3.14	P0	C2	S1	DRY
40.00	42.00	1.79	P0	C2	S1	DRY
42.00	44.00	2.17	P1	C1	S1	DRY
44.00	46.00	3.79	P2	C0	S2	DRY
46.00	48.00	.09	P0	C0	S0	DRY
48.00	50.00	.55	P0	C2	S0	DRY
50.00	52.00	.22	P0	C2	S0	DRY
52.00	54.00	.78	P0	C2	S1	DRY
54.00	56.00	.56	P0	C2	S1	DRY
56.00	58.00	.64	P0	C1	S1	DRY
58.00	60.00	.31	P0	C2	S2	DRY
60.00	62.00	.07	P1	C2	S3	DRY
62.00	64.00	.05	P1	C2	S0	DRY
64.00	66.00	.04	P1	C2	S0	DRY
66.00	68.00	.06	P1	C2	S0	DRY
68.00	70.00	.02	P1	C2	S0	DRY
70.00	72.00	.04	P1	C2	S0	DRY
72.00	74.00	.01	P1	C3	S0	DRY
74.00	76.00	.01	P1	C3	S0	DRY
76.00	78.00	.01	P1	C2	S0	DRY
78.00	80.00	.02	P1	C2	S0	DRY
80.00	82.00	.02	P1	C1	S0	DRY
82.00	84.00	.16	P1	C1	S0	DRY
84.00	86.00	.01	P1	C2	S0	DRY

86.00	88.00	.01	P1	C1	S0	DRY
88.00	90.00	.12	P1	C1	S0	DRY
90.00	92.00	.04	P1	C1	S0	DRY
92.00	94.00	.02	P1	C1	S0	DRY
94.00	96.00	.01	P1	C2	S1	DRY
96.00	98.00	.01	P1	C2	S0	DRY
98.00	100.00	.02	P1	C3	S0	DRY
100.00	102.00	.06	P1	C3	S0	DRY
102.00	104.00	.03	P1	C3	S0	DRY
104.00	106.00	.02	P1	C3	S0	DRY
106.00	107.00	.02	P1	C3	S0	DRY

0.0	12.0	OB	=>LAQM:ARGG C1 Overburden; partially determined by drill site technician and partially by logging geologist; wet, muddy samples; large fragments to 7.0m; decent recovery. Mixed lithologies – variable quantities of LAQM and ARGG. 0.0-6.0m: 80 LAQM: 20 ARGG Dominantly limonitic altered quartz monzonite with < 20% graphitic sediments and minor organics. 6.0-12.0m: 50 LAQM: 20 ARGG S2 Sk Equal intrusive and stockworked graphitic argillite. Trace (to 4% locally) oxidized disseminated pyrite; weakly calcareous; abundant manganese oxide; quartz veining in sediments; patchy limonite and limonitic veinlets in sediments; very inter-tangled relationship.
12.0	17.0	CV	50 LAQM :50 ARGG Colluvium? Equally intermixed dark orange monzonite and black, stockworked argillite; very inter-fingered – contacts between intervals cannot even be guessed at. Trace to 1% oxidized disseminated sulfide in LAQM; very weakly to non-calcareous; good textures; variable sericitization; patchy manganese oxide; silty argillite is moderately to strongly stockworked; patchy limonite on most surfaces. (Ugly mess).
17.0	19.9	LAQM	1P4 Bright orange limonitic altered quartz monzonite; no phyric feldspar preserved; no quartz eyes; fine-grained equigranular feldspar-rich matrix retains pearly luster and sub-translucence; sericitized limonitic biotite pseudomorphs adhere to surfaces, creating strongest orange colouration; moderate pervasive staining of groundmass; 1-2% oxidized, disseminated pyrite < ¼ mm – rarely slightly less oxidized (P3); ubiquitous manganese oxide.
19.9	22.2	ARGG	80:20 SH S1 Sk Black, graphitic silty argillite interbedded with < 20% soft, grey, bleached-looking, fissile shale, not calcareous; no sulfide. ARGG: Good oily luster; moderate mm-scale cloudy and smoky quartz stockwork; hard, angular fragments, minor sericite development on some planar surfaces; some quartz flooding of groundmass; very rare limonitic fractures. SH: Soft and clay-rich; obvious bedding horizons; weak localized hairline, limonitic veining; very, very rare quartz.
22.2	25.8	LAQM	S4 Sk 1P4 Rich, bright, yellowish orange monzonite; intensely silicified; original textures overprinted and often destroyed; rock is now dominantly composed of orange-stained silica; chips are angular and break into shards; discrete quartz veinlets or veinlet fragments are not as abundant; variably sericitized; no carbonate. Former sulfide are not well represented, with < 1% (to trace) dark red, anhedral, disseminated flecks of limonite; rare chips show higher concentrations of sulfide; note: Au-bearing sulfide content was likely much higher, but evidence of this cannot be seen in the intensely silicified washed chips. Truly yummy-looking stuff though!
25.8	28.8	ARGG	S2 Sk Black, argillic silty argillite and minor shale; moderate to strong milky quartz stockwork – includes some quartz healed micro-boxwork; good graphitic (oily) luster on many surfaces. Limonitic coating on a few surfaces near upper contact, but is very common near lower intrusive contact (as described next). 28.0-28.8m: Argillite and intrusive are intergrown, representing an intrusive (rather than structural) contact; some micro-boxwork; quartz cement is orange-stained plus several surfaces are limonitic; rare oxidized sulfide.

28.8 33.9 LAQM C1 S1 Sk 2P4

Limonitic altered quartz monzonite; overall rich orange colour, but some mottling, (light yellow-orange to dark red-orange) due to variations intensity of pervasive limonitic staining; original textures are very well preserved although clay-altered k-spar phenocrysts are rarely viewed in situ; biotite altered to imperfect orange-stained sericitic pseudomorphs and ragged masses – very frequently coated with black manganese oxide.

Not calcareous until 32.0 (C0->C2) where positive reaction to HCl is slow to start; variable sericitization – some chips very strongly affected but others are not; manganese oxide, most offer coating fractures with lesser biotite and pyrite, becomes slightly more abundant to end of interval; staining is increasingly hematitic.

Silicified – weak near upper contact but steadily increasing, becoming moderate to strong near 'lower contact'; orange and red-stained quartz veinlets < 1mm – very rarely with dark purple limonite pseudomorphs after pyrite (< 1/3 mm) along selvages; flooding of groundmass is more common than discrete veinlets; strongest silicification is associated with strongest hematitic staining, more abundant manganese oxide and stronger sericitization; slightly higher concentrations of manganese oxide – coated, oxidized sulfide on fractures.

< 2% disseminated pyrite < 1/3 mm has oxidized to dark red and red-black limonite pseudomorphs that often retain original crystal form; pyrite cubes (as dark red limonitic forms with oxidized, corroded surfaces) < ½ mm are also disseminated throughout; some fractures with higher oxidized sulfide content.

33.9 45.9 AQM 80:20 LAQM C2 S1 Sk 6P1 As Sb

Light and medium grey altered quartz monzonite; 5-50% limonitic altered quartz monzonite – quantity gradual increases toward last sample interval where it becomes dominant; most stained rock originated as alteration envelopes adjacent to fractures – this is obvious throughout most of the interval; distinctly transitional.

Excellent igneous textures; opaque, white, clay-altered and/or sericitized k-spar phenocrysts < 5mm are common, groundmass feldspar is variably, but generally weakly, sericitized; biotite altered to creamy and silvery sericite pseudomorphs.

Moderately calcareous matrix – smelly reaction to HCl is very positive but quite slow to start; rare feldspar altered to roscolite; no manganese oxide; note: all alterations are much stronger in oxidized, stained rock; all alterations increase with depth.

Weak quartz stockwork throughout – as sub-mm veinlets and as a locally, tighter hairline network; minor localized flooding of groundmass – much stronger at lower contact; larger quartz veinlet fragments often host disseminated and massive stibnite – especially from 42.0m; strongest silicitization near lower contact.

5-7% disseminated pyrite < ¼ mm – fresh yellow cubes becoming increasingly oxidized (surface rust and corrosion) with depth; pyrite also as hairline stringers and mm-size blebs; sulfide in limonitic monzonite are always completely to very strongly oxidized, when rock is associated with fractures; when limonitic staining of groundmass becomes prevalent, oxidization state of sulfide rarely exceeds partial (P2); rare AQM with dark orange limonite pseudomorphs; all in all, sulfide oxidization is generally very weak – however, all oxidation states are observed, with oxidized sulfide in unoxidized reaction and vice versa; clearly transitional material.

<1% fresh, disseminated acicular As – visible only where oxidation and staining of groundmass is minimal; stibnite with quartz from 36.0m; massive stibnite and saturated stibnite-quartz veinlets from 42.0m – dark grey angular quartz-stibnite fragments and massive stibnite veinlet fragments.

Yum!

45.0	48.3	SLTG	5P0 Ft* Graphitic siltstone; abundant clay – probable faulted upper contact; strong sericitization locally; several limonitic fractures and hairline fractures; faintly bleached; rare quartz veinlets; <5% fresh yellow to weakly oxidized phyric fractures, lenses, stringers and disseminations.
48.3	50.0	SST	C2 Ck 5P0 Ft* Light grey Steel Formation Siltstone; unsilicified; homogenous appearance; weakly calcareous matrix and some sub-mm calcite veinlets; <5% pyrite as fresh to slightly tarnished disseminated crystals < ¾ mm and mm-scale clots of finer crystals; rare chips saturated with sulfide. >10% of chips with intense pervasive argillic alteration and strong planar fabric – suggests shearing.
50.0	58.1	AQM	C2 S1 Sk 5P0 Sb Whitish light grey altered quartz monzonite much as 33.9-45.9m; excellent textures observed throughout; no quartz eyes; moderately clay-altered k-spar phenocrysts; biotite as sericitic pseudomorphs. Moderately calcareous; slow starting reaction to HCl is positive and smelly; weak sericitization of feldspar-rich groundmass – locally stronger; some feldspar altered to green roscolite; no manganese oxide; no limonite. 3-7% pyrite, usually fresh and yellow with good crystal habit; most commonly occurs as mm-scale to sub-cm, interconnected masses that appear interstitial but also replace some former biotite locally; disseminated cubes < ¼ mm are less abundant; pyrite stringers and fractures are also common. Weak quartz veining throughout; grey quartz veinlet fragments < ½ cm, from 52.0m contain ultra-fine stibnite. (Looks potentially good, but not the right type of pyrite).
58.1	60.6	SLTG	C2 Ck S2 Sk 2P0 Graphitic siltstone to argillite, moderately calcareous matrix; hairline calcite stringers; sub-cm milky quartz and quartz-carbonate stockwork – multiphase; pyrite as massive clots < ½ cm – diagenetic (2% ish?); hard, angular fragments; increasingly silicified to lower contact; some breccian; lower contact is intrusive.
60.6	73.0	AQM	C2 3P1 White-grey, sericitized monzonite; textures are discernible but blurred; opaque; micro-sucrosic, re-crystallized appearance; decent sericite pseudomorphs after biotite. Moderately calcareous; not silicified, no limonitic staining; no manganese oxide. >3% ragged grey flecks of tarnished disseminated pyrite < ¼ mm; rare good cubic pyrite crystals; trace pyrite altered to limonite with sub-mm staining as aureoles around crystals; some sulfide may have been secondary after biotite? Pretty blah-looking. 66.0-70.0m: 50% darker greenish grey; biotite partially black in some crystals, weaker sericitization; pearly luster; very, very rare sulfide; same rock but differently altered; more strongly calcareous.
73.0	75.2	AQM	95:5 Qm C3 Dark green-grey quartz monzonite; abundant biotite just altered to sericite; <5% chips with some fresh black biotite; good fine-grained feldspar-rich texture; original luster; weak sericitization locally; very strongly calcareous matrix; not silicified; rare sulfide.
75.2	88.0	AQM	C2 2P1 White-grey sericitized monzonite as 60.6-73.0m; fewer sulfide; ho hum; increasingly homogenous-looking and altered with depth; weakly (C1) to moderately (C2) calcareous – generally decreasing with depth.

88.0	98.0	AQM	C1 4P1 Sugary, opaque, whitish monzonite, as 75.2-88.0m; 1-6% tarnished; ragged disseminated pyrite; <1% pyrite altered completely to limonite; pyrite may have been secondary after biotite; very boring-looking rock.
98.0	99.0	QM	C2 White monzonite, as 88.0-98.0m, but with some fresh black biotite; very, very weak pervasive limonitic staining locally; moderately to strongly calcareous; very rare sulfide – weakly oxidized.
99.0	107.0	QM	C3 Dark blue-grey to smoky grey quartz monzonite; excellent textures and luster; abundant fresh, black sub-mm biotite – partially altered on rims often; more equigranular than porphyritic; intensely calcareous matrix – instant, rolling reaction to HCl from unwashed samples; hard; competent. No gold!

E.O.H

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2197

NORTHING : 19252.6 EASTING : 23419.7 ELEVATION : 869.4

MAXDEPTH : 124 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.90	ARGG	80:20 SH +Lm
1.90	4.00	LAQM	TRP4
4.00	17.00	SH	90:10 SLT +Lm
17.00	23.00	SLTG	+Lm
23.00	32.00	SLTG	Sk 1P0
32.00	33.00	AQM	C1 5P0 As
33.00	42.00	SLTG	Ck 1P0
42.00	56.60	SLTG	->SLT Ck 10P0
56.60	58.20	AQM	C2 15P1
58.20	61.00	SLTG	15P0
61.00	62.00	AQM	C1 7P1
62.00	68.00	SLTG	C1 Ck Sk 10P0
68.00	74.00	AQM	C2 5P0 Sb
74.00	80.00	AQM	C2 1P1
80.00	84.00	AQM	C2
84.00	85.00	QM	C2
85.00	86.00	QM	C3
86.00	89.00	QM	C2
89.00	95.50	QM	C3
95.50	106.00	AQM	C2 1P1
106.00	108.50	AQM	C3 S2 Sk 3P0 Sb
108.50	116.00	AQM	C3 4P0
116.00	124.00	AQM	C3 3P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2197

NORTHING : 19252.6 EASTING : 23419.7 ELEVATION : 869.4

MAXDEPTH : 124 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.17	P4	C0	S0	DRY
2.00	4.00	.07	P4	C0	S1	DRY
4.00	6.00	.07	-1	C0	S0	DRY
6.00	8.00	.05	-1	C0	S0	DAMP
8.00	10.00	.18	-1	C0	S0	DRY
10.00	12.00	.02	-1	C0	S0	DRY
12.00	14.00	.02	-1	C0	S0	DRY
14.00	16.00	.01	-1	C0	S0	DRY
16.00	18.00	.01	-1	C0	S1	DRY
18.00	20.00	.02	P0	C0	S1	DRY
20.00	22.00	.02	P0	C0	S1	DRY
22.00	24.00	.01	P0	C0	S1	DRY
24.00	26.00	.01	P0	C0	S2	DRY
26.00	28.00	.01	P0	C0	S2	DRY
28.00	30.00	.01	P0	C0	S1	DRY
30.00	32.00	.01	P0	C0	S2	DRY
32.00	34.00	.01	P0	C1	S1	DRY
34.00	36.00	.20	P0	C0	S1	DRY
36.00	38.00	.05	P0	C0	S1	DRY
38.00	40.00	.01	P0	C1	S1	DRY
40.00	42.00	.02	P0	C0	S0	DRY
42.00	44.00	.01	P0	C0	S0	DRY
44.00	46.00	.02	P0	C1	S0	DRY
46.00	48.00	.01	P0	C1	S0	DRY
48.00	50.00	.01	P0	C1	S0	DRY
50.00	52.00	.01	P0	C1	S0	DRY
52.00	54.00	.06	P0	C1	S0	DRY
54.00	56.00	.01	P0	C1	S0	DRY
56.00	58.00	.02	P1	C1	S0	DRY
58.00	60.00	.01	P0	C2	S0	DRY
60.00	62.00	.17	P0	C1	S0	DRY
62.00	64.00	.67	P0	C1	S0	DRY
64.00	66.00	.24	P0	C1	S0	DRY
66.00	68.00	.17	P0	C0	S1	DRY
68.00	70.00	.40	P0	C2	S0	DRY
70.00	72.00	.21	P0	C2	S1	DRY
72.00	74.00	.23	P1	C2	S0	DRY
74.00	76.00	.06	P1	C2	S0	DRY
76.00	78.00	.13	P1	C2	S0	DRY
78.00	80.00	.95	P1	C2	S0	DRY
80.00	82.00	.34	P1	C2	S0	DRY
82.00	84.00	.06	P1	C2	S1	DRY
84.00	86.00	.03	P4	C3	S0	DRY

86.00	88.00	.05	P4	C2	S0	DRY
88.00	90.00	.01	P4	C3	S0	DRY
90.00	92.00	.02	-1	C3	S0	DRY
92.00	94.00	.02	-1	C3	S0	DRY
94.00	96.00	.04	P1	C3	S0	DRY
96.00	98.00	.06	P1	C3	S0	DRY
98.00	100.00	.04	P1	C2	S0	DRY
100.00	102.00	.03	P1	C1	S0	DRY
102.00	104.00	.23	P1	C2	S0	DRY
104.00	106.00	.04	P1	C2	S0	DRY
106.00	108.00	.03	P0	C3	S1	DRY
108.00	110.00	.02	P1	C2	S0	DRY
110.00	112.00	.03	P0	C3	S0	DRY
112.00	114.00	.01	P0	C3	S0	DRY
114.00	116.00	.04	P0	C3	S0	DRY
116.00	124.00					
116.00	118.00	.04	P0	C3	S0	DRY
118.00	120.00	.04	P0	C3	S0	DRY
120.00	122.00	.05	P0	C3	S0	DRY
122.00	124.00	.05	P0	C3	S0	DRY

0.0	1.9	ARG	80:20 SH +Lm Black, silty argillite interbedded with <20% light grey shale; sericite development on most surfaces; several limonitic fractures; minor cloudy quartz veinlets < 1mm, very, very rare oxidized sulfide; possible colluvium.
1.9	4.0	LAQM	TrP4 Dark orange limonitic altered quartz monzonite; strong, even, pervasive limonitic staining; original textures are strongly evident – grain boundaries of equigranular feldspar-rich matrix are strongly emphasized and weakly clay-altered k-spar phenocrysts <4mm are very occasionally viewed in situ; all biotite has altered to ragged clots of orange-stained sericite and is very commonly coated with splotchy black manganese oxide; sericite partially coats most surfaces (to give felted to granular appearance) but original luster and sub-translucence is maintained; not calcareous; not silicified; >10% manganese oxide coats fractures, former biotite and some former sulfide; trace to 1% very fine, subtle disseminated limonite flecks after pyrite < 1/5 mm – higher manganese oxide-coated concentrations on fractures. (Looks like dirty orange Grape Nuts).
4.0	17.0	SH	90:10 SLT +Lm Medium grey shale interbedded with >10% siltstone; shale is soft and micaceous; siltstone is harder and grainier; greenish sericitization is common; most fractures with limonitic coating; rare quartz veinlets – mm-scale; may be orange-stained locally; trace oxidized pyrite – not significant; not calcareous; not graphitic. Transitional into:
17.0	23.0	SLTG	+Lm Dark grey and black siltstone to silty argillite; minor shale; moderately graphitic throughout; some surfaces with excellent greasy luster; not calcareous; minor quartz veining; several limonitic fractures – decreasing with depth; rare yellow disseminated pyrite. Transitional into:
23.0	32.0	SLTG	Sk 1P0 Black, graphitic siltstone to argillite; minor shale; hard, platy fragments; fine bedding laminations; moderate milky quartz stockwork – mm-scale veinlets; not calcareous; < 1% pyrite as rare sub-mm veinlets, as disseminated and as occasional massive fragments < 2mm; all pyrite appears primary; not calcareous; very rare limonitic surfaces; excellent oily luster locally.
32.0	33.0	AQM	C1 5P0 As Light grey-white altered quartz monzonite; good feldspar phyric texture; weak sericitization of modal feldspar; clay altered k-spar phenocrysts < 6mm, biotite altered to imperfect creamy sericite pseudomorphs; weakly calcareous matrix – subdued reaction to HCl is slow to start; no calcite veinlets; no quartz veinlets. >5% fresh to very weakly oxidized pyrite < 1/10 mm to ¼ mm disseminated throughout; lesser, less pristine greyish pyrite is secondary after biotite; < 1% arsenopyrite as disseminated, acicular crystals < ¼ mm; sulfide concentrations vary from chip to chip; rare sulfide are completely oxidized to dark orange limonite.
33.0	42.0	SLTG	Ck 1P0 Black, graphitic siltstone, as 23.0-32.0m; strong oily luster; weak quartz and quartz – carbonate veining; < 1% pyrite as sub-mm stringers and as inclusions within and along selvages of milky quartz veinlets. Transitional into:

42.0	56.6	SLTG	->SLT Ck 10P0 Dark grey shale-like siltstone; carbonaceous with more graphitic horizons, soft-easily scratched, possibly baritic; extremely pyritic - >10% (probably much more) fresh pyrite crystals < 1/10 mm as disseminations (to saturation) throughout groundmass; sulfide are rarely associated with quartz; very, very rare quartz veinlets; minor calcite veining – veinlet fragments < ½ cm – higher, localized concentrations (eg. 50-52.0m).
56.6	58.2	AQM	C2 15P1 White monzonite; original textures are discernible but blurred by very strong argillic and sericitic alteration of fine-grained feldspar-rich matrix; chips are opaque with a micro-sucrosic, recrystallized appearance; no quartz eyes; feldspar crystals < 3mm altering to green roscolite; moderately calcareous matrix; no calcite veinlets; no quartz veinlets, modal quartz or quartz flooding; no oxidation; no manganese oxide. >15% fine, disseminated, fresh to very weakly oxidized pyrite < ¼ mm; several chips completely saturated with sulfide; may possibly contain As. No variability throughout – fairly homogeneous appearance.
58.2	61.0	SLTG	15P0 Dark grey, pyritic (>15%), graphitic, calcareous siltstone as described 42.0-56.6m.
61.0	62.0	AQM	C1 7P1 White monzonite, as 56.6-58.2m, but with fewer, more ragged, tarnished disseminated pyrite; pyrite cubes provide the only textural variations in an otherwise very boring-looking rock.
62.0	68.0	SLTG	C1 Ck Sk 10P0 Black, graphitic, pyritic, calcareous siltstone (to argillite); very strongly graphitic from 66.0m; grades into aphanitic, siliceous argillite by lower contact; moderately calcareous matrix; weak quartz and quartz-calcite veining; quartz content increases to lower contact; >10% fresh pyrite as 1) ultra-fine (<< 1/10 mm) disseminated and saturations, 2) as stringers and veinlets < 1mm, 3) as rare clots associated with quartz veinlets, and 4) as massive clots < ½ cm that represent discrete phyric horizons.
68.0	74.0	AQM	C2 5P0 Sb Light cream to grey altered quartz monzonite; original texture and luster preserved; weakly sericitized but otherwise grossly unaltered; biotite as creamy sericite pseudomorphs; moderately calcareous matrix. Weak quartz veining; no quartz flooding. >5% fresh, disseminated pyrite cubes < ¼ mm; minor pyrite appears secondary after biotite; occasionally grey stringers composed of ultra-fine greyish sulfide – possibly stibnite or pyrite; rare smoky quartz fragments appear saturated with ultra-fine stibnite; rare oxidized (to limonite) pyrite. Transitional into:
74.0	80.0	AQM	C2 1P1 Creamy to white, sericitized and argillically altered monzonite, much as 61.0-62.0m; opaque, homogeneous, grainy-looking rock in which original textures are blurred but discernible; calcareous matrix; no calcite veinlets; no secondary quartz. < 1% tarnished, imperfect pyrite < ¼ mm; trace, but ubiquitous dark orange limonite flecks << ¼ mm after oxidized pyrite; minor pyrite is secondary after biotite.
80.0	84.0	AQM	C2 As 74.0-80.0m, but evenless texture and far fewer (trace) sulfide – variably oxidized; blech.

84.0	85.0	QM	C2 Off-white monzonite, as 74.0-80.0m but with 5-10% fresh to partially altered (sericitized rims) biotite; moderately to strongly calcareous matrix; very rare hairline, clear quartz veinlets; trace dark orange specks of limonite after fine (< ¼ mm) disseminated pyrite; strong sericitization but original textures easily discerned.
85.0	86.5	QM	C3 Dark blue-grey quartz monzonite with >10% fresh black biotite; many biotite rims show leaching/alteration, excellent textures; great pearly to sub-vitreous luster; muted slightly by wispy sericite development on chip surfaces; intensely calcareous matrix; no secondary quartz; no sulfide.
86.5	89.0	QM	C2 Off-white, strongly altered quartz monzonite, as 84.0-85.0m; < 2% fresh black biotite remains; trace limonite flecks; featureless, textureless rock; granular recrystallized appearance.
89.0	95.5	QM	C3 Dark blue grey, hard, nearly fresh, strongly calcareous quartz monzonite as 85.0-86.5m; abundant fresh black and partially altered biotite; instantaneous rolling reaction to HCl; no secondary quartz, no sulfide.
95.5	106.0	AQM	C2 1P1 Creamy monzonite, as 74.0-80.0m; original textures are excellently preserved although feldspar rich matrix show extensive sericitization and k-spar phenocrysts < 3 mm are weakly clay – altered; biotite altered to sericite – not well formed; moderately to strongly calcareous matrix; no secondary quartz. 1%, decreasing to trace, disseminated pyrite << ¼ mm, slightly tarnished to completely altered to dark orange limonite; some pyrite appears secondary after biotite.
106.0	108.5	AQM	C3 S2 Sk 3P0 Sb Brownish-grey altered quartz monzonite; good textures; translucent; minor surface sericitization; biotite altered to creamy sericite pseudomorphs; moderate quartz stockwork with aphanitic, greyish veinlets < 2mm; strongly calcareous; smoky quartz veinlet fragments often appear saturated with ultra-fine sulfide – probably stibnite; < 3% fresh, disseminated pyrite and pyrite blebs; trace pyrite is secondary after biotite. (Might run).
108.5	116.0	AQM	C3 4P0 Opaque, grainy-looking, off-white monzonite with good original textures; as 95.5-106.0m; excellent sericite pseudomorphs after biotite; minor roscolite after feldspar; no quartz eyes; calcareous matrix (C2-C3); no secondary quartz; 3-6% disseminated fresh to tarnished pyrite < ¼ mm; minor pyrite is secondary after biotite; rare limonite flecks after pyrite.
116.0	124.0	AQM	C3 3P0 Medium to dark grey monzonite, much as 106.0-108.5m; sub-vitreous and sub-translucent; excellent textures; no secondary quartz; strongly calcareous; weak sericitization. >3% pyrite occurs as mm-scale clusters of fine (<< ¼ mm) yellowish pyrite, as sub-mm stringers as disseminated cubes < ½ mm, and as fine (< ¼ mm) disseminations; larger pyrite cubes (those around ½ mm) show excellent crystal shape and striations; oxidization rarely exceeds surface tarnish/rust; very, very rare completely oxidized pyrite.

E.O.H

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2198

NORTHING : 19166.2 EASTING : 23662.7 ELEVATION : 831.5

MAXDEPTH : 110 AZIMUTH : 0 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	11.00	OB	=>LAQM:ARGG
11.00	15.90	LAQM	C2 S2 Sk 2P4
15.90	18.00	ARGG	+Lm
18.00	23.90	SLTG	+Lm
23.90	32.00	LAQM	C2 S1 Sk 2P4
32.00	42.20	LAQM	C3 S2 Sk 5P4
42.20	49.00	SST	+Lm C1
49.00	52.00	SST	75:25 ARGG+SLTG C1
52.00	54.00	ARGG	
54.00	56.00	FT	=>SLTG
56.00	72.00	ARGG	90:10 SST +Lm
72.00	79.50	LAQM	C2 S3 Sk 7P4
79.50	81.00	SSTS	80:20 ARGG
81.00	83.90	LAQM	C2 S1 Sk 4P3
83.90	85.50	SST	50:50 ARGG C1 +Lm
85.50	86.20	FT	=>LAQM P4
86.20	92.20	SST	55:45 SLTG
92.20	98.10	SLTG	+Lm
98.10	102.00	FT	=>SST:20 SLT +Lm C1 S2 Sk
102.00	106.00	SLTG	90:10 SST P0
106.00	110.00	SST	80:20 ARGG C2 10P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2198

NORTHING : 19166.2 EASTING : 23662.7 ELEVATION : 831.5

MAXDEPTH : 110 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.25	P4	C1	S1	WET
2.00	4.00	.37	P4	C1	S1	WET
4.00	6.00	.45	P4	C1	S1	WET
6.00	8.00	.72	P4	C2	S1	WET
8.00	10.00	1.21	P4	C2	S1	WET
10.00	12.00	1.34	P4	C2	S1	DAMP
12.00	14.00	.52	P4	C1	S2	DAMP
14.00	16.00	.40	P4	C1	S1	DRY
16.00	18.00	.28	-1	C2	S0	DRY
18.00	20.00	.14	-1	C1	S0	DRY
20.00	22.00	.43	-1	C0	S0	DRY
22.00	24.00	1.47	-1	C0	S0	DRY
24.00	26.00	.46	P4	C1	S1	DRY
26.00	28.00	.16	P4	C2	S1	DRY
28.00	30.00	1.42	P4	C2	S1	DRY
30.00	32.00	.42	P4	C3	S1	DRY
32.00	34.00	1.85	P4	C3	S2	DRY
34.00	36.00	2.97	P4	C2	S2	DRY
36.00	38.00	2.04	P4	C2	S2	DRY
38.00	40.00	.50	P4	C3	S1	DRY
40.00	42.00	.25	P4	C3	S1	DRY
42.00	44.00	.24	P4	C2	S0	DRY
44.00	46.00	.06	P4	C1	S0	DRY
46.00	48.00	.08	P4	C1	S0	DRY
48.00	50.00	.12	P4	C1	S0	DRY
50.00	52.00	.07	P4	C0	S0	DRY
52.00	54.00	.27	P4	C0	S0	DRY
54.00	56.00	.17	P4	C1	S0	DRY
56.00	58.00	.03	P4	C0	S0	DRY
58.00	60.00	.04	P4	C0	S0	DRY
60.00	62.00	.04	P4	C0	S0	DRY
62.00	64.00	.05	P4	C1	S0	DRY
64.00	66.00	.03	P4	C1	S0	DRY
66.00	68.00	.04	P4	C1	S0	DRY
68.00	70.00	.08	P4	C1	S0	DRY
70.00	72.00	.06	P4	C2	S0	DRY
72.00	74.00	2.89	P4	C2	S2	DRY
74.00	76.00	5.20	P4	C2	S3	DRY
76.00	78.00	1.90	P4	C2	S2	DRY
78.00	80.00	2.68	P4	C2	S4	DRY
80.00	82.00	2.51	P4	C2	S2	DRY
82.00	84.00	.33	P4	C2	S1	DRY
84.00	86.00	.72	P4	C1	S0	DRY

86.00	88.00	.11	P4	C1	S0	DRY
88.00	90.00	.02	P4	C0	S0	DRY
90.00	92.00	.02	P4	C0	S0	DRY
92.00	94.00	.08	P4	C0	S0	DRY
94.00	96.00	.08	P4	C0	S0	DRY
96.00	98.00	.07	P4	C0	S0	DRY
98.00	100.00	.07	P1	C1	S3	DRY
100.00	102.00	.03	P0	C1	S2	DRY
102.00	104.00	.02	P0	C0	S1	DRY
104.00	106.00	.03	P0	C1	S1	DRY
106.00	110.00					
106.00	108.00	.04	P0	C2	S1	DRY
108.00	110.00	.02	P0	C3	S1	DRY

0.0	11.0	OB	=>LAQM :ARGG Overburden, as determined by drill site technician; ugly wet samples mixed lithologies as described below; probable permafrost – not indicated on technician's log. 0.0-6.0m: 50 LAQM 50 ARGG + SST Layer chips (< 2 cm) – indicative of fractured ground and overburden; composed of limonitic altered quartz monzonite, graphitic argillite and Steel Formation Siltstone; LAQM is very dark orange, strongly sericitized, weakly stockworked, contains oxidized pyrite and all surfaces are partially coated with manganese oxide; ARGG is siliceous with sericitic, occasionally limonitic, surfaces; SST is hard, grey with manganese oxide and limonite on surfaces. 6.0-12.0m: LAQM C2 S1 Sk 5P4 Very dark orange to orange-brown limonitic altered quartz monzonite; very strong, even, pervasive limonitic staining; thick dark orange sericitic coating on most surfaces (siltskins?), combined with ubiquitous and abundant black manganese oxide, gives rock a dusty, dirty-looking appearance; original textures are strongly prevalent – good feldspar-phyric textures; biotite altered to ragged limonitic sericite that is commonly coated with speckly manganese oxide; moderately to strongly calcareous matrix; rare sub-mm clear quartz veinlets; < 5% ultra-fine disseminated pyrite < ¼ mm completely altered to limonite – often difficult to differentiate from groundmass; some chips and many fractures are saturated with former sulfide – very frequently coated with manganese oxide; 10.0-12.0m: <40% chips with reddish hematitic staining that is associated with stronger silicification; note: this interval likely represents colluvium or weathered bedrock in situ, rather than outright overburden.
11.0	15.9	LAQM	C2 S2 Sk 2P4 Limonitic altered quartz monzonite; limonitic staining is pervasive but intensity varies; slightly mottled – colouration varies from tan to dark red-orange; manganese oxide (<10%) causes black speckling – overall dirty appearance; original textures are well preserved – clay altered k-spar phenocrystals < 3mm; feldspar rich matrix shows variable sericitization; biotite altered to orange and/or silver pseudomorphs; but is most commonly seen as ragged masses that are coated with manganese oxide. Moderately (to strongly) calcareous matrix; moderate quartz stockwork – decreases with depth; numerous clear to orange-stained quartz veinlets < 1mm with occasional flooding into adjacent groundmass; selvages might by pyritic locally – some exposed surfaces are completely coated with spotty manganese oxide (that might have been large surface concentrations of pyrite). Trace to 2% disseminated pyrite < ¼ mm as dark red (to blackish when coated with manganese oxide) subhedral to anhedral limonite; some chips and several fractures show higher concentrations. (Not bad-looking, but not terrific either).
15.9	18.0	ARG	+Lm Dark grey to black argillite; very weakly carbonaceous; siliceous; hard, angular fragments; greenish sericite development on most exposed surfaces; limonitic fractures are common, but not overly abundant; not calcareous; very rare sub-mm quartz veinlets; no sulfide. Grades into:
18.0	23.9	SLT	+Lm Dark grey siltstone; slightly sandy near 'upper contact'; good bedding laminations << 1mm; strong argillic alteration (causes bleaching, softness and emphasis textures) decreases gradually to end of interval; not calcareous; very rare quartz veinlets; abundant limonitic fractures; very, very rare sulfide.

23.9	32.0	LAQM	C2 S1 Sk 2P4 Dark orange to orange-brown limonitic altered quartz monzonite; < 10% chips with rich hematitic-red staining; excellent igneous textures; very strong sericitization throughout – all surfaces coated with sericite, creates a shimmery, granular recrystallized appearance; pervasive limonitic staining is very strong and even; thicker (still <<< 1 mm) dark red hematitic/limonitic coating; increasingly calcareous; most biotite altered beyond recognition and very frequently coated with manganese oxide; manganese oxide (< 10%) also partially coats some fractures and former sulfide; trace to 2% dark red (to black when coated) cubic to anhedral limonite flecks after disseminated pyrite < ¼ mm – often difficult to differentiate from strong staining/alterations in groundmass; weakly silicified – mostly as orange and red stained sub-mm veinlets; exposed veinlet surfaces may show abundant spotty manganese oxide that coats former sulfide. Chips with dark red hematitic staining are most likely associated with gold mineralization; pervasive silicification is stronger (where present), and quartz and hematitic – staining appear to be strongly associated; stronger sericitization; higher concentrations of fine disseminated oxidized sulfide; manganese oxide coats fractures (likely sulfide) and other sulfide; much juicier-looking; likely represent high angle structures within more massive, less altered intrusive; rare stibinitic, greyish quartz veinlet fragments. Transitional 'contacts'.
32.0	42.2	LAQM	C3 S2 Sk 5P4 Dark reddish orange to orange limonitic altered quartz monzonite; very similar to 23.9-32.0m, original feldspar-phyric textures are discernible but very strong sericitization and weaker silicification overprints or mutes original features; all types of pervasive staining are very strong; all biotite altered to orange-stained sericite and is usually coated with spotty black manganese oxide; strongly calcareous – some unwashed samples provide instantaneous rolling reaction to HCl; intense sericitization throughout. Strong quartz stockwork, especially 34.0-38.0m; quartz veinlets, usually sub-mm are clear to milky to orange to red and often contain oxidized pyrite along selvages and rare pyrite (oxidized) within matrix; rare smoky grey quartz fragments likely contain fresh ultra-fine disseminated stibnite; localized quartz flooding of matrix appears associated with strongest hematitic staining and sericitization – these (delicious-looking) fragments contain abundant ultra-fine sulfide, usually altered to limonite, within matrix, and along fractures. 3-8% dark red (and black where coated with manganese oxide) cubic to rounded limonite flecks after disseminated pyrite (¼ - 1/10 mm); sulfide content is likely much higher but is difficult to estimate due to intensity of alterations; higher concentrations (>50% per surface) of oxidized, manganese oxide-coated sulfide on fractures; higher sulfide content in silicified chips. Silicification decreases from 40.0m; very strongly calcareous from 38.0m. (Good-looking rock; should carry some grade!).
42.2	49.0	SST	+Lm C1 Steel Formation Siltstone; medium grey with green and orange overhues; decreasingly siliceous from upper contact; grainsize increases slightly to end of interval; abundant limonitic surfaces near upper contact, decreasing gradually with depth; hard, angular fragments, especially where more siliceous; dolomitic – weak reaction to HCl provided by unwashed sample only; <5% chips with very strong, pervasive limonitic staining; all surfaces coated with grey-green (to orange-stained) sericite – gives dirty, felted appearance to chips; manganese oxide is common to 46.0 – forms splotchy patches on green and/or orange sericitic fractures (probably coats former fracture – confined pyrite) that resemble leopard spots; all visible sulfide represented as manganese oxide-

			coated; sub-cubic forms that are restricted to fractures – especially near upper contact. Silicification near upper contact is likely hornfelsing/alteration associated with intrusive contact. Transitional into:
49.0	52.0	SST	75:25 ARGG + SLTG C1 Steel Formation Siltstone, as 42.2-49.0m; interbedded with < 25% graphitic argillite and siltstone (grading down from upper contact); decreasingly siliceous; decreasing recovery of competent washed rock; lower contact might represent a shear/fault; strong sericitization throughout; minor limonitic fractures but sericite on surfaces often has a faint limonitic hue; very rare quartz veinlets; rare sulfide. 50.0-52.0: < 5% dark orange monzonite.
52.0	54.0	ARGG	Black graphitic argillite; hard, angular and siliceous; typically aphanitic; not calcareous; no quartz veining; no sulfide.
54.0	56.0	FT	=>SLTG Shear/fault?; after graphitic siltstone and Steel Formation Siltstone; strong sericitization; very, very poor recovery of washed fragments, no quartz; no sulfide; no oxidization.
56.0	72.0	ARGG	90:10 SST +Lm Graphitic argillite variably aphanitic to silty; carbon content decreases to lower contact; 65.0-70.0m: not carbonaceous; not calcareous; < 10% Steel Formation Siltstone – often siliceous and occasionally with pervasive limonitic staining; variably siliceous; weak quartz veining; trace oxidized sulfide; most surfaces show moderate to strong green to orange-stained sericitization; limonitic surfaces are common throughout; most fragments are very hard and angular; 58.0-60.0m: strong silicification with very strong limonitic coating/staining and abundant manganese oxide; increased quartz and quartz-carbonate veining adjacent to lower contact.
72.0	79.5	LAQM	C2 S3 Sk 7P4 Rich dark orange to deep red-orange limonitic altered quartz monzonite; very strong, even, pervasive limonitic staining; original textures are preserved but blurred by alterations; biotite altered to ragged orange-stained sericite masses that remain on chip surfaces; strong to locally intense sericitization of groundmass feldspar causes chips to have a sugary, recrystallized appearance; overall pearly to vitreous luster, with sub-translucence, is maintained although felted sericite coats most fragments; moderately calcareous matrix – very positive reaction to HCl is slow to start; 2-3% black manganese oxide coats some former sulfide, rare biotite and partially coats some fractures; note: rock has a really warm appearance. Very strong to locally intense quartz stockwork; numerous mm and sub-mm veinlets – ranging from clear to orange to red; fine veinlets may be sheeted (sub-mm separations) locally; may contain fresh and oxidized sulfide in matrix but oxidized, cubic, very fine sulfide are usually hosted along selvages; weak hairline, possibly later-stage, clear quartz veining; quartz flooding of groundmass is usually associated with strong hematitic staining, increased sericitization and a slightly higher concentration of ultra-fine (< 1/10 mm), fresh to completely oxidized sulfides; textures are less well preserved in these hematitic, silicified chips, but biotite pseudomorphs (as silver and orange pseudomorphs) are often much better preserved; gorgeous glassy luster where silicification is strongest. 4-7% dark red limonite flecks and black manganese oxide specks as evidence of former pyrite; sulfide may be under-represented as preservation of 'evidence' is hindered by intense alterations; note: some interval percentages are assigned based on observation in only a few chips; pyrite/limonite occurs as fine (¼ mm

			to 1/10 mm) disseminations in silicified and unsilicified groundmass, as fracture-fill and stringers (rare) and along some veinlet selvages; pyrite observed on fractures is typically coated with manganese oxide; some quartz veinlets contain fine sulfide in matrix; rare sulfide are not completely altered (P3). (Fantastic-looking rock! Will it run?).
79.5	81.0	SSTS	80:20 ARGG Greyish Steel Formation Siltstone; intensely siliceous and/or silicified; strongly resembles chert; hard, angular fragments with sharp edges; sericitic surfaces – very frequently with orange-staining; cut by hairline clear quartz veinlets; leopard-spotty manganese oxide on some fractures near upper contact; < 20% graphitic argillite, especially from 80.0m; trace oxidized and manganese oxide-coated pyrite cubes < 1/5 mm on fractures. Raft in intrusive? Silicification mimics that seen in intrusive.
81.0	83.9	LAQM	C2 S1 Sk 4P3 Intrusive, as 72.0-79.5 m, but with weak silicification and stockwork, fewer sulfides and decreased oxidation state (P3 not P4); intensity of limonitic/hematitic staining decreases quickly to lower contact. (Still looks good, but not great).
83.9	85.5	SST	50:50 ARGG C1 +Lm Interbedded Steel Formation Siltstone and graphitic argillite (to siltstone); sericitic surfaces; occasional limonitic fractures; very siliceous immediately adjacent to upper contact; weakly calcareous; no quartz veining, rare sulfide.
85.5	86.2	FT	=>LAQM P4 Orange clay with chunks of dark orange limonitic altered quartz monzonite; represents a fault/shear; extremely incompetent; opaque and soft due to intense argillic alteration; textures preserved; calcareous; hunks of manganese oxide preserved as resistant minerals; rare chips with < 5% red limonite pseudomorphs after pyrite.
86.2	92.2	SST	55:45 SLTG Green-grey Steel Formation Siltstone with < 45% graphitic siltstone (Earn); non-calcareous; rare quartz veinlets; trace manganese oxide coated sulfide on fractures; transitional rocks at Earn/Road River contact; some limonitic fractures; hard platy.
92.2	98.1	SLTG	+Lm Graphitic siltstone; sandy near 'upper contact'; grading downhole into near argillitic material; 94.0-96.0m contains > 40% Steel Siltstone; most strongly graphitic near 'contacts'; bedding laminations are strongly evident; not calcareous; rare quartz veining; trace oxidized/manganese oxide-coated sulfide on fractures; numerous limonitic fractures; especially near lower contact.
98.1	102.0	FT	=>80 SST:20 SLT +Lm C1 S2 Sk Fault (?); interval composed of grey siliceous Steel Formation Siltstone with >20% black, siliceous siltstone and argillite; argillite contains white mm-scale quartz veining; entire package is very strongly pervasively silicified and stockwork – suggests a major structure; hard chips are irregularly shaped (reminiscent of the shape intrusive chips take) with both sharp and rounded edges; platy cleavage (=S0) is not preserved; strong vitreous luster; orange staining of quartz plus numerous patches of orange-stained sericite creates orange, grey, black and white mottling; <1% pyrite (P0-P1) as fine disseminations in SST and as selvages along milky quartz veinlets in SLT; also as rare massive clots < 3mm; weakly calcareous – very subtle reaction from unwashed sample. Very interesting and visually distinct from adjacent rocks.

102.0	106.0	SLTG	90:10 SST P0 Black, weakly carbonaceous siltstone to argillite; siliceous; hard; angular, weak quartz stockwork – orange-stained veinlets; some quartz-dot veinlets; trace fresh disseminated pyrite < 1/10 mm disseminated through groundmass; rare limonitic fractures. >10% grey, siliceous, weakly calcareous (dolomite) Steel Formation Siltstone that contains trace to > 20% ultra-fine, fresh disseminated pyrite – occasional chips saturated with fresh sulfide. Transitional into:
106.0	110.0	SST	80:20 ARGG C2 10P0 Grey Steel Formation Siltstone; moderately calcareous; siliceous locally; intertangle with >10% graphitic argillite; minor quartz veining; 10-20% fresh pyrite as ultra-fine disseminations and as diagenetic, pyritic horizons < ½ cm.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2199

NORTHING : 19166.3 EASTING : 23661 ELEVATION : 831.5

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	OB	=>50 LAQM:50 ARGG
6.00	10.00	OB	=>LAQM C2
10.00	17.00	LAQM	->OB C3
17.00	20.10	LAQM	C3 S2 Sk 1P4
20.10	29.30	ARGG	+Lm
29.30	34.90	LAQM	C1 S2 Sk 2P4 Sb
34.90	39.80	ARGG	Ft*
39.80	54.00	LAQM	C3 Qe
54.00	90.00	ARGG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2199

NORTHING : 19166.3 EASTING : 23661 ELEVATION : 831.5

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.26	P4	C1	S1	WET
2.00	4.00	.30	P4	C1	S1	WET
4.00	6.00	.27	P4	C1	S1	WET
6.00	8.00	.35	P4	C2	S0	WET
8.00	10.00	-1.00	P4	C2	S0	WET
10.00	12.00	.16	P4	C3	S0	DAMP
12.00	14.00	.17	P4	C3	S0	DRY
14.00	16.00	.25	P4	C2	S0	DRY
16.00	18.00	.26	P4	C2	S2	DRY
18.00	20.00	.18	P4	C3	S1	DRY
20.00	22.00	.42	-1	C2	S1	DRY
22.00	24.00	.09	-1	C1	S1	DRY
24.00	26.00	.09	-1	C1	S1	DRY
26.00	28.00	.11	-1	C1	S1	DRY
28.00	30.00	.03	P4	C1	S1	DRY
30.00	32.00	.44	P4	C2	S3	DRY
32.00	34.00	.75	P4	C1	S2	DRY
34.00	36.00	.07	P4	C0	S1	DRY
36.00	38.00	.02	-1	C0	S1	DRY
38.00	40.00	.03	-1	C0	S1	DRY
40.00	42.00	.01	P4	C2	S0	DRY
42.00	44.00	.15	P4	C3	S1	DRY
44.00	46.00	.02	P4	C3	S1	DRY
46.00	48.00	.07	P4	C3	S0	DRY
48.00	50.00	.01	P4	C3	S0	DRY
50.00	52.00	.05	P4	C2	S0	DRY
52.00	54.00	.04	P3	C2	S0	DRY
54.00	90.00					
54.00	56.00	.01	-1	C1	S1	DRY
56.00	58.00	.01	-1	C1	S1	DRY
58.00	60.00	.01	-1	C2	S1	DRY
60.00	62.00	.01	-1	C2	S1	DRY
62.00	64.00	.03	-1	C0	S1	DRY
64.00	66.00	.03	-1	C0	S1	DRY
66.00	68.00	.05	-1	C0	S1	DRY
68.00	70.00	.03	-1	C0	S1	DRY
70.00	72.00	.01	-1	C0	S1	DRY
72.00	74.00	.02	-1	C0	S1	DRY
74.00	76.00	.01	-1	C0	S1	DRY
76.00	78.00	.02	-1	C0	S1	DRY
78.00	80.00	.04	-1	C0	S1	DRY
80.00	82.00	.01	-1	C0	S1	DRY
82.00	84.00	.12	-1	C0	S1	DRY

84.00	86.00	.01	-1	C0	S1	DRY
86.00	88.00	.01	-1	C0	S1	DRY
88.00	90.00	.03	-1	C0	S1	DRY

0.0	6.0	OB	=>50 LAQM :50 ARGG Overburden, as determined by drill site technician; wet, muddy samples; mixed lithologies – dominantly limonitic altered quartz monzonite and graphitic argillite with some large (< ½ cm) milky quartz fragments and some stained and unstained Steel Formation Siltstone; descriptions of individual rock types are not provided here.
6.0	10.0	OB	=>LAQM C2 Overburden, as indicated by drill site technician; could possibly be frozen, weathered overburden as it strongly resembles the rock immediately beneath. Quartz monzonite; mottled colours – white, pink, orange, black brown, original textures are always well preserved; lack of pervasive limonitic staining may be due to leaching rather than an outright lack of colour; most dominant alteration is of manganese oxide replacing abundant former biotite – starting at crystal cores; most orange colouration of unit seems to be due to alteration of biotite rather than staining associated with oxidation of sulfide; rare sulfide on fractures; not silicified; weakly to moderately calcareous matrix.
10.0	17.0	LAQM	->OB C3 Orange, tan and pink mottled quartz monzonite, almost exactly as described 6.0-10.0m; damp through 12.0m, and may be strongly weathered bedrock, colluvium or outright overburden excellent feldspar-phyric textures; no quartz eyes; biotite is variably altered – to silvery sericite pseudomorphs, to orange or hematite-red pseudomorphs, to limonitic sericitic shreds and variably replaced by dark red-brown and black manganese oxide; although pervasive limonitic staining oxide matrix remains weakly it is readily increasing and evening out toward end of interval; manganese oxide still remains as most dominant alteration product; strongly calcareous; no secondary quartz; trace oxidized pyrite < ½ mm as dark red to black manganese oxide-coated crystals; very fine dark red limonite flecks << ¼ mm, locally concentrated, likely represents former sulfide. (Not very interesting …).
17.0	20.1	LAQM	C3 S2 SK 1P4 Rich dark yellowish-orange limonitic altered quartz monzonite; very strong, even pervasive limonitic staining; abundant orange sericite on chip surfaces due mostly to complete alteration of biotite and to partial sericitization of modal feldspar; good feldspar-phyric textures – improve to lower contact. Moderately silicified to 18.0m – as flooding that pervades and overprints original textures and as discrete mm-scale veinlets that cut through lithology and also through silicified lithology. < 1% limonite after disseminated pyrite < ¼ mm – higher concentrations locally, especially on some fractures. From 18.0m: abundant manganese oxide; significantly decreased silicification; more resembles rock above 17 cm. (Looks good near upper contact).
20.1	29.3	ARGG	+Lm Dark grey and black argillite and silty argillite; increasingly graphitic with depth – good oily luster on many surfaces; locally chert-like, hard, angular fragments with sharp edges; some soft, bleached-looking, fissile shale 22.0-26.0m; most surfaces with greenish, often orange-stained; sericitization – especially above 26.0m but overall decreases to end of interval; several limonitic surfaces – less abundant to end of interval; minor quartz and even more rare quartz-calcite veinlets; no visible sulfide.
29.3	34.9	LAQM	C1 S2 SK 2P4 Sb Limonitic altered quartz monzonite; very strong pervasive limonitic staining – colour variation from dark orange to red-orange; phyric textures are not preserved but grain boundaries of groundmass feldspar are strongly evident; biotite altered to sericite (orange-stained) that no longer retains crystal shape and to creamy sericitic clay-like sub-pseudomorphic shape.

Strong sericitization and silicification as dominant alterations; all chip surfaces coated with yellowish and orange-stained powdery, dusty-looking sericite – mixed with carbonate; where sericitization is more pervasive, rock has opaque, micro-sucrosic texture; where sericite is more yellow and wispy-looking, the underlying rock has a waxy luster – possibly argillically altered.

Strong pervasive silicification; silica overprints original textures and fragments have a distinct greyish hematite-red colouration and vitreous luster; surfaces are coated with olive-green to yellow sericite; silicified intrusive breaks into hard, angular fragments just as pure quartz does; likely contains fine disseminated sulfide – most likely stibnite or pyrite – no crystals are identified but presence is assumed; rare discrete quartz veinlets < 1mm; 30.0-34.0m: strongest silicification.

< 2% dark red and manganese oxide-coated pyrite – altered to limonite, disseminated throughout; possibly contains more sulfide but evidence is difficult to see.

(Looks fairly yummy).

34.9 39.8 ARGG Ft*

Black argillite; very strongly graphitic; excellent greasy luster; hard, angular with weak quartz stockwork remain as resistant (washed) pieces in an overall soft, probably strongly tectonized unit – recovery of competent washed fragments is minimal, unwashed sample is very powdery.

Not calcareous; no visible sulfide.

Note: Each interval contains < 5% LAQM – could be contamination (but hole isn't wet); no mention of intrusive lenses in drill site log.

Possible shear/fault?

39.8 54.0 LAQM C3 Qe

Yellowish orange-brown monzonite; pervasive limonitic staining is strong and even; original textures are blurred but easily discerned; the rare k-spar phenocrysts observed in situ are limonite-stain and very strongly clay altered; fine-grained feldspar-rich, equigranular matrix shows strong to increasingly strong sericitization – opaque, sugary to waxy luster; biotite typically altered beyond recognition and variably replaced by spotty manganese oxide, 42.0-52.0m; abundant quartz eyes seen secondary in nature; strongly calcareous matrix, but best reaction comes from unwashed sample; all alterations intensify to lower contact; minor orange-stained, transparent mm-scale quartz veinlet fragments to 46.0m; trace disseminated oxidized pyrite < ¼ mm – less oxidized (P2-P3) near to lower contact.

From 48.0m: several chips (< 50% locally) develop waxy luster that often accompanies argillic alteration.

From 52.0: strong pervasive argillic alteration; increase in quantity of disseminated sulfide (>1%) and decreases in oxidization state of sulfide.

50.0-52.0m: very strong sericitization and increased quantity of manganese oxide.

Then, abruptly:

54.0 90.0 ARGG

Very strongly graphitic argillite; silty near upper contact, but quickly grades down into argillite – occasionally aphanitic to chert-like; gorgeous oily luster; weak quartz veining; no sulfide.

58.0-68.0m: very soft; negligible recovery of competent material for washed sample; minor LAQM fragments – not noted in technicians log.

54.0-62.0m: moderately calcareous; slow starting but very positive reaction to HCl from unwashed sample only.

Rare limonitic surfaces; no significant variation throughout.

From 80.0m: slight decrease in graphite content; hard and competent.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2200

NORTHING : 19145.4 EASTING : 23665.3 ELEVATION : 836.9

MAXDEPTH : 110 AZIMUTH : 0 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	10.30	OB	=>ARGG:LAQM
10.30	13.70	ARGG	+Lm
13.70	18.00	LAQM	S1 TRP4
18.00	24.10	LAQM	C2 S1 1P4
24.10	26.00	ARGG	+Lm Sk
26.00	28.50	SST	->LSST +Lm C3
28.50	38.60	ARGG	
38.60	41.00	LAQM	
41.00	47.00	LAQM	C3 S3 P4 Sb
47.00	54.00	LAQM	C3
54.00	56.00	LAQM	C3 Ck 1P4
56.00	59.00	SST	+Lm C1
59.00	61.80	LSST	C3 P4
61.80	64.10	ARGG	Ft*
64.10	65.90	SST	+Lm
65.90	69.00	ARGG	+Lm Sk
69.00	73.70	LAQM	C2 2P4
73.70	78.00	ARGG	C1 S2 Sk
78.00	84.00	ARGG	C1 Ck S1 Sk
84.00	88.00	ARGG	C1 S3 Sk
88.00	94.00	ARGG	C2 S1 Sk
94.00	100.00	SLTG	C1 S1 Sk
100.00	102.70	SST	80:20 ARGG C1
102.70	103.30	QZ	+Lm
103.30	110.00	SST	60:40 ARGG C1 S1 Sk P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2200

NORTHING : 19145.4 EASTING : 23665.3 ELEVATION : 836.9

MAXDEPTH : 110 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.24	P4	C1	S1	WET
2.00	4.00	.19	P4	C0	S1	WET
4.00	6.00	.48	P4	C0	S1	WET
6.00	8.00	.14	P4	C0	S1	WET
8.00	10.00	.70	P4	C0	S1	WET
10.00	12.00	.69	P4	C0	S1	DRY
12.00	14.00	.71	P4	C0	S1	DRY
14.00	16.00	.86	P4	C0	S1	DRY
16.00	18.00	.41	P4	C1	S0	DRY
18.00	20.00	.37	P4	C3	S1	DRY
20.00	22.00	.14	P4	C2	S1	DRY
22.00	24.00	.78	P4	C1	S1	DRY
24.00	26.00	.29	P4	C3	S1	DRY
26.00	28.00	.05	P4	C3	S1	DRY
28.00	30.00	.13	P4	C3	S1	DRY
30.00	32.00	.09	-1	C0	S1	DRY
32.00	34.00	.08	-1	C0	S1	DRY
34.00	36.00	.27	-1	C0	S1	DRY
36.00	38.00	.28	-1	C0	S1	DRY
38.00	40.00	.13	P4	C0	S1	DRY
40.00	42.00	.40	P4	C0	S1	DRY
42.00	44.00	1.22	P4	C3	S3	DRY
44.00	46.00	.84	P4	C2	S3	DRY
46.00	48.00	.50	P4	C3	S1	DRY
48.00	50.00	.23	P4	C2	S1	DRY
50.00	52.00	.42	P4	C3	S1	DRY
52.00	54.00	.08	P4	C3	S0	DRY
54.00	56.00	.48	P4	C3	S0	DRY
56.00	58.00	.31	P4	C1	S0	DRY
58.00	60.00	.18	P4	C3	S0	DRY
60.00	62.00	.06	P4	C3	S0	DRY
62.00	64.00	.13	P4	C1	S0	DRY
64.00	66.00	.08	P4	C1	S1	DRY
66.00	68.00	.06	P4	C1	S1	DRY
68.00	70.00	.07	P4	C2	S1	DRY
70.00	72.00	.45	P4	C2	S0	DRY
72.00	74.00	.21	P4	C2	S1	DRY
74.00	76.00	.04	P4	C1	S2	DRY
76.00	78.00	.02	-1	C1	S3	DRY
78.00	80.00	.02	-1	C1	S1	DRY
80.00	82.00	.02	-1	C0	S1	DRY
82.00	84.00	.01	-1	C0	S1	DRY
84.00	86.00	.03	P0	C1	S3	DRY

86.00	88.00	.04	P0	C1	S3	DRY
88.00	90.00	.03	-1	C2	S2	DRY
90.00	92.00	.03	-1	C2	S1	DRY
92.00	94.00	.04	-1	C2	S1	DRY
94.00	96.00	.04	-1	C2	S1	DRY
96.00	98.00	.04	P4	C0	S1	DRY
98.00	100.00	.05	P4	C1	S1	DRY
100.00	102.00	.06	P4	C1	S1	DRY
102.00	104.00	.05	P4	C1	S4	DRY
104.00	106.00	.04	P0	C2	S1	DRY
106.00	108.00	.03	P0	C1	S2	DRY
108.00	110.00	.03	P0	C1	S1	DRY

0.0	10.3	OB	=>ARGG: LAQM Overburden, as determined by drill site technician; wet, muddy samples – mixed lithologies. Dominantly siliceous argillite with weathered intrusive (< 10%) and some chert and Steel Formation Siltstone. ARG: Dark grey; weakly carbonate; siliceous; very weak quartz stockwork; sericite development on most surfaces; aphanitic to silty; increasingly graphitic; no sulfide; not calcareous. LAQM: Orange-brown to red; widely variable alterations; dominant lithologies from 7.0m where orange-red, strongly stained, strongly sericitized and moderately silicified rock contains < 3% dark red-brown corroded, cubic to anhedral pyrite crystals < ¼ mm (to much finer) that are occasionally coated with manganese oxide; very weathered and incompetent – looking.
10.3	13.7	ARGG	+Lm Black, graphitic argillite; silty; weak quartz flooding and veining; patchy limonite on some surfaces – especially near contacts; not calcareous; no visible sulfide.
13.7	18.0	LAQM	S1 TrP4 Medium orange to orange-brown limonitic altered quartz monzonite; original textures are easily observed – orange-stained, sericite and clay-altered k-spar phenocrysts 3 mm are commonly viewed in situ; feldspar rich matrix shows moderate sericitization that slightly rounds grain boundaries; biotite altered to orange-stained sericitic pseudomorphs and masses – also coated with minor oxide as sporadic splotches or nearly continuous coatings; no quartz eyes, not calcareous; pearly to sub-vitreous luster and sub-translucence present but obscured by sericitic coatings on most surfaces; sucrosic, recrystallized appearance where alterations are strongest; 5-10% speckly and fracture-coating manganese oxide throughout. Weak pervasive silicification near upper contact – invades groundmass so resultant rock is vitreous, often translucent, breaks into quartz-like fragments with sharp edges and is often associated with hematitic staining and stronger sericitization; silicification decreases to end of interval. Trace to 1% dark red limonite flecks and boxworks < ¼ mm represent former disseminated pyrite; some fractures host higher oxidized sulfide concentrations; evidence of former sulfide is often difficult to differentiate from groundmass. Transitional into:
18.0	24.1	LAQM	C2 S1 1P4 Dark orange limonitic altered quartz monzonite, much as 13.7-18.0m; stronger limonitic staining – intensifies to lower contact; biotite pseudomorphs are commonly less altered and silvery; abundant (10-15%) manganese oxide coats fractures and former biotite – much more abundant than is seen in adjacent rock; calcareous matrix – very strong reaction at top of interval, rapidly decreases to end. < 50% chips with slight red hematitic staining and the appearance of weak to moderate pervasive silicification; angular; translucent; doesn't appear to be associated with increased sulfide. Trace to 2%, anhedral flecks of dark purple-red limonite after former disseminated pyrite < ¼ mm; increases to lower contact. All alterations are stronger near lower contact; some fragments with intense argillic alteration suggest possible faulting/shearing at lower contact.
24.1	26.0	ARG	+Lm Sk Dark grey to black argillite; very siliceous matrix; moderate quartz stockwork; minor quartz-calcite lenses and veinlets – occasional with strong orange-staining; quartz swirls and blobs in groundmass also show orange-staining; patchy limonite (usually associated with secondary quartz) on all surfaces is common; distinct contact effects – rock is mucked up; no sulfide.

26.0	28.5	SST	->LSST +Lm C3 Steel Formation Siltstone; tan to pale orange, with light grey and dark orange end members; locally siliceous; some wispy laminations; some fragments show micro-brecciation; most fractures coated with dark orange, earthy limonitic patina; other chips show variable pervasive limonitic staining – increasingly common with depth; manganese oxide and dark purple limonite after pyrite creates leopard-spotty appearance on some fractures; pyrite also as dark purple, corroded disseminated cubes < ½ mm; orange-stained sericite on most chips; more siliceous – silicified to lower contact; rare quartz veinlets; strongly calcareous.
28.5	38.6	ARGG	Black argillite; increasingly graphitic to lower contact; aphanitic to silty; very weak quartz veining; ubiquitous but minor patch limonite on fractures and associated with quartz; no visible sulfide; hard, angular fragments.
38.6	41.0	LAQM	Rich, dark orange monzonite; very strong, even pervasive limonitic staining; textures of feldspar-rich matrix are crudely preserved – otherwise, rock has a fairly plane, homogeneous appearance; biotite and modal feldspar altered to dark orange sericite that coats all surfaces; blobs < 1mm and coating rare fractures; not calcareous; not silicified; very rare sub-cubic, disseminated limonite flecks < 1/5 mm; partially altered (argillite and sericite) k-spar phenocrystals < 2mm show less staining and have waxy to earthy luster – increasingly common. Transitional into:
41.0	47.0	LAQM	C3 S3 P4 Sb Limonitic altered quartz monzonite, as 38.6-41.0m, but with deeper, red-orange limonitic-hematitic staining and very strong pervasive silicification that overprints (and occasionally destroys) original textures; hard and angular where silicified; intense sericitization – yellow and orange sericite and carbonate combines on surfaces to create dusty coating; intense alterations on fractures; discrete mm-scale quartz veinlets are present but uncommon – often orange-stained; rare cloudy quartz veinlets that are saturated with blade stibnite crystals; rock that lacks silicification is very intensely sericitized and occasionally clay altered (soft and yellow-bleached); 10-15% manganese oxide throughout – on fractures, but most commonly in similar occurrences to former (no longer recognizable) biotite; orange and black manganese oxide – rich chips have distinct 'leopard-spot' appearance; manganese oxide also forms tracings on feldspar crystals. Any former pyrite has altered to limonite – quantity cannot be estimated due to destruction of evidence by alterations.
47.0	54.0	LAQM	C3 Dark orange-brown monzonite, as 38.6-41.0m; all surfaces coated with yellowish, greenish, orange sericite; good phyric textures; large fragments (< 2cm) – typical in a more fractured environment; 5-10% manganese oxide; rare oxidized disseminated sulfide; some greyish quartz veinlet fragments contain sulfide (50.0-52.0m); starts to develop waxy luster by end of interval.
54.0	56.0	LAQM	C3 Ck 1P4 Dark orange monzonite; excellently feldspar phyric – all original textures are very well preserved; weakly stained sericitized and clay-altered k-spar phenocrysts < ½ cm; larger feldspar phenocrysts with flowery and dendritic manganese oxide; biotite altered to orange and red sericite that is almost always partially to completely replaced with black manganese oxide; rock has very spotty appearance; slightly waxy luster; strong sericitization throughout; intensely calcareous matrix – some waxy carbonate veinlets. < 1% limonite flecks after disseminated pyrite.

56.0	59.0	SST	+Lm C1 Steel Formation Siltstone; dove grey; typical appearance; slightly siliceous; plately, numerous limonitic fragments; < 5% chips with pervasive limonitic staining; weakly sericitized on most surfaces weakly calcareous; trace limonitic boxworks after former disseminated pyrite. Then suddenly:
59.0	61.8	LSST	C3 P4 Steel Formation Siltstone with strong to intense pervasive limonitic staining – strongest near contacts; < 20% spotty manganese oxide gives chips leopard spots – possibly coats former sulfide (I dunno-no good evidence); dark red/purple cubic flecks of limonite after pyrite < 1/6 mm – possibly up to 10% (>50% locally); opaque; granular; sericitized; strongly calcareous – very good reaction to HCl, mostly from unwashed sample, therefore, dolomitic; no quartz or calcite veinlets. 60.0-61.8m: grey clay; shear?
61.8	64.1	ARGG	Ft* Graphitic argillite; rare quartz veinlets; slightly incompetent and kinda cruddy – tectonized?; < 5% SSTand LSST; no sulfide; rare quartz veinlets; shear?
64.1	65.9	SST	+Lm Grey Steel Formation Siltstone, as 56.0-59.0m, limonitic fractures and 5-10% fragments with pervasive limonitic staining; minor yellowish sericite – mostly orange-stained and viewed on most surfaces; trace oxidized and manganese oxide – coated cubic pyrite on some fractures.
65.9	69.0	ARGG	+Lm Sk Black, strongly graphitic argillite, moderate quartz stockwork – sub-mm veinlets are often orange-stained; minor quartz-calcite veining – unit reacts very weakly to HCl; siliceous locally; hard, angular fragments with sharp edges.
69.0	73.7	LAQM	C2 2P4 Monzonite; strong, even pervasive limonitic staining – starts with strong, bright yellowish orange and grades into rich, strong reddish orange; homogeneous appearance – only textures of feldspar-rich groundmass are still preserved; very rare clear quartz eyes; biotite altered to rare good silver and orange pseudomorphs, but more commonly to ragged orange sericitic masses – partially replaces by manganese oxide near upper contact; moderately calcareous matrix; no quartz or calcite veinlets. Trace to 3% (2% as average) dark orange, red and red-black cubic to rounded limonite flecks < ¼ mm as complete replacement of former disseminated pyrite. From 71.9m: Significantly increasing in red-orange staining; increased sericitization and chips might be weakly silicified.
73.7	78.0	ARGG	C1 S2 Sk Black, siliceous; graphitic argillite; very strong quartz flooding of groundmass; clear to milky interstitial swirls and blobs and clear and milky multi-phase mm-scale stockwork; minor quartz-calcite veinlets; minor limonitic quartz and some fractures; carbonate in veinlets attracts orange staining better than quartz alone; hard, angular fragments with sharp edges, good, good oily luster locally; no sulfide. < 5% intensely siliceous (silicified) Steel Formation Siltstone with some wispy laminations and occasionally resembling a chert breccia – weakly calcareous.
78.0	84.0	ARGG	C1 Ck S1 Sk Black graphitic argillite; siliceous; hard, angular fragments; weak quartz, quartz-calcite and calcite veining; carbonate veinlets tend to be wispier; oily luster, minor orange staining in quartz-carbonate veinlets; no sulfide.
84.0	88.0	ARGG	C1 S3 Sk Graphitic argillite; very strong multi-phase quartz and quartz-carbonate stockwork; 30% to 40% secondary quartz; veinlets with weak limonitic staining; trace dark orange limonite after pyrite; otherwise as above.

88.0	94.0	ARGG	C2 S1 Sk Graphitic argillite with < 5% Steel Formation Siltstone; calcareous matrix locally; weak to moderate quartz-calcite stockwork; siliceous; aphanitic and chert-like locally; some fragments show self-healed micro breccia; many greenish sericitic surfaces; ubiquitous but non-abundant limonitic fractures; note: once reaction to HCl starts it persists and intensifies.
94.0	100.0	SLTG	C1 S1 Sk Graphitic siltstone; very strongly to intensely graphitic (especially 96.0-98.0m); weak to moderate milky quartz and quartz-calcite veining; moderately calcareous matrix – reaction to HCl persists and intensifies; several veinlets near lower 'contact' with limonitic staining; very rare oxidized sulfide. 96.0-98.0m: Very soft; decreased quantity of competent washed material-usually silicified. Transitional into:
100.0	102.7	SST	80:20 ARGG C1 Medium grey, weakly calcareous Steel Formation Siltstone interbedded with <20% graphitic silty argillite; weak sub-cm quartz-carbonate and quartz veining – often with pervasive limonitic staining; occasional limonitic surfaces and rare pervasive staining of groundmass; no sulfide.
102.7	103.3	QZ	+Lm Angular milky quartz fragments < 1.3 cm; most surfaces with strong orange staining; minor carbonate; could represent one large quartz vein or numerous smaller veinlets (no indication of quartz in drill site log); no sulfide.
103.3	110.0	SST	60:40 ARGG C1 S1 Sk P0 Interbedded Steel Formation Siltstone and graphitic argillite and silt; dominantly SST grading into fairly equal quantities of SST and ARGG; variably calcareous, depending on quantity of calcareous SST; weak to strong, often orange-stained sub-cm quartz and quartz-carbonate veining (strongest 106.0-108.0m). Intricate relationship between sediments – delicately interfinger, mottled and often resembles breccia (SST in ARGG); bedding laminations are occasionally seen; ugly-looking rock! Trace to 15% pyrite – diagenetic yellow pyrite is most often seen (increasingly to lower contact) as sub-cm massive chips and as very rare ultra fine disseminations within SST.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2201

NORTHING : 19143.1 EASTING : 23725.3 ELEVATION : 849.9

MAXDEPTH : 100 AZIMUTH : 0 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	=>LAQM
2.00	7.50	LAQM	C2
7.50	9.00	LQM	C3
9.00	10.20	QM	C3
10.20	13.90	LQM	C3
13.90	18.00	LQM	90:10 QM C3
18.00	24.50	QM	80:20 LQM C3
24.50	30.00	LQM	90:10 QM C3
30.00	31.50	LAQM	C3
31.50	32.10	AQM	C3
32.10	44.00	LAQM	C3 1P4
44.00	52.00	LAQM	C3
52.00	53.80	QM	C3
53.80	55.00	LQM	C3
55.00	67.00	LAQM	C3 1P4
67.00	71.50	ARGG	+Lm C3
71.50	75.80	ARGG	50:50 SST +Lm C3 1P4
75.80	77.90	LSST	C3 10P4
77.90	92.60	SST	:SLT:LSST +Lm C3
92.60	95.90	LSST	C2 1P4
95.90	100.00	SST	:SLT +Lm C2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2201

NORTHING : 19143.1 EASTING : 23725.3 ELEVATION : 849.9

MAXDEPTH : 100 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.27	P4	C1	S0	DAMP
2.00	4.00	.29	P4	C2	S0	DAMP
4.00	6.00	.04	P4	C2	S0	DAMP
6.00	8.00	.52	P4	C2	S0	DAMP
8.00	10.00	.43	-1	C3	S0	DAMP
10.00	12.00	.10	-1	C3	S0	DAMP
12.00	14.00	.04	-1	C3	S0	DAMP
14.00	16.00	.05	-1	C3	S0	DAMP
16.00	18.00	.04	-1	C3	S0	DAMP
18.00	20.00	.02	-1	C3	S0	DAMP
20.00	22.00	.01	-1	C3	S0	DAMP
22.00	24.00	.02	-1	C3	S0	DAMP
24.00	26.00	.02	-1	C3	S0	DAMP
26.00	28.00	.01	-1	C3	S0	DAMP
28.00	30.00	.01	-1	C3	S0	DAMP
30.00	32.00	.01	P4	C3	S0	DAMP
32.00	34.00	.03	P4	C3	S0	DAMP
34.00	36.00	.17	P4	C3	S0	DAMP
36.00	38.00	.10	P4	C3	S0	DAMP
38.00	40.00	.01	P4	C3	S0	DAMP
40.00	42.00	.06	P4	C3	S0	DAMP
42.00	44.00	.13	P4	C3	S0	DAMP
44.00	46.00	.03	P4	C3	S0	DAMP
46.00	48.00	.03	P4	C3	S0	DAMP
48.00	50.00	.09	P4	C3	S0	DAMP
50.00	52.00	.08	P4	C3	S0	DAMP
52.00	54.00	.04	P4	C3	S0	DAMP
54.00	56.00	.04	P4	C3	S0	DAMP
56.00	58.00	.19	P4	C3	S0	DAMP
58.00	60.00	.03	P4	C3	S0	DAMP
60.00	62.00	.13	P4	C3	S0	DAMP
62.00	64.00	.02	P4	C3	S0	DAMP
64.00	66.00	.03	P4	C3	S0	DAMP
66.00	68.00	.06	P4	C3	S1	DAMP
68.00	70.00	.05	P4	C3	S1	DAMP
70.00	72.00	.07	P4	C3	S1	DAMP
72.00	74.00	.02	P4	C3	S1	DAMP
74.00	76.00	.02	P4	C3	S0	DAMP
76.00	78.00	.02	P4	C3	S0	DAMP
78.00	80.00	.02	P4	C1	S0	DAMP
80.00	82.00	.03	P4	C2	S0	DAMP
82.00	84.00	.02	P4	C3	S0	DAMP
84.00	86.00	.02	P4	C2	S0	DAMP

86.00	88.00	.04	P4	C3	S0	DAMP
88.00	90.00	.03	P4	C2	S0	DAMP
90.00	92.00	.04	P4	C2	S0	DAMP
92.00	94.00	.03	P4	C2	S0	DAMP
94.00	96.00	.05	P4	C2	S0	DAMP
96.00	98.00	.03	P4	C2	S0	DAMP
98.00	100.00	.03	P4	C2	S0	DAMP

0.0	2.0	OB	=>LAQM Overburden; wet, dirt-covered chips; dominantly LAQM, as described nest; abundant manganese oxide on most surfaces.
2.0	7.5	LAQM	C2 Orange to orange-brown limonitic altered quartz monzonite; pervasive limonitic staining is strong and even, except near to upper contact where rock appears slightly bleached (weathered); good igneous textures, some clay-altered feldspar phenocrysts < 3mm; very, very rare clear quartz eyes; variably altered biotite – from orange and silver sericitic pseudomorphs and ragged limonitic, sericitic masses to completely (and frequently) coated with manganese oxide (more common to lower contact) – overall, alteration decreases; matrix is strongly calcareous; strong sericitization of modal feldspar – where more pervasive rock develops opaque, micro-granular texture; trace oxidized pyrite < ¼ mm – appears to replace some former biotite; not silicified. Transitional into:
7.5	9.0	LQM	C3 Monzonite, as just described, but with fresh black to partially altered biotite; very strong pervasive limonitic staining; oxidized pyrite on fractures; strongly calcareous; surface sericitization.
9.0	10.2	QM	C3 Blue-grey quartz monzonite with abundant fresh black biotite; hard and barely alteration; minor sericitization; intensely calcareous – rolling reaction to HCl; no secondary quartz; no calcite veinlets; no sulfide.
10.2	13.9	LQM	C3 Rich dark orange monzonite; as 7.5-9.0m with < 5% fresh black biotite; remaining biotite is variably oxidized and/or sericitized; strongly sericitic – wispy surface coatings to micro-sucrosic, recrystallized-looking appearance; minor manganese oxide partially replaces some biotite and lines some fractures; no secondary quartz; no sulfide.
13.9	18.0	LQM	90:10 QM C3 Quartz monzonite; 90% with pervasive orange staining; remaining is blue-grey and fresh; fresh and variably oxidized biotite; lots of wispy sericite (and carbonaceous) on surface; good textures; not very strongly altered; no sulfide; no secondary quartz.
18.0	24.5	QM	80:20 LQM C3 Fresh, blue-grey quartz monzonite with variable quantities of fine, fresh black biotite; excellent textures; pervasive limonitic staining, as sub-cm alteration envelopes adjacent to fractures, becomes more abundant to end of interval; intensely calcareous; no secondary quartz; no sulfide. Transitional into:
24.5	30.0	LQM	90:10 QM C3 As all intervals just described, but < 10% rock lacks limonitic staining; intensely calcareous; no secondary quartz; no sulfide; weak sericitization; great textures and luster.
30.0	31.5	LAQM	C3 Dark orange limonitic altered quartz monzonite; excellent textures; biotite and modal feldspar altered to sericite that coats most surfaces – wispy coating over pearly luster; biotite and fractures frequently coated with manganese oxide; trace manganese oxide-coated oxidized pyrite < 1/6 mm; no secondary quartz; intensely calcareous; no calcite veinlets.
31.5	32.1	AQM	C3 Blue grey quartz monzonite, as 9.0-10.2m but all biotite altered to silvery sericite; no secondary quartz; no sulfide; intensely calcareous.
32.1	44.0	LAQM	C3 1P4 Orange-brown monzonite; feldspar phyric; all textures are preserved but are blurred locally; white clay and/or sericite – altered k-spar phenocrysts < 5 mm

			are viewed in situ – often patterned with fine dendritic manganese oxide – lack staining that affects remaining minerals; modal feldspar altered to sericite (and locally to clay) that coats chips (wispy, felted appearance) or is more pervasive (opaque, sucrosic, recrystallized appearance); biotite variably altered and very frequently replaces by manganese oxide; no secondary quartz; intensely calcareous. 1-3% disseminated pyrite – 1) fine dissemination < ¼ mm, concentrated locally, coated with manganese oxide, and 2) dark purple limonite pseudomorphs after disseminated pyrite cubes < ½ mm; higher sulfide concentrations are occasionally observed on fractures; more oxidized pyrite near upper contact.
44.0	52.0	LAQM	C3 Monzonite, as 32.1-44.0m, but with increasing loss of preserved porphyritic texture; biotite is slightly less altered and manganese altered and manganese oxide content is significantly decreased; trace oxidized pyrite; variably sericitized; intensely calcareous. 48.0-50.0m: bleached.
52.0	53.8	QM	C3 Blue-grey, fresh, porphyritic quartz monzonite with abundant fresh black biotite, as 90-10.2m; intensely calcareous; no secondary quartz; no sulfide.
53.8	55.0	LQM	C3 Quartz monzonite, as 52.0-53.8m, but with dark red-brown pervasive limonitic staining; minor sericitization; intensely calcareous; no secondary quartz; no sulfide; excellent texture and luster.
55.0	67.0	LAQM	C3 1P4 Weakly porphyritic monzonite with very strong, even, pervasive, rich orange staining; white, waxy k-spar phenocrysts <4mm are partially altered and are usually patterned with fine manganese oxide tracings – lack the staining that affects remaining minerals; quartz-poor; no quartz eyes. Biotite is increasingly altered – only rims of biotite books, then partial to increasingly complete replacement by manganese oxide and then as limonitic, sericitic masses and pseudomorphs from 58.0m. Manganese oxide is very abundant above 58.0m – very rare below. Strong sericitization and local argillic alteration; opaque, homogenous-looking rock has felted to granular, recrystallized appearance; rock has incompetent nature where alterations are strongest. Intensely calcareous; not silicified – one sub-mm clear quartz veinlet observed. Trace to 3% (< 1% average) dark red limonite flecks < ¼ mm (usually finer) after disseminated pyrite; sulfide content higher from 62.0m; former sulfide occasionally coated with manganese oxide; higher concentrations on fractures; from 64.0m, some disseminated pyrite is very strongly, but not completely (P3) altered to limonite. Sharp lower contact.
67.0	71.5	ARG	+Lm C3 Siliceous argillite to silty argillite; very weakly carbonaceous; possibly contains some micritic limestone – very strong, instantaneous reaction to HCl from sugary-looking black rock; argillite has marbled appearance due to carbonate and quartz invasion of groundmass and irregular veining; greenish (to orange-stained) sericite development is very, very strong; limonitic fractures are not uncommon; trace disseminated manganese oxide coated pyrite cubes << ¼ mm. Weird-looking due to contact effects? Transitional into:
71.5	75.8	ARG	50:50 SST +Lm C3 1P4 Mixed argillite, siltstone and Steel Formation Siltstone; equal quantities; ugly mess; intensely calcareous; minor quartz veining; minor calcite veining; abundant sericite, limonite and limonitic sericite; some Steel (< 1%) with

			pervasive limonitic staining; Steel looks masticated to brecciated; some wispy laminations; oxidized pyrite cubes < 1mm on some fractures – altered to dark red limonite or remain as yellowish, only weakly oxidized pitted-looking, near fresh crystals < ¾ mm. (Ugly, ugly!). Transitional into:
75.8	77.9	LSST	C3 10P4 Steel Formation Siltstone with strong, even pervasive limonitic staining; orange with green-grey underhue; stronger limonite/hematite on fractures; strongly sericitized; intensely calcareous; numerous sub-mm black fractures and stringers – appears brecciated locally; at least 10% ultra-fine (< 1/10 mm) disseminated pyrite – probably more, as some fragments were likely saturated.
77.9	96.2	SST	:SLT :LSST *Lm C3 Dominantly grey Steel Formation Siltstone with variable quantities of grey (Earn?) siltstone; strongly calcareous; limonitic surfaces; minor LSST (84.0-86.0m); trace oxidized pyrite; minor quartz veining; bedding laminations are frequently evident; mottled-looking locally – ugly.
96.2	95.9	LSST	C2 1P4 Pale orange-grey Steel Formation Siltstone; weak pervasive limonitic staining – stronger on and adjacent to fractures; < 1% oxidized disseminated pyrite concentrated on fractures; good platy fragments.
95.9	100.0	SST	:SLT +Lm C2 Mixed Steel Siltstone and Earn Siltstone; siliceous; numerous limonite and sericitic surfaces; brecciated/masticated; numerous black hairline stringers and fractures; ugly; much as all sediment units described so far; minor (<<1%) oxidized pyrite – as on fractures.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2202

NORTHING : 19178.8 EASTING : 23723.1 ELEVATION : 840.4

MAXDEPTH : 100 AZIMUTH : 0 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=>95 LAQM:5 ARG
3.00	6.00	LAQM	->OB C3
6.00	11.00	LAQM	C3 2P4
11.00	19.50	BX	=>60 ARG:40 SST+LSST C3 2P4
19.50	30.00	LAQM	C3 S1 4P4
30.00	35.00	LAQM	C3 2P4
35.00	38.50	LAQM	C3
38.50	42.20	LQM	C3
42.20	46.50	LAQM	C3
46.50	49.50	LAQM	
49.50	52.50	ARGG	95:5 SST+BX +Lm C3
52.50	55.00	SST	+Lm C2
55.00	58.80	LSST	C2 2P4
58.80	61.00	SLTG	->CH +Lm
61.00	64.50	SST	+Lm Ft*
64.50	67.00	LSST	80:20 SST C1
67.00	71.60	LSST	C1 10P4
71.60	76.00	LAQM	C3
76.00	78.00	LSST	C1
78.00	84.50	SST	+Lm C1
84.50	88.50	ARGG	+Lm S2 Sk
88.50	96.00	SST	80:20 ARG +Lm C2
96.00	100.00	LSST	C1 6P4

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2202

NORTHING : 19178.8 EASTING : 23723.1 ELEVATION : 840.4

MAXDEPTH : 100 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.14	P4	C0	S0	DAMP
2.00	4.00	.15	P4	C1	S0	DRY
4.00	6.00	.09	P4	C3	S0	DRY
6.00	8.00	.06	P4	C3	S1	DRY
8.00	10.00	.05	P4	C3	S0	DRY
10.00	12.00	.05	P4	C3	S1	DRY
12.00	14.00	.02	P4	C3	S1	DRY
14.00	16.00	.02	P4	C3	S1	DRY
16.00	18.00	.01	P4	C3	S1	DRY
18.00	20.00	.02	P4	C3	S1	DRY
20.00	22.00	.03	P4	C3	S0	DRY
22.00	24.00	.01	P4	C3	S1	DRY
24.00	26.00	.14	P4	C3	S1	DRY
26.00	28.00	.22	P4	C3	S2	DRY
28.00	30.00	.02	P4	C3	S1	DRY
30.00	32.00	.01	P4	C3	S0	DRY
32.00	34.00	.01	P4	C3	S0	DRY
34.00	36.00	.03	P4	C3	S0	DRY
36.00	38.00	.01	P4	C3	S0	DRY
38.00	40.00	.03	P4	C3	S0	DRY
40.00	42.00	.17	P4	C3	S0	DRY
42.00	44.00	.06	P4	C3	S0	DRY
44.00	46.00	.11	P4	C3	S0	DRY
46.00	48.00	.22	P4	C3	S0	DRY
48.00	50.00	.12	P4	C3	S1	DRY
50.00	52.00	.04	P4	C2	S1	DRY
52.00	54.00	.23	P4	C1	S1	DRY
54.00	56.00	.02	P4	C2	S0	DRY
56.00	58.00	.03	P4	C3	S0	DRY
58.00	60.00	.04	P4	C2	S0	DRY
60.00	62.00	.26	P4	C1	S1	DRY
62.00	64.00	.04	P4	C2	S1	DRY
64.00	66.00	.02	P4	C1	S0	DRY
66.00	68.00	.11	P4	C1	S0	DRY
68.00	70.00	.03	P4	C3	S0	DRY
70.00	72.00	.06	P4	C3	S0	DRY
72.00	74.00	.04	P4	C3	S0	DRY
74.00	76.00	.03	P4	C3	S0	DRY
76.00	78.00	.01	P4	C3	S1	DRY
78.00	80.00	.04	P4	C1	S0	DRY
80.00	82.00	.08	P4	C3	S0	DRY
82.00	84.00	.08	P4	C3	S0	DRY
84.00	86.00	.02	P4	C2	S1	DRY

86.00	88.00	.13	P4	C2	S0	DRY
88.00	90.00	.20	P4	C2	S0	DRY
90.00	92.00	.07	P4	C2	S0	DRY
92.00	94.00	.05	P4	C2	S0	DRY
94.00	96.00	.01	P4	C1	S0	DRY
96.00	100.00					
96.00	98.00	.01	P4	C1	S0	DRY
98.00	100.00	.04	P4	C1	S0	DRY

0.0	3.0	OB	=>95 LAQM : 5 ARG Overburden, as determined by drill site technician; damp near surface; larger soil covered fragments with minor organics; dominantly LAQM with minor sediments. LAQM: Dark orange limonitic altered quartz monzonite; all surfaces coated with orange stained sericite and abundant spotty manganese oxide – both replacing former biotite; all other textures very well preserved; weakly calcareous; not silicified, rare disseminated oxidized pyrite. ARG: Black argillite is siliceous; non-graphitic; sericitic surfaces; limonitic fractures.
3.0	6.0	LAQM	->OB C3 Limonitic altered quartz monzonite, as described above; possible overburden – chips are a typically large (common in broken ground and overburden), strongly sericitized and contain abundant speckly manganese oxide; strongly calcareous matrix; no secondary quartz; very rare disseminated oxidized pyrite; rare flecks of partially altered black biotite; < 5% blue-grey unaltered quartz monzonite.
6.0	11.0	LAQM	C3 2P4 Bright yellowish-orange limonitic altered quartz monzonite; small chips, broken along grain boundaries into similar homogenous fragments; original textures are discernible but phyric minerals are not abundant; no quartz eyes; all biotite completely altered to ragged orange-stained sericitic masses that are occasionally partially coated with manganese oxide and to less common good pseudomorphs. Sericitization of fine-grain feldspar-rich matrix intensifies to lower contact – gives chip surfaces a felted to dirty-looking appearance; very strongly calcareous matrix; >5% manganese oxide, typically coats former biotite and some former sulfide; rare quartz veinlets near upper contact; all alterations increase to lower contact. < 2% disseminations pyrite < ¼ mm has altered to dark purple anhedral flecks of limonite; sulfide concentrates on fractures, where it is oxidized and frequently coated with manganese oxide; some oxidized and corroded cubic limonitic pyrite crystals < ½ mm. Very strongly sericitized and more pyritic from 10.0m.
11.0	19.5	BX	=>60 ARG :40 SST +LSST +Lm C3 2P2 Very interesting breccia with non-graphitic argillite and Steel Formation Siltstone; all chip surfaces show strong sericitization and most fractures are limonitic. Unbrecciated ARG is very siliceous and hard; dark grey; all surfaces coated with greenish to orange stained sericite; angular, sharp-edged fragments; aphanitic to very finely sandy; ubiquitous but non-abundant; orange-stained mm-scale quartz veinlets; some quartz-carbonate veinlets; calcareous surfaces? Unbrecciated SST varies in colours from light grey to deep, dark orange where strongly, pervasively limonite-stained; locally silicified; always strongly sericitized; very strongly calcareous; may contain >2% disseminated pyrite cubes < ¼ mm, completely altered to limonite. Most of interval is composed of brecciated fragments – some descriptions to follow. Most breccia fragments consist of rounded to angular fragments of grey to orange, siliceous and micro-stockworked, chert-like siltstone – usually clast-supported with a silicified, argillitic matrix; CPC-like or GW-like – could it be so? Nah; anyway, both clasts and matrix are strongly silicified; Steel (or chert) fragments are often much more strongly orange-stained; >2% oxidized disseminated sulfide. Quantity of breccia fragments decrease with depth; limonitic Steel Formation becomes dominant lithology near end of contact. Hmm.

(I doubt that this carries gold, but it's pretty neat-o).

19.5 30.0 LAQM C3 S1 4P4

Bright yellowish-orange limonitic altered quartz monzonite; contains >10% reddish-orange fragments by 28.0m; good igneous textures steadily improve; orange-stained, clay – and/or sericite – altered k-spar phenocrysts < 3mm are often viewed in situ; no quartz eyes; sericitized, limonitic biotite pseudomorphs are very common and are occasionally partially replaced with manganese oxide.

Fine-grained feldspar-rich matrix is strongly sericitized throughout; where sericitization (and/or argillic alteration) is more pervasive, rock develops an opaque, sucrosic recrystallized appearance; otherwise, sericite after feldspar and biotite coats chip surfaces, but majority of underlying rock retains sub-vitreous luster and sub-translucence.

Very strongly calcareous – reaction to HCl is instantaneous and vigorous – discrete calcite veinlets are not seen.

Minor quantities of ubiquitous manganese oxide – often fine dendritic tracings on feldspar phenocrysts, and less commonly coats or partially replaces former biotite and sulfide; more common along fractures.

Weak patchy silicification throughout; moderate to strong silicification from 25.0 m is associated with stronger, pervasive hematitic staining and a more glassy luster; contains greater quantity of oxidized sulfide locally; silicified fragments are definitely yummier looking than adjacent rock; rare discrete sub-mm quartz veinlets.

2-5% (4% average) limonite after former pyrite; pyrite as cubic, corroded disseminations < ½ mm; as numerous fine oxidized crystals < ¼ mm – higher concentrations and most common occurrence on fractures; < 10% sulfide locally; usually altered to dark purple pseudomorphs, and if on fractures, coated with irregular splotches of manganese oxide.

(Not bad looking, Possible gold?)

Kinda transitional into:

30.0 35.0 LAQM C3 2P4

Lighter yellowish orange monzonite, much as just described; grain boundaries are less sharply defined; chips are more homogeneous – looking; former biotite is more strongly altered; weaker sericitization of modal feldspar, but still very strong locally; manganese oxide is significantly less common; very strongly calcareous; not silicified.

2% pyrite throughout, tends to mostly occur as higher concentration on fractures; dissemination through matrix are much less common; subhedral limonite pseudomorphs are also often coated with manganese oxide – especially on fractures; rare chips with >10% oxidized disseminated pyrite.

Transitional into:

35.0 38.5 LAQM C3

Monzonite, as just described but contains rare, trace oxidized sulfide; textures are blurred; biotite pseudomorphs are more brown than orange; < 40% chips have cloudy, waxy luster and a distinct (and different!) pinkish hue; very minor manganese oxide; strongly calcareous; moderately to strongly sericitized; trace disseminated, oxidized pyrite appear insignificant.

Then whammo!

38.5 42.2 LQM C3

Quartz monzonite with < 5% to > 10% fresh black biotite; remaining biotite partially to completely altered to silvery and orange pseudomorphs; orange to brown colour; pervasive limonitic staining with variable intensity; minor blue-grey unstained rock near upper contact; weakly sericitized, strongly calcareous; very rare, trace oxidized disseminated pyrite; not silicified.

Transitional into:

42.2	46.5	LAQM	C3 Bright yellowish-orange monzonite; k-spar phenocryst in situ are clay altered and patterned with dendritic manganese oxide; strongly sericitized; clay clots and rare intensely argillically altered fragments; grainy recrystallized appearance; ubiquitous spotty manganese oxide; intensely calcareous; trace disseminated oxidized and manganese oxide coated pyrite crystals < ¼ mm. (Blah, splotchy-looking altered rock; probably no gold).
46.5	49.5	LAQM	Dark orange-brown limonitic altered quartz monzonite; very few phyric minerals; textures of feldspar-rich, equigranular groundmass are easily discerned; biotite altered to orange-stained limonite – often with good pseudomorphs and commonly partially replaced with manganese oxide; all surfaces sericitized – decreasing with depth, where sericite after biotite is more common than sericite after feldspar; luster improves; fine-spotty manganese oxide throughout creates black speckling; strongly calcareous matrix; one clear quartz veinlet observed, trace oxidized, disseminated pyrite. (Ho hum).
49.5	52.5	ARGG	95:5 SST +Bx +Lm C3 Argillite to silty argillite; dark grey to black; weak carbonaceous; very siliceous; contains < 5% Steel Formation Siltstone and breccia (as described 11.0-19.5 m); strongly calcareous, but I can't determine the source – other than calcareous SST fragments; all surfaces heavily coated with olive – green to orange-stained sericite; some carbonate seems mixed in with the sericite; occasional fractures with strong, earthy limonite coating; subtle clear to orange-stained quartz veining and flooding; trace to 1% dark brown, disseminated, completely oxidized pyrite cubes < ¼ mm; higher sulfide concentrations on rare fractures. Transitional into:
52.5	55.0	SST	+Lm C2 Medium to light grey Steel Formation Siltstone; minor ARG near upper contact; some breccia fragments near lower contact; dolomitic – good, quick reaction to HCl from unwashed sample; limonitic and sericitic surfaces are common; ubiquitous, variably oxidized disseminated pyrite; hard, platy fragments. Abrupt change into:
55.0	58.8	LSST	C2 2P4 Medium hematite-pink to greyish pink Steel Formation Siltstone; staining is pervasive but variably – typically stronger adjacent to fractures; dusty sericite coating on all surfaces; hard, angular, platy fragments; slightly siliceous; dolomitic – better reaction to HCl from unwashed samples; trace to >5% disseminated pyrite < ¼ mm – usually altered to limonite, but some crystals are only partially oxidized (P2-P3); rare sulfide coated with manganese oxide – usually those on fractures; rare fractures with continuous manganese oxide – coating. Then suddenly:
58.8	61.0	SLT	->CH +Lm Black siliceous sediment, very weakly carbonaceous; grades from coarse siltstone through to aphanitic chert-like argillite or chert; (I can't tell if its Portrait [Earn] argillite or Duo Lk [Road River]!); increasingly silica-rich to lower contact; hard, angular fragments with sharp edges; bedding laminations are strongly evident in siltier sediments; carbon content decreases; thick yellowish-green sericitic coating on most surfaces, especially near upper contact; rare quartz veinlets and quartz-carbonate veinlets; minor but ubiquitous limonitic fractures; silica may be primary or secondary; very rare sulfide.
61.0	64.5	SST	+Lm Ft* Typical dove-grey Steel Formation Siltstone; variably siliceous, but unit has good vitreous luster and is hard and angular to platy; several surfaces with weak orange limonite coating; yellow sericite is much more common and is observed

			on most chips; < 20% fragments are intensely sericitized; abundant clay, rare sheared-looking (strong planar fabric) chips and some strongly silicified chips suggest that some shearing/faulting may have occurred here; very rare sulfide; weak hairline quartz veining rare sub-mm veinlets of quartz-calcite; some modal feldspar crystal altered to clay to create funny cubic, clay polka dots. Transitional into:
64.5	67.0	LSST	80:20 SST C1 Steel Formation Siltstone; most fragments with pervasive limonitic staining but < 20% are stained at fracture margins only; siliceous; strongly sericitized surfaces – often orange-stained; transitional phase; weakly calcareous; trace disseminated oxidized pyrite; very much as 61.0-64.5 m; no quartz or calcite veinlets. Transitional into:
67.0	71.6	LSST	C1 10P4 Steel Formation Siltstone; reddish-grey to intense deep orange pervasive limonitic staining; several fractures with additional limonite coating; hard, siliceous, platy fragments; strongly sericitized throughout; weakly calcareous. >10% completely oxidized (and usually coated with manganese oxide) pyrite ½ mm to << 1/10 mm – on fractures, moderately disseminated and completely saturating. (>50% locally) some horizons; quantity of sulfide increases sharply at lower contact.
71.6	76.0	LAQM	C3 Rich, dark orange limonitic altered quartz monzonite; good textures even though strongly altered; several k-spar phenocrysts < 3mm in situ – limonite stained, clay altered and coated with flowery and dendritic manganese oxide; rare clear quartz eyes < 3mm; all biotite altered to orange-stained sericite – pseudomorphs are rarely recognizable but manganese oxide frequently coats former biotite; fine-grained feldspar-rich matrix strongly sericitized – sericite from alteration of feldspar and biotite coats all surfaces; where sericitization (and clay alteration) are more intense rock has developed a felted to sugary, sub-opaque appearance; rich is distinctly altered-looking < 10% manganese oxide throughout – creates black speckling, evenly dispersed; very strongly calcareous – very strong reaction to HCl, rolling reaction from unwashed sample; no calcite veinlets; not silicified or veined; all alterations remain strong and constant throughout. 70.0-72.0m: 5% chips lack limonitic staining. Rare, trace disseminated manganese oxide – coated oxidized pyrite < ¼ mm; very, very rare limonitic fractures; very slight increase in sulfide content near lower contact. (Altered, but doesn't look like it will run).
76.0	78.0	LSST	C1 Limonitic Steel Formation Siltstone; as 67.0-71.6 m, but with only trace disseminated oxidized pyrite; minor manganese oxide on surfaces; hard, platy, siliceous fragments; strong sericitization on most surfaces, weakly calcareous; rare sub-mm quartz veinlets, orange stained, concordant and with bedding. Transitional into:
78.0	84.5	SST	+Lm C1 Medium grey, siliceous Steel Formation Siltstone with numerous limonitic fractures; commonly sericitized; weakly calcareous; rare disseminated oxidized pyrite; rare manganese oxide as patches on fractures. From 80.0m: possibly more strongly dolomitic; weak reaction to HCl from unwashed samples; moderate to strong reaction to HCl from unwashed sample.

84.5	88.5	ARG	+Lm S2 Sk Dominantly siliceous, strongly stockworked, very weakly carbonaceous silty argillite; sub-cm quartz veinlets are usually orange-stained and contain minor quantities of oxidized pyrite << ¼ mm; many sericitic surfaces; ruggy limonitic quartz veinlets too.
88.5	96.0	SST	80:20 ARG +Lm C2 Steel Formation Siltstone, as 78.0-84.5 m with < 20% argillite as 84.5-88.5 m, strongly interbedded; some clots of fresh pyrite in argillite, ubiquitous oxidized pyrite – mostly on fractures (and manganese oxide coated) and occasionally disseminated; limonitic and hematitic surfaces; sericitization throughout; some limonitic, raggy quartz veinlets. 92.0-94.0 m: graphitic shale component. Transitional into:
96.0	100.0	LSST	C1 6P4 Limonitic Steel Formation Siltstone; pervasive staining, but mottled – grey, orange and pink; weakly siliceous; weakly calcareous; rare quartz veinlets; 5-7% ultra-fine disseminated pyrite (<< ¼ mm) – altered to limonite and/or coated with manganese oxide; higher sulfide concentrations locally; occasional partially oxidized (P2-P3) pyritic horizons < 2mm; limonitic fractures where pervasive staining is less intense.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2203

NORTHING : 19383.7 EASTING : 23520.2 ELEVATION : 815.5

MAXDEPTH : 40 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	LSST	90:10 SLT C1 5P4
6.00	14.00	SLTG	80:20 LSST +Lm C1 P4
14.00	18.50	SLTG	90:10 LSST +Lm C2 P4
18.50	33.00	LSST	C1 P4
33.00	40.00	SST	->SLT +Lm C3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2203

NORTHING : 19383.7 EASTING : 23520.2 ELEVATION : 815.5

MAXDEPTH : 40 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.03	P4	C0	S0	WET
2.00	4.00	.02	P4	C1	S0	DRY
4.00	6.00	.01	P4	C2	S0	DRY
6.00	8.00	.02	P4	C2	S0	DRY
8.00	10.00	.06	P4	C1	S0	DRY
10.00	12.00	.02	P4	C1	S0	DRY
12.00	14.00	.02	P4	C1	S0	DRY
14.00	16.00	.01	P4	C2	S0	DRY
16.00	18.00	.05	P4	C2	S0	DRY
18.00	20.00	.03	P4	C2	S0	DRY
20.00	22.00	.01	P4	C1	S0	DRY
22.00	24.00	.01	P4	C1	S0	DRY
24.00	26.00	.02	P4	C1	S0	DRY
26.00	28.00	.02	P4	C3	S0	DRY
28.00	30.00	.10	P4	C1	S0	DRY
30.00	32.00	.01	P4	C3	S0	DRY
32.00	34.00	.03	P4	C3	S0	DRY
34.00	36.00	.02	P4	C3	S0	DRY
36.00	38.00	.01	P4	C3	S0	DRY
38.00	40.00	.04	P4	C3	S0	DRY

0.0	6.0	LSST	90:10 SLT C1 5P4 Steel Formation Siltstone; strong, even, pervasive limonitic staining; < 10% non-graphitic portrait lower contact siltstone and silicified siltstone (Earn or Road River – I dunno?); LSST is not very strongly silicified. Weakly calcareous – carbonate content increases to end of interval; no quartz veining; rare calcite veinlets. 5% disseminated pyrite < ¼ mm – completely altered to cubic limonite and often coated with manganese oxide; some chips are saturated with former sulfide; higher sulfide concentrations also form on fractures. Entire hole drilled into footwall, at Road River/Earn contact. 0.0-2.0m: probably overburden; wet and muddy; minor intrusive fragments.
6.0	14.0	SLT	80:20 LSST +Lm C1 P4 Dark grey, siliceous siltstone – probably Earn, but could be some sort of transitional phase; < 20% limonitic Steel Formation Siltstone – not as siliceous, with strong orange to red-orange limonitic staining. Abundant greenish sericite development on several surfaces; limonite on surfaces is also very common; no quartz veining. LSST is weakly calcareous (faint reaction to HCl from unwashed sample) and contains disseminated oxidized pyrite.
14.0	18.5	SLT	90:10 LSST +Lm C2 P4 As 6.0-14.0m, but stained siltstone is more brick red than orange; LSST more strongly calcareous; fewer limonitic surfaces; trace oxidized disseminated sulfide; grainy; variably siliceous. Transitional into:
18.5	33.0	LSST	C1 P4 Medium greyish orange Steel Formation Siltstone with strong, even, pervasive limonitic staining; much as described 0.0-6.0m; hard, angular, platy fragments; very siliceous locally – siliceous fragments are less intensely stained; intensity of staining gradually decreases to end of interval; variably calcareous; < 10% siltstone that might be Earn Group; trace disseminated oxide pyrite, usually on fracture surfaces and frequently coated with flowery specks of manganese oxide; 28.0-30.0m; < 7% disseminated oxidized pyrite; 26.0-28.0 m very strongly calcareous. Very transitional contacts.
33.0	40.0	SST	->SLT +Lm C3 Medium to dark grey, faintly orange siltstone; strongly calcareous matrix suggest Steel Formation but rock also resembles Earn Siltstone; not silicified; very grainy looking – more so than typical Steel Formation; limonitic fractures – decreasing frequently with depth; horizons with limonitic staining (weak) near upper contact; trace oxidized disseminated pyrite; very occasional calcite veinlets; no quartz veinlets.
E.O.H			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2204

NORTHING : 19325 EASTING : 23318 ELEVATION : 838

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	NS	
6.00	15.70	LAQM	C3 S1 2P4 +Sb
15.70	19.60	ARGG	->CH C1 S1 Sk
19.60	24.00	LAQM	C3
24.00	28.00	LAQM	C3 S1 P4 Sb
28.00	30.50	LAQM	C3 S2 Sk 10P4
30.50	35.00	LAQM	C3 S1 P4 Sb
35.00	38.00	LAQM	C3
38.00	40.00	LAQM	C3 S1 Sk P4 Sb
40.00	44.00	LAQM	85:15 AQM C3 4P2
44.00	45.50	ARG	+Lm 1P4
45.50	47.60	SST	+Lm C3 5P0
47.60	50.20	ARG	->SST* C3 +Lm
50.20	53.10	LAQM	C3 2P2
53.10	56.20	ARGG	+Lm C3 Bx
56.20	68.10	LAQM	C3 Qe
68.10	70.00	ARGG	+Lm S2 Sk

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2204

NORTHING : 19325 EASTING : 23318 ELEVATION : 838

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
6.00	8.00	.24	P4	C3	S1	DRY
8.00	10.00	.18	P4	C3	S1	DRY
10.00	12.00	.63	P4	C3	S1	DRY
12.00	14.00	.18	P4	C2	S2	DRY
14.00	16.00	.10	P4	C2	S1	DRY
16.00	18.00	.10	P4	C3	S2	DRY
18.00	20.00	.14	P4	C3	S1	DRY
20.00	22.00	.23	P4	C3	S0	DRY
22.00	24.00	.09	P4	C3	S0	DRY
24.00	26.00	.84	P4	C3	S1	DRY
26.00	28.00	.12	P4	C3	S1	DRY
28.00	30.00	1.97	P4	C3	S2	DRY
30.00	32.00	.40	P4	C3	S0	DRY
32.00	34.00	.69	P4	C3	S0	DRY
34.00	36.00	.15	P4	C3	S0	DRY
36.00	38.00	.12	P4	C3	S1	DRY
38.00	40.00	1.31	P4	C3	S1	DRY
40.00	42.00	.21	P2	C3	S1	DRY
42.00	44.00	.34	P2	C3	S1	DRY
44.00	46.00	.07	P3	C3	S1	DRY
46.00	48.00	.04	P0	C3	S1	DRY
48.00	50.00	.06	P4	C3	S1	DRY
50.00	52.00	.06	P2	C3	S0	DRY
52.00	54.00	.06	P1	C3	S0	DRY
54.00	56.00	.10	P0	C3	S1	DRY
56.00	58.00	.01	P0	C3	S1	DRY
58.00	60.00	.03	P2	C3	S0	DRY
60.00	62.00	.03	P2	C3	S0	DRY
62.00	64.00	.05	P2	C3	S0	DRY
64.00	66.00	.05	P2	C3	S0	DRY
66.00	68.00	.04	P2	C3	S1	DRY
68.00	70.00	.07	P2	C1	S2	DRY

0.0	6.0	NS	No recovery.
6.0	15.7	LAQM	C3 S1 2P4 +Sb Monzonite; tan-orange to dark orange-overall increase in degree of pervasive staining; fine-grained equigranular feldspar-rich matrix retains textures, translucence and luster; clay and sericite altered, whitish k-spar-phenocryst < 3-4mm, viewed in situ, often show partial replacement with spotty black manganese oxide and very weak orange staining; former biotite is easily identified, but has altered to orange-stained, sericitic pseudomorphs and masses that are very frequently replaced by irregular, spotty manganese oxide – orange and black speckling due to alteration of biotite is most apparent visible feature; unit contains slightly more modal quartz than is typically seen in biotite reaction; all original textures are very well preserved. Intensely calcareous – reaction to HCl is vigorous and instantaneous – reaction comes from matrix, but is mostly evident from dusty sericitic powder that coats all chip surfaces; very strong sericitization throughout – all surfaces coated with felted orange-stained sericite; where sericitization is strongest the rock develops a micro-sucrosic, granular recrystallized texture; manganese oxide, increasing in abundance from 9.0 m, forms spotty to sub-continuous coatings on all surfaces – coats former biotite, lines fractures, partially replaces larger feldspar crystals and frequently coats disseminated and fracture – pyrite; strong bleaching associated with argillic alteration and quartz-stibnite veining from 14.0 m to lower contact – textures blurred, decreased pyrite, minor manganese oxide. Weak localized silicification throughout; 12.0-14.0 m; contains 10-15% secondary quartz as quartz and quartz-stibnite veinlet fragments < ½ cm; other secondary quartz pervades matrix – destroys textures, usually orange-stained; secondary quartz also contains fresh and oxidized disseminated pyrite << ¼ mm – 5-10% locally that is also coated with fine, splotchy manganese oxide. 2-3% pyrite; usually completely oxidized and very frequently coated with manganese oxide; crystal shape is often crudely preserved, especially when coated; if not manganese oxide-coated, then occurs as dark orange, red, purple and brown cubic to rounded limonitic flecks; often disseminated through matrix, but most commonly occurs (in higher concentrations) along fine fractures; trace pyrite after biotite; 12.0-14.0 m; contains < 5% stibnite within quartz and as liberated massive fragments < ½ cm –scale quartz – stibnite veinlet likely occurs at 12.0 m 'contact', and is possibly associated with minor quantities of silicified argillite (caught up in shear). From 10.0 m: stronger staining, with 10-25% fragments with reddish hematitic staining. 12.0-14.0: increased pyrite – usually manganese oxide coated and fracture-related; strong silicification; slickensides; < 5% stibnite; fresh and oxidized sulphide in secondary quartz fragments; looks yummy; locus of shearing likely at 12.0 m. Sharp lower contact.
15.7	19.6	ARG	->Ch C1 S1 Sk Dark grey argillite; very strongly silicified and strongly resembles chert; hard, angular, glassy fragments with smooth surfaces and very sharp edges; some fragments with translucence where pervasive silicification is intense; weak to locally moderate quartz and quartz-calcite veining – white to orange-stained veinlets < 1mm; greenish sericite development on many surfaces is very common; limonitic fractures are rare, but more common near lower contact; trace manganese oxide coated and completely oxidized pyrite on occasional fracture surfaces; all 'alterations' are stronger near lower contact where reaction is more sericitized, limonite and veined – tectonized; not graphitic.

19.6	24.0	LAQM	C3 Medium yellowish orange brown monzonite; quartz-poor, feldspar-rich, equigranular matrix show strong sericitization – rock has dull, opaque, micro-granular recrystallized appearance; weak to moderate localized argillic alteration; rare white, clay altered, waxy-looking k-spar phenocrysts < 3mm; all textures are well preserved, but crystal boundaries are smoothed where alterations are strongest; biotite altered to brown, orange and silver sericitic pseudomorphs and shreds that are often partially coated with spotty manganese oxide – not abundant; intensely calcareous matrix – strong, instantaneous reaction to HCl; no secondary quartz; trace to 1% pyrite as fine (<< ¼ mm) oxidized and manganese oxide – coated cubes that are most commonly viewed on fractures; minor disseminated pyrite – usually as orange rounded limonite specks; very rare pyrite (also oxidized) appears secondary after biotite. Transitional into:
24.0	28.0	LAQM	C3 S1 P4 Sb Monzonite; overall medium orange, but colour variations from grey-orange. to orange to dark red-orange; slight olive-green underhue due to abundance of powder yellow, orange and green sericite that coats all surfaces; ubiquitous and abundance of powder yellow, orange and green sericite that coats all surfaces; ubiquitous and abundant (< 5%) fine, black manganese oxide; rare larger (1-2mm) waxy, while feldspar crystals; vitreous to pearly luster; intensely calcareous. Intense sericitization; weak to moderate localized silicification – appears more strongly associated with strong, pervasive hematitic staining and slightly higher pyrite concentrations; quartz contains < 1% ultra fine disseminated stibnite; oxidized dark orange to red pyrite as sub-cubic to rounded disseminated flecks < 1/6 mm; higher pyrite concentration on fractures – usually coated with minor oxide; some chips with >10% disseminated pyrite. Transitional into: (Looks OK…hopefully it'll run!)
28.0	30.5	LAQM	C3 S2 Sk 10P4 Monzonite; dominantly dark orange with < 25% black speckles of manganese oxide < 1/5 mm; manganese oxide as rounded to cubic flecks that appear to replace former disseminated pyrite and to partially replaced former biotite (that has altered orange, sericitic shreds); at least 10% disseminated and fracture-hosted pyrite – usually manganese oxide-coated. Very strongly pervasive silicification with weak quartz veining (sub-mm, sharp side, clear and milky veinlets); secondary quartz contains oxidized sulphide; minor ultra fine stibnite in rare quartz. Manganese oxide and quartz as dominant alterations; rare slickensides. (Best looking stuff so far). Transitional into:
30.5	35.0	LAQM	C3 S1 P4 Sb Monzonite, as 24.0-28.0 m; weak silicification; very strong sericitization; strongly calcareous; trace oxidized pyrite; ubiquitous manganese oxide; very rare ultra fine stibnite in secondary quartz; note: sericitization is stronger than in 24.0-28.0 m. Transitional into:
35.0	38.0	LAQM	C3 Dark, even, orange, feldspar phyric monzonite that strongly resembles 19.6-24.0; clay and sericite altered feldspar crystal < 3mm lack orange-staining and are frequently patterned with ultra-fine spotted (and rare dendritic) manganese oxide; weak to moderate pervasive argillic alteration; very strong sericitization – opaque, granular recrystallized-looking rock; ubiquitous manganese oxide; very, very rare oxidized pyrite as dark purple, sub-cubic, disseminated flecks << ¼

			mm; intensely calcareous; all surfaces coated with powdery sericite – carbonate-clay, kinda bleached looking; distinctive because of texture. Intermixed with < 25% rock as 30.5-35.0 m. Transitional into:
38.0	40.0	LAQM	C3 S1 Sk P4 Sb Monzonite, as 30.5-35.0 m and 24.0-28.0 m; weak to moderate grey quartz-stibnite veining – angular fragments < 4mm; >25% chips with intense hematitic staining; < 5% chips lack staining and contain < 1% fresh disseminated pyrite; original textures blurred; very strong sericitization throughout; strongly calcareous; some biotite pseudomorphs; minor ubiquitous manganese oxide. Transitional into:
40.0	44.0	LAQM	85:15 AQM C3 4P2 Monzonite; >85% rock with moderate, even, pervasive limonitic staining; remaining fragments show staining on rare fractures only. Original textures are very well preserved; white, waxy, clay and/or sericite altered feldspar phenocrysts < 4mm are common but not abundant – occasionally partially replaced with fine manganese oxide; modal feldspar (fine-grained equigranular) retains pearly luster and sub-translucence, but shows strong alteration to wispy to powdery orange-stained sericite that coats most chip surfaces; former biotite is not abundant (< 5% originally) – altered to sericite and sericitic pseudomorphs – cream to silver in AQM, orange in LAQM, quartz-poor; very strongly calcareous; weak localized silicification; no quartz stockwork. Strongly sulfidic; 3% up to 10% locally – average 4% assigned for interval; pyrite as fine-grained disseminations (< 1/ 10 mm to < ¼ mm), as larger clusters < 1mm, as rare replacement of former biotite and as more concentrated linings on fractures; pyrite is completely fresh in rock that lacks staining; oxidization state of pyrite in stained rock varies from partial (P2=slightly metallic, tarnished to lightly rusty surfaces, good crystal shape) to complete (P4=dark red, purple and black, cubic to rounded, often coated with manganese oxide); rare chips show >10% fine disseminated pyrite (fresh), especially where rock appears silicified.
44.0	45.5	ARG	+Lm 1P4 Hard, black, siliceous non-graphitic argillite; aphanitic to silty; abundant greenish to weakly orange-stained sericite on chips; limonitic fractures are common; weak orange-stained, sub-mm quartz veining; 1% disseminated pyrite cubes < ½ mm are completely (P4) to partially (less commonly, P2) oxidized. Interbedded with:
45.5	47.6	SST	+Lm C3 5P0 Dove grey, intensely calcareous Steel Formation Siltstone; limonitic, sericitic fractures; pervasive limonite staining as sub-cm envelopes around fractures; rare blackish streaks – could be wispy laminations, but appearance is not typical. < 5% pyrite as ultra-fine (<< 1/10 mm) disseminations (and local saturations) and as less common disseminated cubes < ½ mm – not oxidized except in those fragments that show limonitic staining.
47.6	50.2	ARG	->SST* C3 +Lm Non-graphitic argillite, as 44.0-45.5 m; intensely calcareous – could be a version of Steel? – definitely interbedded with it; lots a sericite, carbonate and limonite surfaces; weak stained quartz veining; trace disseminated oxidized pyrite; cruddy-looking rock; contacts are not super sharp.
50.2	53.1	LAQM	C3 2P2 Medium yellowish orange monzonite; quartz-poor, original textures blurred due to strong pervasive argillic and sericite alterations that have caused rock to have bleached-looking, opaque, waxy to pearly to earthy, often sucrosic and recrystallized-looking appearance; biotite altered to limonitic, sericitic shreds that show partial replacement by ultra-fine (< ¼ mm), blackish, manganese

			oxide-coated pyrite; locally incompetent-looking – some fragments are easily destroyed with minor pressure; 1-2% manganese oxide – mostly on fractures; intensely calcareous. 1-3% disseminated pyrite – most commonly as good cubes < ½ mm that show very weak to partial (spots) alteration to limonite; rarer finer disseminated pyrite (<< ¼ mm) is more strongly oxidized; pyrite after biotite is manganese oxide – coated.
53.1	56.2	ARGG	+Lm C3 Bx Black, aphanitic to silty carbonaceous argillite with intensely calcareous matrix; moderate quartz and quartz-carbonate stockwork – often with orange staining; micro-breccia healed with intrusive and orange-stained quartz; limonitic surfaces and fractures are also common; trace fresh sulphide stringers << 1mm; brecciated intrusive contacts; contains < 5% LAQM fragments.
56.2	68.1	LAQM	C3 Qe Tan to orange monzonite with rare clear quartz eyes < 3mm; slightly bleached-looking – overall intensity of pervasive limonitic staining decreases with depth; < 5% chips with intense red-black, hematitic, manganese oxide-rich staining and fracture surfaces; all original textures remain although argillic and sericitic alterations are strong throughout; intensely calcareous; no secondary quartz. Trace to 1% pyrite as silvery, ugly, malformed wisps that are secondary after biotite, as good disseminations < ¼ mm that are partially to completely oxidized (P1-P4) and as manganese oxide – coated concentrations on fractures. Slight increase in silicification near lower contact.
68.1	70.0	ARGG	+Lm S2 Sk Graphitic argillite; aphanitic to silty; siliceous – quartz, often orange-stained pervades matrix as swirls and blobs; some chips are completely infused with secondary quartz; some limonitic patches, rare disseminated oxidized sulphide; contacts are probably intrusive.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2205

NORTHING : 19403.8 EASTING : 23226.6 ELEVATION : 813.1

MAXDEPTH : 78 AZIMUTH : 316 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	LAQM	->OB* C1
4.00	5.80	LAQM	S1 Sk P4
5.80	11.00	LAQM	C3 S1 Sk P4
11.00	16.00	LAQM	C2 S2 Sk 5P4 Sb
16.00	17.00	SB	S3
17.00	21.00	LAQM	C2 S2 Sk P4 Sb Ft
21.00	22.20	SB	
22.20	23.80	LAQM	C2 S4 Sk 10P3
23.80	24.10	ARGG	S4
24.10	26.10	ARGG	+Lm
26.10	28.00	LAQM	C2 7P2
28.00	29.50	LAQM	C2 1P3
29.50	35.90	SST	90:10 ARGG C1
35.90	44.00	ARGG	->SST C2
44.00	46.10	LQM	C3
46.10	50.10	LAQM	C3
50.10	64.00	SST	90:10 ARG +Lm C2 P0
64.00	68.00	SST	70:30 ARGG C3 P0
68.00	70.50	ARGG	S3 Sk 10P0
70.50	72.00	SST	C1 10P0
72.00	78.00	SST	90:10 ARGG C2 10P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2205

NORTHING : 19403.8 EASTING : 23226.6 ELEVATION : 813.1

MAXDEPTH : 78 AZIMUTH : 316 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.32	P4	C1	S0	DRY
2.00	4.00	.42	P4	C1	S0	DRY
4.00	6.00	.51	P4	C0	S1	DRY
6.00	8.00	.22	P4	C1	S1	DRY
8.00	10.00	.25	P4	C3	S1	DRY
10.00	12.00	.43	P4	C2	S1	DRY
12.00	14.00	.40	P4	C2	S2	DRY
14.00	16.00	.48	P4	C2	S2	DRY
16.00	18.00	2.21	P4	C2	S3	DRY
18.00	20.00	1.96	P4	C2	S2	DRY
20.00	22.00	1.02	P3	C3	S2	DRY
22.00	24.00	1.41	P3	C3	S4	DRY
24.00	26.00	.71	P4	C2	S1	DRY
26.00	28.00	.13	P2	C3	S1	DRY
28.00	30.00	.53	P3	C2	S1	DRY
30.00	32.00	.14	P4	C2	S1	DRY
32.00	34.00	.13	P4	C1	S1	DRY
34.00	36.00	.02	P1	C2	S1	DRY
36.00	38.00	.13	P4	C1	S1	DRY
38.00	40.00	.13	P1	C0	S1	DRY
40.00	42.00	.04	P1	C2	S1	DRY
42.00	44.00	.09	P1	C2	S1	DRY
44.00	46.00	.05	P4	C3	S0	DRY
46.00	48.00	.05	P4	C3	S0	DRY
48.00	50.00	.05	P4	C3	S0	DRY
50.00	52.00	.03	P4	C1	S0	DRY
52.00	54.00	.05	P0	C3	S0	DRY
54.00	56.00	.05	P0	C2	S0	DRY
56.00	58.00	.04	P0	C2	S0	DRY
58.00	60.00	.03	P0	C2	S0	DRY
60.00	62.00	.11	P0	C2	S0	DRY
62.00	64.00	.05	P0	C1	S0	DRY
64.00	66.00	.05	P0	C3	S1	DRY
66.00	68.00	.05	P0	C3	S1	DRY
68.00	70.00	.05	P0	C1	S3	DRY
70.00	72.00	.06	P0	C1	S1	DRY
72.00	78.00					
72.00	74.00	.06	P0	C2	S1	DRY
74.00	76.00	.19	P0	C2	S1	DRY
76.00	78.00	.08	P0	C2	S1	DRY

0.0 4.0 LAQM ->OB* C1

Monzonite with < 5% argillite; possibly fill material, but samples don't resemble typical overburden; strongly mottles – colours vary from cream through to darkest orange-brown; regardless of intensity of pervasive limonitic staining, all rock retains original textures; show biotite that has completely sericitized and k-spar crystals that are clay altered; significant sericite coating observed on most surfaces; trace disseminated, completely oxidized pyrite cubes < ¼ mm; weakly calcareous; very rare sub-mm clear quartz veinlets; on quartz eye.

Lower 'contact' assigned where colour of rock becomes more uniform.

4.0 5.8 LAQM S1 Sk P4

Monzonite with very strong, even, orange and red-orange pervasive limonitic staining; earthy limonitic coatings on some fractures; original textures are discernible but blurred; all biotite completely altered to orange-stained sericite – crystal form is not preserved; feldspar-rich matrix is strongly sericitized – all chip surfaces nearly completely coated with wispy to powdery sericite; some former biotite coated with black manganese oxide – some surfaces are 100% coated; very, very, very weakly calcareous – reaction to HCl is barely audible.

Weak pervasive silicification – stronger locally and associated with hematitic staining; rare mm-scale clear and orange-stained quartz veinlets; good vitreous luster locally; some secondary quartz may contain ultra-fine, fresh disseminated sulphide – greyish hue.

Completely oxidized pyrite (limonite) < ¼ mm is disseminated throughout, but specific percentage is difficult to determine; some fractures show > 10% per surfaces.

Transitional into:

5.8 11.0 LAQM C3 S1 Sk P4

Quartz-poor, fine-grained equigranular feldspar-rich monzonite; very strong pervasive limonitic staining – colour varies from rich, dark orange to very dark orange-brown; dusty and felted to dirty appearance is due to very strong sericitization (after biotite and modal feldspar) that coats all chip surfaces and due to abundance of black manganese oxide that lines fractures and coats some former minerals; manganese oxide to 20% locally; very strongly to intensely calcareous.

Weak localized silicification; very rare quartz veinlets; secondary quartz is much more plentiful near 'upper contact', where sub-mm veinlets appear to represent more than one pulse.

Trace disseminations pyrite; oxidized and occasional replaced by manganese oxide; higher sulphide concentrations may exist, but are difficult to see.

Visually distinct from adjacent rock.

11.0 16.0 LAQM C2 S2 Sk 5P4 Sb

Rich, bright orange monzonite; original textures blurred due to strong sericitization to moderate to strong pervasive silicification and weak sub-mm clear quartz stockwork; great, warm-looking vitreous luster; < 10% fragments with red hematitic staining; all biotite altered beyond recognition but increasingly coated with manganese oxide; quantity of manganese oxide increases significantly to 'lower contact'; moderately calcareous matrix – good reaction to HCl is very slow to start.

< 5% dark red flecks of limonite < ¼ mm after former pyrite – very easily viewed until 14.0m; minor stibnite as mm-scale massive fragments near lower contact.

14.0-16.0: > 15% chips are very black and silicified; I can't decide if this is intrusive with silica and manganese and sulphide or silicified sediments.

Lower contact is arbitrarily assigned where silicification changes.

16.0	17.0	SB	S3 Quartz stibnite vein; at least limonite wide; composed of fine disseminated to massive grey stibnite in quartz; veinlet pervade groundmass too; all fragments are angular and vitreous; some quartz is orange-stained; adjacent rock is silicified and/or very strongly argillically altered; minor kermesite and antimony ochre. Edges are not clearly defined and silicification bleeds out form veinlet.
17.0	21.0	LAQM	C2 S2 Sk P4 Sb Ft Silicified and stockworked monzonite as 11.0 – 16.0 m; stockwork is not as strong and only rare disseminated pyrite is still observed; abundant sericite; ubiquitous minor oxide; abundant clay clots signify fault (unit occurs between two stibnite veinlets!). (11.0 – 24.0 m Looks Great!!)
21.0	22.2	SB	Stibnite vein; massive steel grey stibnite with some quartz; from 22.0 m stibnite (finer-grained and more disseminated) is supported by quartz; adjacent rock shows strong argillic alteration – bleached and soft; very minor spotty kermesite on massive stibnite; very rare antimony ochre.
22.2	23.8	LAQM	C2 S4 Sk 10P3 Rich dark orange limonitic altered quartz monzonite; original igneous textures are discernible but are strongly overprinted by intense pervasive silicification and quartz stockwork; all biotite altered beyond recognition – usually to orange stained sericite that still adheres to chips; strong sericitization of feldspar-rich matrix; very strong, localized argillic alteration; intensely calcareous matrix – best reaction from altered rock that is not silicified; the most strongly altered reaction lack competence and are very easily destroyed; no phyric minerals preserved. Intense pervasive silicification and quartz stockwork; quart veinlets range from sub-cm to sub-mm – multiphase; veinlets are clear, cloudy to orange and typically cut through silicified groundmass; secondary quartz is associated with stibnite and disseminated pyrite. < 10% fine disseminated pyrite < ¼ mm is strongly to completely oxidized – as brassy metallic to dark red crystal; ultra-fine sulphide that are trapped within secondary quartz are less strongly oxidized. YUM.
23.8	24.1	ARGG	S4 Intensely pervasively silicified graphitic argillite; abundant greenish sericite on most surfaces. Transitional into:
24.1	26.1	ARGG	+Lm Black, graphitic, siliceous, slightly silty argillite; rare orange-stained quartz veinlets; greenish to weakly orange-stained sericite coats most surfaces; splotchy limonite throughout.
26.1	28.0	LAQM	C2 7P2 Dull, greyish yellow-orange monzonite; pearly, feldspar rich matrix is very weakly stained – rock colouration is mostly due to abundant sericitized, orange-stained biotite (completely altered) that remains on chip surfaces; modal feldspar also show alteration to feldspar; moderately calcareous matrix – reaction to HCl is very slow to start; very minor secondary quartz; no quartz veinlets; transitional material. 7-10% disseminated pyrite << ¼ mm – weakly tarnished to lightly rusty – rarely completely altered to limonite; a good portion of these sulfides appear secondary after former biotite and are therefore not likely to be associated with gold.

28.0	29.5	LAQM	C2 1P3 Rich orange, evenly stained monzonite; original textures blurred; most biotite altered away, so remaining rock is dominantly feldspar with very, very minor quartz and 5-10% orange-stained sericite after biotite; weak localized silicification; rare quartz veinlets < ½ cm; > 1% disseminated pyrite cubes 1/3 to < ¼ mm altered to dark red and orange limonite and near-limonite – crystal form is usually preserved; < 5% rocks with reddish hematitic staining. (Homogeneous, ok-looking rock – I doubt it'll carry).
29.5	35.9	SST	90:10 ARGG C1 Grey Steel Formation Siltstone interbedded with 10% variably carbonaceous and silicified argillite and siltstone; variably calcareous – dependent on quantity of SST. SST: Medium to darker grey; not silicified; moderately to weakly calcareous: black hairline stringers are possible manganese oxide, limonitic staining on and beside fractures is ubiquitous but not abundant; minor spotty manganese oxide on fractures; trace to 5% pyrite as ultra-fine fresh disseminations and larger, fracture-related, manganese oxide-coated crystals; most surfaces with sericite: sub-cm pyritic horizons 34.0-36.0 m – diagenetic. ARGG: Hard, angular, siliceous fragments with sericitic surfaces.
35.9	44.0	ARGG	->SST C2 Dark grey to black, moderately graphitic (oily luster not seen) silty argillite: calcareous matrix – likely transitional with Steel Siltstone; increasingly strong reaction to HCl from matrix and quartz – carbonate veinlets is slow to start; < 5% grey SST interbeds; rare limonitic fractures; weak white, cream and orange-stained quartz and quartz-carbonate veinlets; abundant sericite – dusty-looking surfaces; trace disseminated, weakly rusty pyrite.
44.0	46.1	LQM	C3 Orange and greenish orange monzonite; 1-5% fresh black to variably altered biotite, intensely calcareous; strongly sericitized; feldspar phenocrysts altered to clay; no primary or secondary quartz; rare, disseminated oxidized pyrite << ¼ mm. Transitional into:
46.1	50.1	LAQM	C3 Medium yellowish orange feldspar-rich, quartz-poor monzonite; rare slightly phyric k-spar altered to clay and sericite; modal feldspar retains pearly luster and weak textures, but is strongly sericitized on surfaces; sericite shreds that are locally partially coated with tiny flecks of manganese oxide; manganese oxide (non-abundant but ubiquitous) also occurs on fractures; no secondary quartz: strongly calcareous. Trace disseminated, completely oxidized pyrite < ¼ mm; rare chips with >2% partially oxidized (P2); pyrite is occasionally viewed encircling and replacing some biotite. Sharp contacts. (Blech).
50.1	64.0	SST	90:10 ARG +Lm C2 P0 Grey Steel Formation Siltstone interbedded with >10% siliceous argillite; several limonitic surfaces, decreasing to end of interval; increasingly siliceous: trace to 10% fresh pyrite as cm-scale horizons (54.0-58.0 m) and as ultra-fine disseminations; some pyritic fractures – manganese oxide-coated. Weak quartz and quartz-carbonate, mm-scale quartz stockwork.
64.0	68.0	SST	70:30 ARGG C3 P0 Steel Formation SST interbedded with >30% to argillite. SST: Grey with tan fractures; very fine-grained; siliceous-looking, platy, hard fragments; strongly calcareous, but reaction to HCl (from washed sample) is very slow to start; rare wispy laminations; 2% to >10% fresh, cubic,

			disseminated pyrite ¼ mm to << 1/10 mm- some chips are completely saturated with sulphide; hairline network of black – manganese oxide? ARGG: Siliceous; hard; chert-like locally; some surfaces with excellent oily, graphitic luster; minor cloudy quartz stockwork; variable quantities of fresh disseminated pyrite. No tan surfaces from here on.
68.0	70.5	ARGG	S3 Sk 10P0 Intensely silicified, weakly calcareous graphitic argillite; excellent oily luster; >25% white quartz swirls and veinlets; some quartz-healed microbreccia; <10% fresh disseminated pyrite.
70.5	72.0	SST	C1 10P0 Grey, siliceous Steel Formation Siltstone contains >10% fine, cubic disseminated; gorgeous sharp, angular fragments.
72.0	78.0	SST	90:10 ARGG C2 10P0 Grey, siliceous, pyritic Steel Formation Siltstone (as 70.5-72.0 m) interbedded with >10% stockworked, pyritic, graphitic argillite (as 68.0-70.5 m); moderately to strongly calcareous matrix; greyish powder coats most surfaces; < 10% fresh, disseminated pyrite (often very, very subtle) throughout.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2206

NORTHING : 19423.2 EASTING : 23275.3 ELEVATION : 800

MAXDEPTH : 61 AZIMUTH : 316 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.30	LAQM	C3 S1 Sk 3P4
4.30	7.00	LAQM	C3
7.00	8.00	LAQM	C3 S1 Sk P4 Sb
8.00	11.90	LAQM	C3
11.90	12.10	ARGG	Sk
12.10	13.00	LAQM	C3
13.00	17.00	LAQM	C3 S4 Sk 10P4 Sb
17.00	20.80	LAQM	95:5 AQM C1 2P3
20.80	22.20	ARG	70:30 SST +Lm 5P2
22.20	23.80	LAQM	C1 TRP3
23.80	24.80	ARGG	
24.80	28.00	LAQM	C3 S1 Sk 2P3
28.00	29.20	SST	+Lm C2
29.20	41.00	ARGG	C1 S2 Sk
41.00	41.50	AQM	+Lm 1P1
41.50	49.00	ARGG	C1 S1 Sk
49.00	53.00	SLT	50:50 SST C2
53.00	61.00	ARGG	C2 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2206

NORTHING : 19423.2 EASTING : 23275.3 ELEVATION : 800

MAXDEPTH : 61 AZIMUTH : 316 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.47	P4	C3	S0	DRY
2.00	4.00	1.06	P4	C3	S1	DRY
4.00	6.00	1.23	P4	C3	S1	DRY
6.00	8.00	.13	P4	C3	S1	DRY
8.00	10.00	.24	P4	C3	S0	DRY
10.00	12.00	.41	P4	C3	S0	DRY
12.00	14.00	.81	P4	C2	S1	DRY
14.00	16.00	1.01	P4	C3	S4	DRY
16.00	18.00	.42	P4	C2	S3	DRY
18.00	20.00	.31	P3	C1	S0	DRY
20.00	22.00	.37	P4	C0	S1	DRY
22.00	24.00	.27	P3	C1	S0	DRY
24.00	26.00	1.27	P3	C2	S1	DRY
26.00	28.00	1.21	P3	C3	S1	DRY
28.00	30.00	.05	P4	C2	S1	DRY
30.00	32.00	.06	-1	C2	S2	DRY
32.00	34.00	.07	-1	C1	S2	DRY
34.00	36.00	.07	-1	C2	S2	DRY
36.00	38.00	.05	-1	C1	S2	DRY
38.00	40.00	.08	-1	C1	S2	DRY
40.00	42.00	.05	P1	C3	S1	DRY
42.00	44.00	.06	-1	C1	S1	DRY
44.00	46.00	.06	-1	C1	S1	DRY
46.00	48.00	.07	-1	C1	S1	DRY
48.00	50.00	.07	-1	C2	S1	DRY
50.00	52.00	.07	-1	C2	S1	DRY
52.00	54.00	.04	P0	C2	S0	DRY
54.00	56.00	.02	P0	C2	S0	DRY
56.00	58.00	.06	P0	C2	S0	DRY
58.00	60.00	.06	P0	C2	S0	DRY
60.00	61.00	.08	P0	C2	S0	DRY

0.0	4.3	LAQM	C3 S1 Sk 3P4 Monzonite; quartz-poor, feldspar-rich matrix with variably strong and slightly mottled orange, orange-brown, pink and some tan staining; white waxy k-spar phenocrysts < 3mm are often rimmed with spotty and dendritic manganese oxide, biotite completely sericitized and very commonly replaced with spotty manganese oxide – crystal shape is never preserved; matrix shows very strong sericitization – all surfaces coated with wispy sericite and rock has developed a sugary, recrystallized texture; sericitization intensifies to end of interval; 10-20% manganese oxide throughout coats former biotite; feldspar and sulphide – also as near-continuous coating on fractures; manganese oxide gives rocks orange-black speckled, sometimes dirty looking appearance; hematitic staining is increasingly prevalent. Intensely calcareous – very good instantaneous reaction to HCl from matrix and from orange sericite – carbonate powder on all surfaces; quartz veinlets also contain tiny clots of calcite within core and along selvages; weak milky quartz veining (clear to milky veinlets < 1mm) – contains minor carbonate; veinlets are very sharp-sided, cut through feldspar grains and do not contain sulfide or staining; no quartz flooding of groundmass. Trace to 3% (locally higher pyrite has altered to subtle, dark red/purple limonite flecks and cubes, occasional coated with manganese oxide; trace stibnite in quartz from 4.0m. 2.0-4.0: slickensides indicate some shearing.
4.3	7.0	LAQM	C3 Dull yellowish orange-brown monzonite; original textures are very smoothed; biotite as good, white, sericitic pseudomorphs; white, waxy, clay – altered feldspar phenocrysts < 5mm lack limonitic staining and stand out in contrast to evenly stained groundmass – often patterned with flowery manganese oxide, opaque, granular texture due to very strong sericitization – homogeneous, boring-looking appearance; manganese oxide is more abundant on fractures. Very strongly calcareous matrix – best reaction to HCl from unwashed sample; no secondary quartz, very rare, trace disseminated oxidized pyrite and very rare very weakly oxidized cubic pyrite < ¼ mm.
7.0	8.0	LAQM	C3 S1 Sk P4 Sb Dark orange-brown feldspar phyric monzonite as described 0.0-4.1 m; all original textures are very well preserved but strong sericitization has blurred margins, created sucrosic texture and caused unit to look opaque; biotite altered to fine sericitic shreds that lack original crystal shape; calcareous.
8.0	11.9	LAQM	C3 Very dark orange-brown to black monzonite; good igneous textures, as described above; biotite and modal feldspar altered to abundant sericite that is seen on all chips; > 50% manganese oxide – coats former biotite, rare sulfide, partial tracings on feldspar and completely coats/replaces 15% chips (possibly those that were more strongly biotitic originally); amount of sericite and manganese oxide stand out as most striking features of this interval; very strongly calcareous; no secondary quartz; rare trace disseminated pyrite; visually distinct!
11.9	12.1	ARGG	Sk Stockworked, graphitic argillite; very thin horizon; minor spotty limonite.
12.1	13.0	LAQM	C3 Manganese oxide-rich, sericitic monzonite as 8.0-11.9 m, stronger limonitic/hematitic staining; clay clots in interval – lower 'contact' likely represents a shear; feldspar crystals are also more strongly clay altered; trace oxidized sulfide. Kinda transitional into:

13.0	17.0	LAQM	C3 S4 Sk 10P4 Sb Rich bright orange monzonite; some original textures are discernible, but have been overprinted by intense quartz flooding and multiphase quartz, quartz-pyrite and quartz-stibnite stockwork; biotite no longer identifiable after complete alteration to ragged limonitic, sericitic shreds that are very rarely partially coated with manganese oxide, ubiquitous but minor manganese oxide; strong sericitization locally; very strongly calcareous where not silicified – better reaction to HCl from unwashed sample. Intense pervasive silicification; great glassy luster; clear, cloudy and often orange-stained quartz veinlets of cm to mm-scale; multiphase, as veinlets are observed cutting each other – I can't determine the order of events; rare veinlets with fresh disseminated pyrite; 15% fragments are angular quartz (sub-cm pieces), grey, that are saturated with fine stibnite. < 10% disseminated and fracture-hosted pyrite altered to limonite – very subtle flecks; sulfide content estimated based on observations in those few chips that weren't so intensely altered; > 10% stibnite in quartz. (Great-looking rock!) – similar to 2205.
17.0	20.8	LAQM	95:5 AQM C1 2P3 Bright yellowish orange monzonite; 5-10% chips lack pervasive limonitic staining; very, very weakly calcareous; minor modal quartz; no phyric minerals; textures of feldspar-rich matrix are discernible but smoothed; biotite altered to orange sericite pseudomorphs and less well preserved shreds that remain in situ; minor sericitization of modal feldspar; homogeneous, uniform rock. > 3% disseminated pyrite << ¼ mm to ½ mm; completely to partially (P3-P4) oxidized in LAQM, fresh in AQM; oxidization of sulfide is variable-even within same chip; P3 assigned as interval average.
20.8	22.2	ARG	70:30 SST +Lm 5P2 Interbedded non-graphitic, siliceous, weakly stockworked argillite with siliceous, grey Steel Formation Siltstone with numerous limonitic surfaces; < 5% pyrite as variably oxidized disseminations and sub-mm stringers; pyrite cubes < ¼ mm in orange-stained quartz veinlets minor micro-brecciation . Note: interval may not be accurately placed – technician and log gives no indication.
22.2	23.8	LAQM	C1 TrP3 Monzonite, as 17.0-20.8 m; trace partially to completely oxidized pyrite; very weakly calcareous; not silicified; sericitic.
23.8	24.8	ARGG	Black graphitic argillite; minor sericite and clay development, no quartz veining; minor patchy limonite; some bleached, argillically altered reaction near lower contact.
24.8	28.0	LAQM	C3 S1 Sk 2P3 Rich, medium orange monzonite; feldspar-rich, quartz – poor matrix with good textures and excellent pearly luster; biotite altered to soft orange biotite pseudomorphs; weak to moderate surfaces sericitization; strongly calcareous; < 2% spotty manganese oxide on fractures and replacing minor quantities of former biotite; matrix lacks quartz flooding; weak quartz stockwork with clear mm-scale veinlets with sub-cm silicified envelopes (very occasionally); some milky, more coarsely crystalline veinlets 2mm to limonitic, sericitic selvages. < 2% disseminated pyrite – most < 1/5 mm and not completely oxidized (P3 – pitted surfaces, metallic hue), but also as completely altered limonite flecks and as manganese oxide-coated, pitted, corroded, oxidized (P3-P4) cubes < ½ mm. (Could possibly run?)
28.0	29.2	SST	+Lm C2 Medium grey Steel Formation Siltstone; variably siliceous; dolomitic – strong reaction to HCl from unwashed powder only; ultra-fine bedding laminations, some wispy, are evident; sericite development on many surfaces; several

			limonitic, sericitic fractures; minor spotty manganese oxide on some bedding planes; trace disseminated oxidized pyrite < ¼ mm; rare boxworks. Transitional into:
29.2	41.0	ARGG	C1 S2 Sk Black graphitic argillite; very fine grained but grainsize ranges from aphanitic to slightly silty locally; hard, siliceous rock breaks into hard, angular fragments with very sharp edges; excellent greasy, graphitic luster locally; strong multiphase mm-scale quartz and quartz-carbonate stockwork; to 34.0, most veinlets show strong orange staining and many fractures have limonitic patina; degree of limonitic staining steadily decreases; secondary quartz is non-phyric; some quartz-healed micro-brecciation; < 5% grey Steel Formation Siltstone. Variably calcareous matrix – strongest reaction to HCl (smelly, vigorous) from 34.0-36.0 m; carbonate in veinlets too. 36.0-38.0 m: 5% Steel Formation Siltstone with very strong, pervasive limonitic staining.
41.0	41.5	AQM	+Lm 1P1 Cream monzonite; featureless; ghosts of sericitized biotite; weak limonitic staining on fractures, sericitic, opaque; < 1% near fresh pyrite ¼ mm to << 1/10 mm – up to 3% in some chips.
41.5	49.0	ARGG	C1 S1 Sk Black, strongly graphitic argillite with quartz stockwork; slightly silty; very weakly calcareous; rare limonite; no sulfide.
49.0	53.0	SLT	50:50 SST C2 Black graphitic siltstone interbedded with < 50% medium to dark grey Steel Formation Siltstone; platy fragments – break along bedding; moderately calcareous; greenish sericitic powder on most surfaces; very rare slightly limonitic fractures; rare quartz veinlets.
53.0	62.0	ARGG	C2 P0 Black, graphitic argillite; decreasing graphitic; strongly calcareous matrix; variable quantities (cannot estimate percent average) of fresh pyrite as ultra-fine (<< ¼ mm) disseminations and sub-cm horizons; transitional into Steel ?; increasingly siliceous; hard, angular fragments with sharp edges.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2207

NORTHING : 19303.3 EASTING : 23519.6 ELEVATION : 837.6

MAXDEPTH : 70 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	NS	
2.00	3.20	ARGG	->OB
3.20	7.90	LAQM	->CV* C3 3P4
7.90	8.90	ARGG	S1 Sk P4
8.90	11.90	LAQM	C3 6P4
11.90	12.60	ARGG	+Lm S1 Sk
12.60	17.50	LAQM	C3
17.50	21.00	LAQM	C3 2P3
21.00	24.00	LAQM	C3
24.00	33.00	LQM	90:10 QM C3
33.00	36.50	LAQM	C2 1P4
36.50	41.00	LAQM	C2 2P4
41.00	44.00	SST	50:50 ARGG C3 Bx
44.00	50.00	LAQM	C3 3P2 Qe
50.00	55.00	LAQM	C3 8P3
55.00	65.70	SST	70:30 ARGG +Lm
65.70	67.50	SLTG	C1
67.50	70.00	SST	+Lm C1 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2207

NORTHING : 19303.3 EASTING : 23519.6 ELEVATION : 837.6

MAXDEPTH : 70 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
2.00	4.00	.13	P4	C2	S0	WET
4.00	6.00	.07	P4	C3	S0	WET
6.00	8.00	.08	P3	C3	S0	WET
8.00	10.00	.05	P4	C2	S1	DRY
10.00	12.00	.04	P4	C3	S0	DRY
12.00	14.00	.03	P4	C3	S1	DRY
14.00	16.00	.06	P4	C3	S0	DRY
16.00	18.00	.07	P4	C3	S0	DRY
18.00	20.00	.05	P3	C3	S0	DRY
20.00	22.00	.08	P3	C2	S0	DRY
22.00	24.00	.05	P4	C3	S0	DRY
24.00	26.00	.06	P4	C3	S0	DRY
26.00	28.00	.04	P4	C3	S0	DRY
28.00	30.00	.07	P4	C3	S0	DRY
30.00	32.00	.08	P4	C3	S0	DRY
32.00	34.00	.09	P4	C3	S0	DRY
34.00	36.00	.05	P4	C3	S0	DRY
36.00	38.00	.19	P4	C2	S0	DRY
38.00	40.00	.06	P4	C2	S0	DRY
40.00	42.00	.18	P3	C3	S0	DRY
42.00	44.00	.12	P3	C2	S1	DRY
44.00	46.00	.05	P4	C3	S0	DRY
46.00	48.00	.12	P2	C3	S0	DRY
48.00	50.00	.16	P1	C3	S0	DRY
50.00	52.00	.19	P4	C3	S0	DRY
52.00	54.00	.22	P3	C2	S0	DRY
54.00	56.00	.20	P4	C2	S0	DRY
56.00	58.00	.10	-1	C1	S0	DRY
58.00	60.00	.11	-1	C1	S0	DRY
60.00	62.00	.09	-1	C1	S0	DRY
62.00	64.00	.21	-1	C2	S0	DRY
64.00	66.00	.23	-1	C2	S0	DRY
66.00	68.00	.11	P0	C1	S0	DRY
68.00	70.00	.15	P0	C1	S0	DRY

0.0	2.0	NS	No recovery.
2.0	3.2	ARGG	->OB Black graphitic argillite; hard, angular fragments with sharp edges; good oily luster locally; siliceous; very weak quartz stockwork; no pyrite; not calcareous; minor sericitization on some surfaces; very rare limonite. Possible overburden; sample is wet and contains minor organic material – likely pad material.
3.2	7.9	LAQM	->CV* C3 3P4 Medium orange to grey-orange monzonite; slightly higher (but still minimal) quartz content than typical; limonitic staining of matrix is even but weak to moderate, groundmass retains pearly luster and sub-translucence; but all chip surfaces are coated with abundant orange-stained sericitized biotite and black manganese oxide speckles, 10-20% manganese oxide on fractures, former biotite, as dendritic tracings on clay altered feldspar phenocrysts < 3mm and coated some sulfide; original textures are well preserved; intensely calcareous matrix; no secondary quartz; ugly. > 3% disseminated pyrite cubes < ½ mm (larger than typically carry gold) as very dark red-black, corroded subhedral cubes that have altered to and almost completely to limonite (P3-P4). Possible colluvium? Wet, muddy sample.
7.9	8.9	ARGG	S1 Sk Black, siliceous, graphitic argillite with weak to moderate mm-scale quartz stockwork; no sulfide; not calcareous; very, very rare sub-mm limonite splotches.
8.9	11.9	LAQM	C3 6P4 Dark yellowish orange monzonite; fine-grained equigranular feldspar-rich groundmass retains original textures, luster and translucence, but all surfaces show strong sericitization (after modal feldspar and biotite) that gives unit a dusty, wispy, slightly dirty coating/appearance; carbonate is mixed with powder on chip surfaces and is contained within the matrix – vigorous, rolling reaction to HCl; all biotite altered beyond recognition; no secondary quartz; > 6% ultra-fine (< 1/6 mm) disseminated pyrite (completely oxidized and often coated with manganese oxide) appears to be secondary after biotite as the crystal form is not well developed and its occurrence places it within the cores of altered biotite.
11.9	12.6	ARGG	+Lm S1 Sk Siliceous argillite; weakly graphitic; weak quartz stockwork with sub-mm veinlets that are usually orange-stained; limonitic, sericitic surfaces and fractures are common – rock seems strongly affected by adjacent intrusive; not calcareous; no visible sulfide.
12.6	17.5	LAQM	C3 Monzonite; quartz-poor, feldspar-rich matrix is cream to pale orange; dominant orange colouration due to < 10% limonitic, sericitic pseudomorphs after biotite that remain on chip surfaces; < 1% manganese oxide replaces former biotite; all textures preserved; groundmass shows very weak sericitization; intensely calcareous; not silicified; < 1% pyrite < ¼ mm as subhedral, dark purple cubes of limonite as disseminations and as finer flecks that appear secondary after biotite. (Blech).
17.5	21.0	LAQM	C3 2P3 Orange, cream and black speckled monzonite, very much as 12.6-17.5 m; original textures are discernible but blurred to sericite and clay alteration of feldspar-rich, quartz-poor matrix; opaque; waxy to pearly; very slightly grainy-looking locally; groundmass is only very weakly stained – possibly bleached; pale yellow to dark orange and black (where coated with manganese oxide – increasingly common with depth) biotite 'ghosts' and pseudomorphs; rare

feldspar altered to bright green roscolite; strongly calcareous; no secondary quartz.

Trace to 2% disseminated pyrite cubes < ½ mm (atypically large, therefore no Au – bearing) – dark purple, corroded, subhedral limonite or patches where sulfide remains metallic-looking (P3) with surface pitting, oxidization and an oxidized, stained orange aureole; some ultra-fine manganese oxide-coated pyrite is possibly partial replacement of former biotite; > 10% manganese oxide from 20.0m.

21.0	24.0	LAQM	C3 Dark blueish-orange quartz-poor, feldspar-rich, fine-grained equigranular monzonite; moderate, even pervasive limonitic staining; weakly phyric; most textures preserved but strong sericitization on many chip surfaces; biotite as silver, orange and black pseudomorphs; intensely calcareous – instantaneous, rolling reaction to HCl; no secondary quartz; rare disseminated oxidized pyrite. Transitional into:
24.0	33.0	LQM	90:10 QM C3 Blue-orange monzonite, as described 21.0-24.0m with 10% rock that lacks pervasive limonitic staining; 10-15% mm-scale, fresh black biotite; biotite may show leached rims and cores and some chips contain more strongly altered biotite; very weakly feldspar-phyric; excellent original luster and translucence; intensely calcareous – vigorous reaction to HCl; no secondary quartz; no sulfide. Transitional into:
33.0	36.5	LAQM	C2 1P4 Dark orange monzonite, as 24.0-33.0 m, but all biotite (< 20%) altered to orange sericite pseudomorphs; good igneous textures – feldspar phyric; weak alterations but slightly stronger sericitization of feldspar-rich groundmass; < 2% manganese oxide; < 1% fine (<< ¼ mm), disseminated, oxidized pyrite seems secondary after biotite; other oxidized disseminations < ½ mm. (Blech).
36.5	41.0	LAQM	C2 2P4 Speckled light orange, dark orange and black monzonite; very much as 17.5-21.0m, but pervasive limonitic staining of matrix is stronger; opaque, grainy-looking groundmass due to sericite and clay alteration; strongly calcareous; > 10% spotty manganese oxide (on former biotite) as most distinct feature; no quartz flooding; one smoky sulfide-bearing quartz veinlet fragments < 2mm (38.0-40.0); < 2% oxidized (see 17.5-21.0 m description) pyrite < ½ mm plus finer (<< ¼ mm) cubic forms (coated) that seem secondary after former biotite; ugly rock. 40.0 – 41.0 m: very strong pervasive limonitic staining; decreased manganese oxide.
41.0	44.0	SST	50:50 ARGG C3 Bx Dove grey Steel Formation Siltstone interbedded with 50% graphitic argillite. SST: Hard, platy fragments; weak limonitic staining on sericite fractures; intense pervasive limonitic staining in above part of chips to 42.0 m; trace oxidized pyrite cubes < 1/6 mm (P2-P3 – partially, but not completely) on bedding planes; fine, flowery manganese oxide on various surfaces; weak sericitization; very siliceous – resembles chert and chert breccia; calcareous – likely dolomitic, as reaction to HCl is significantly better from unwashed sample; rare clear quartz veinlets < 1mm. ARGG: Black; silty to aphanitic; graphite is more evident in unwashed sample; siliceous; moderate orange quartz veinlets and interstitial swirls; splotchy limonite; greenish sericite on surfaces. < 40% rocks as breccia – grey SST within ARG; gross bedding seems preserved; unique-looking – similar to that in RC98-2203 and 98 Schooner holes.

44.0	50.0	LAQM	C3 3P2 Qe Dark, rich orange monzonite; < 1% clear quartz eyes < 3mm; feldspar-rich matrix retains good textures and pearly to sub-vitreous luster; minor sericitization of groundmass; biotite altered to orange-stained sericite and frequently partially replaced with silvery, tarnished very fine pyrite clusters; strongly calcareous – slow starting reaction to HCl is much stronger in unwashed powder; very, very rare fragments with clay altered k-spar phenocrysts; not silicified; one sub-cm clear quartz veinlet.
50.0	55.0	LAQM	C2 8P3 Dark orange monzonite as 44.0-50.0 m, but with 7-10% strongly and completely oxidized disseminated pyrite < ¼ mm (often coated with manganese oxide) that mostly appears secondary after biotite.
55.0	65.7	SST	70:30 ARGG +Lm Light grey, medium grey, tan and some orange Steel Formation Siltstone interbedded with < 30% weakly graphitic to non-graphitic argillite and siltstone; hard platy fragments; most surfaces with sericitic and/or limonitic coating; < 10% fragments with pervasive limonitic staining (LSST); weakly calcareous; rare sulfide 62.0-64.0 m; most siltstone is LSST; ARG with rare sub-mm quartz veinlets. Blah, blah, blah....
65.7	67.5	SLTG	C1 Siliceous, graphitic, fine-grained siltstone to argillite; very weakly calcareous; no quartz veinlets; no visible sulfide; minor patchy limonite.
67.5	70.0	SST	+Lm C1 P0 Light and medium grey Steel Formation Siltstone; minor argillite; very siliceous; very weakly calcareous; good wispy laminations; numerous limonitic surfaces; sericite is common; oxidized pyrite on some cleavage planes and fractures; fresh pyrite also as completely saturated sub-cm horizons and as sub-mm stringers.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2208

NORTHING : 19346.7 EASTING : 23518.8 ELEVATION : 821.4

MAXDEPTH : 60 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	OB	=> LAQM 60:40 AQM C1 S1 1P4
2.00	4.00	OB	=> LAQM C1 S2 1P4
4.00	17.80	LAQM	C2 S3 5P3 Qe
17.80	21.80	ARG	90:10 SST Bx C1 S1 1P3
21.80	28.50	LSST	90:10 SLT C1 2P3
28.50	38.00	LSST	60:40 SLT C1 S1 2P2
38.00	48.00	SLT	90:10 SST C1 S1 TrP2
48.00	58.00	SST	70:30 SLT C1 2P2
58.00	60.00	LSST	C1 1P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2208

NORTHING : 19346.7 EASTING : 23518.8 ELEVATION : 821.4

MAXDEPTH : 60 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	P4	C1	S1	WET
2.00	4.00	1.87	P3	C1	S2	WET
4.00	6.00	1.79	P3	C2	S3	DRY
6.00	8.00	5.06	P3	C2	S3	DRY
8.00	10.00	.45	P3	C2	S2	DRY
10.00	12.00	.35	P3	C2	S2	DRY
12.00	14.00	.39	P3	C2	S3	DRY
14.00	16.00	.15	P3	C2	S3	DRY
16.00	18.00	.13	P3	C1	S2	DRY
18.00	20.00	.12	P3	C1	S1	DRY
20.00	22.00	.07	P3	C1	S1	DRY
22.00	24.00	.05	P3	C1	S0	DRY
24.00	26.00	.11	P3	C1	S0	DRY
26.00	28.00	.17	P3	C1	S0	DRY
28.00	30.00	.18	P2	C1	S1	DRY
30.00	32.00	.10	P2	C1	S0	DRY
32.00	34.00	.07	P2	C1	S1	DRY
34.00	36.00	.08	P2	C1	S1	DRY
36.00	38.00	.07	P2	C1	S1	DRY
38.00	40.00	.07	P2	C1	S1	DRY
40.00	42.00	.07	P2	C1	S1	DRY
42.00	44.00	.05	P2	C1	S1	DRY
44.00	46.00	.17	P3	C1	S1	DRY
46.00	48.00	.07	P3	C1	S1	DRY
48.00	50.00	.09	P3	C1	S0	DRY
50.00	52.00	.06	P3	C1	S0	DRY
52.00	54.00	.09	P3	C1	S0	DRY
54.00	56.00	.07	P3	C2	S0	DRY
56.00	58.00	.09	P3	C1	S0	DRY
58.00	60.00	.09	P3	C1	S0	DRY

0.0	2.0	OB	=>LAQM 60:40 AQM C1 S1 1P4 Depth of overburden not determined by drill technician; 0-2m wet and muddy with a few large angular fragments typical of fractured overburden; mixed lithologies consist of ~ 60% LAQM and 40% AQM with minor argillite; LAQM: variable pervasive limonite alteration; ranges from pale orange where very weak to weak pervasive limonite alteration imports orange hue on grey and white AQM (borderline AQM) to orange moderate pervasive limonite altered monzonite (LABM-like); texture weak to moderate preserved with 2-5%, fine, fairly equigranular silvery-white sericitic euhedral to anhedral biotite pseudomorphs altering to limonite and very few faint and discernible subhedral to anhedral weak to moderate sericitized and clay altered (coated with limonite) k-spar phenocrysts up to 2 mm; S1 silica flooded groundmass; weakly calcareous, C1; ~1% very fine (< ¼ mm) disseminated specks and blebs of dark red limonite altered pyrite, P4; no quartz eyes (LABM). AQM: light to medium grey, altered monzonite with well preserved texture; incipient sericitization of 3-5% fairly equigranular sub to anhedral biotite; a few weakly sericitized, equigranular and subhedral k-spar phenocrysts < 1mm, some coated with limonite; no quartz eyes; weakly calcareous, C1; 1-2% very fine disseminated and disseminated granular blebs of pyrite, P4, mostly altered to manganese oxide, with some to dark red limonite. ARG: black hard angular fragments of non-graphitic argillite.
2.0	4.0	OB	=>LAQM C1 S2 2P3 2-4m wet and muddy with large angular fragments typical of overburden; mostly LAQM, orange/beige, moderate to strongly pervasive limonite altered monzonite; texture poorly preserved, dependent on limonite alteration; biotite mostly seen as shreds of sericitic coated, altered to soft orange limonite; occasional k-spar phenocrysts, up to 2 mm in size, weak to moderate clay altered, subhedral in shape; very fine euhedral limonite altered shards in groundmass; no quartz eyes; S2, silica flooding gives groundmass translucent cloudy appearance, S1 quartz veinlets/micro-veinlets; ~2% fine disseminated anhedral to subhedral speckles (< ¼ mm) of pyrite, mostly P3, some P4, altered mostly to dark red limonite, with some to black manganese oxide; weakly calcareous, C1. AQM: < 2% white/light grey altered monzonite; moderately preserved texture with sub to anhedral k-spar phenocrysts, relatively unaltered, up to 1mm in size and biotite appears to be mostly destroyed, < 1% silvery-white sericitic anhedral biotite pseudomorphs; S1-S2 cloudy silicification of groundmass; weakly calcareous, C1; ~5% fine and coarse (< ½ mm) granular blebs of pyrite, P1, slightly tarnished.
4.0	17.8	LAQM	C2 S3 5P3 Qe Pale orange, weakly pervasive limonite altered quartz monzonite; texture poorly preserved due to strong silicification; S3 silica flooding in to groundmass, gives cloudy/milky silica-rich appearance to groundmass; patchy soft orange limonite altered k-spar, P4, biotite and weakly pervasive limonite imparts an orange hue on chips; very fine < ½ mm subhedral clay altered k-spar phenocrysts coated with soft orange limonite; occasional larger subhedral clay altered k-spar phenocrysts (up to 1.5 mm), most k-spar, anhedral blebs of limonite in groundmass; < 2% silvery-white subhedral hexagonal biotite and shreds mostly altered to limonite; < 1% clear, sub-rounded in situ and free quartz eyes, range from fine (½ mm) up to 3mm in size; moderate to strongly calcareous, C2; trace clear quartz veinlets/micro-veinlets, not stockworked; 10-12m, minor hematite; overall ~5% pyrite, mostly P3, some P2 and P4, altered to dark red limonite and manganese oxide, occurs as fine (< ¼ mm) disseminated and concentrated anhedral blebs and slightly coarser (< ½ mm) disseminated and conchoidal granular blebs and subhedral cubes (some striated).

17.8	21.8	ARG	90:10 SST Bx S1 C1 1P3 Fault breccia consisting mostly of black, silty clay altered argillite with < 10% fragments of uniform medium grey silicified Steel Siltstone (or possibly strongly silicified; bleached argillite?); argillite moderate clay altered, breaks with little pressure; SST appears not to be clay altered; very weakly calcareous, C1; clasts of SST tend to be angular to sub-angular, up to 5 mm in length and tend to decrease towards 21.8 where appears to be more of a grainy breccia; fine disseminated anhedral patches of limonite, altered grains of SST? (not pyrite), very weak pervasive limonite of a few SST clasts; minor S1 quartz veinlet/micro-veinlet stockwork; ~1% very fine disseminated anhedral blebs (< ¼ mm), P3, altering to dark red limonite, mostly in SST fragments, some in quartz veinlets, minor altered to manganese oxide.
21.8	28.5	LSST	90:10 SLT C1 2P3 Pale orange and brick red (some tan) fine, uniform siliceous Steel Formation Siltstone; most chips weak uniform pervasive limonite alteration; weak additional limonite alteration of some fracture surfaces; interbed of dark grey/brown siltstone from about 24.5-25.5 (~10% of interval). SLT minor patony limonite and limonite coated fracture; weakly calcareous, C1; trace quartz micro-veinlets; ~2% very fine disseminated and concentrated anhedral blebs of pyrite, P3, mostly altering to limonite with some altering to manganese oxide; < 1% LAQM, contamination from above.
28.5	38.0	LSST	60:40 SLT C1 2P2 S1 Mixture of ~60% orangy/red and tan/grey, fine to medium grained, uniform, siliceous Steel Siltstone and ~40% dark greyish/black, fine to medium grained siltstone (too grainy to be argillite, not as hard as argillite); most SST weak pervasive limonite alteration, occasional fracture coating; both SST and SLT weakly calcareous, C1; unit stands out slightly in unwashed tray; SLT increases towards 38 m; minor S1 quartz veinlet in SLT; overall ~2% very fine (< ¼ mm) disseminated anhedral to subhedral blebs of pyrite, variably altered from P2 to P3 (lots of limonite).
38.0	48.0	SLT	90:10 SST C1 S1 TrP2 Predominantly dark grey, medium grained, weakly calcareous siltstone, as in 28.5–38 m with < 10% tan/grey, uniform, silica Steel Siltstone, Steel tends to increase towards 48 m; weak orange limonite coatings on a few fractures; trace fine disseminated pyrite in SLT results in very fine disseminated orange limonite; both weakly calcareous, C1; minor S1 quartz units; trace very fine disseminated of pyrite, mostly P2 to P3, with some P4 (appears to be mostly in SST) pyrite content increases as SST increases downhole; altered limonite.
48.0	58.0	SST	70:30 SLT C1 2P2 Interbedded tan grey, fine to medium grained uniform siliceous Steel Formation Siltstone, same as in above units, see other descriptions; ~2% pyrite occurring both as very fine grained (< ¼ mm) disseminated and disseminated blebs altered to limonite (glittery) and ½ mm anhedral to subhedral blebs of limonite altered pyrite, P3-P4, yellowy-orange in colour pyrite??
58.0	60.0	LSST	C1 1P2 Orange and brick red, fine, uniform, siliceous, weakly calcareous siltstone, as in 21.8–28.5 m, see description; weak uniform pervasive limonite alteration; 1%, very fine (< ¼ mm) disseminated pyrite, P2, altering to limonite, anhedral to subhedral in shape; < 10% chips not limonite altered; trace dark grey micro-veinlets, probably quartz.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2209

NORTHING : 19424.7 EASTING : 23398.6 ELEVATION : 823.5

MAXDEPTH : 80 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.70	OB	=>LAQM+LQM C3
3.70	6.00	LQM	C3
6.00	8.50	LAQM	C3
8.50	22.00	LQM	C3
22.00	38.00	LAQM	C3
38.00	41.80	ARG	S1 Sk
41.80	42.10	LAQM	C2
42.10	48.80	ARGG	S1 Sk
48.80	50.00	LAQM	C3 Ft*
50.00	55.40	ARGG	
55.40	56.40	LAQM	C2
56.40	57.00	ARGG	
57.00	63.20	LAQM	C1 S2 Sk 5P3 Sb
63.20	67.30	ARGG	
67.30	68.50	LAQM	C1 5P1
68.50	74.00	SST	C1 P0
74.00	80.00	ARGG	P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2209

NORTHING : 19424.7 EASTING : 23398.6 ELEVATION : 823.5

MAXDEPTH : 80 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.69	P4	C3	S0	WET
2.00	4.00	.38	P4	C3	S0	DAMP
4.00	6.00	.30	P4	C3	S0	DRY
6.00	8.00	1.18	P4	C3	S0	DRY
8.00	10.00	.29	P4	C3	S0	DRY
10.00	12.00	.15	P4	C3	S0	DRY
12.00	14.00	.16	P4	C3	S0	DRY
14.00	16.00	.36	P4	C3	S0	DRY
16.00	18.00	.12	P4	C3	S0	DRY
18.00	20.00	.09	P4	C3	S0	DRY
20.00	22.00	.08	P4	C3	S0	DRY
22.00	24.00	.19	P4	C3	S0	DRY
24.00	26.00	.14	P4	C3	S0	DRY
26.00	28.00	.06	P4	C3	S0	DRY
28.00	30.00	.14	P4	C3	S0	DRY
30.00	32.00	.06	P4	C3	S0	DRY
32.00	34.00	.05	P4	C3	S0	DRY
34.00	36.00	.10	P4	C3	S0	DRY
36.00	38.00	.40	P4	C3	S0	DRY
38.00	40.00	.06	-1	C1	S1	DRY
40.00	42.00	.08	P4	C1	S1	DRY
42.00	44.00	.05	P4	C1	S1	DRY
44.00	46.00	.09	-1	C0	S1	DRY
46.00	48.00	.11	-1	C1	S1	DRY
48.00	50.00	.10	P4	C3	S1	DRY
50.00	52.00	.07	-1	C2	S1	DRY
52.00	54.00	.05	-1	C1	S1	DRY
54.00	56.00	.03	P2	C1	S1	DRY
56.00	58.00	.29	P3	C2	S1	DRY
58.00	60.00	.76	P3	C1	S2	DRY
60.00	62.00	2.15	P2	C2	S3	DRY
62.00	64.00	.65	P3	C1	S2	DRY
64.00	66.00	.10	-1	C1	S0	DRY
66.00	68.00	.17	P0	C1	S2	DRY
68.00	70.00	.20	P2	C1	S1	DRY
70.00	72.00	.12	P0	C1	S0	DRY
72.00	74.00	.09	P0	C1	S0	DRY
74.00	80.00					
74.00	75.00	.12	P0	C1	S1	DRY
75.00	76.00	.15	P0	C1	S1	DRY
76.00	78.00	.13	P0	C1	S1	DRY
78.00	80.00	.16	P0	C1	S2	DRY

0.0	3.7	OB	=>LAQM +LQM C3 Overburden, as determined by drill site technician; damp, soil-coated rock fragments, minor organics. Mixed lithologies; mostly dark orange, sericitized and clay altered quartz – poor monzonite with or without fresh black biotite; < 5% silicified sediments; cruddy weathered-looking rock; most former biotite coated with manganese oxide; intensely calcareous; no secondary quartz; very rare oxidized disseminated pyrite.
3.7	6.0	LQM	C3 Strong orange-brown monzonite; quartz-poor, feldspar-rich matrix; rare shreds of completely clay altered, white feldspar phenocrysts; good textures; very strong pervasive sericitization and lesser argillic alteration have created incompetent-looking, sub-earthy, sub-opaque, sugary texture; intensely calcareous; no secondary quartz; very rare oxidized sulfide. < 5% biotite remains fresh and black, often with altered rims or cores; minor biotite partially replaced with black manganese oxide; horrible weathered-looking rock.
6.0	8.5	LAQM	C3 Rich dark orange monzonite; small homogeneous-looking chips in which textures of very strongly sericitized, sucrosic rock are discernible but blurred; all biotite is completely altered to sericite – only a few recognizable pseudomorphs – remaining former biotite/sericite blends with other sericite on chip surfaces; very, very rare sub-mm spots of manganese oxide; intensely calcareous; no secondary quartz, rare disseminated limonite cubes < ¼ mm after biotite; very incompetent locally; come clay.
8.5	22.0	LQM	C3 Dark orange to greyish dark orange monzonite; intensely calcareous; intensely sericitized; original textures are discernible but blurred; no modal quartz; rare phyric feldspar; >15% fresh black and partially to completely altered biotite; biotite rarely coated with manganese oxide; rare, fine limonite after pyrite (< 1/5 mm) often seems secondary after some biotite; sucrosic textures.
22.0	38.0	LAQM	C3 Dark orange monzonite; feldspar rich, quartz-poor feldspar-rich, quartz-poor, feldspar-phyric; textures are poorly preserved near contacts (especially upper) but steadily improve; one clear quartz eye < 3mm right at lower contact; biotite is typically altered to orange-stained sericite – goods pseudomorphs are often viewed; ubiquitous but non-abundant manganese oxide partially replaces some former biotite; intensely calcareous; strongly sericitized throughout – creates micro sucrosic texture. 32.0-34.0 m: increased sericitization with strong, pervasive argillic alteration; opaque, soft-looking and bleached. From 35.0 m: increased quantity of manganese oxide to < 10%; orange and black speckled; cruddy looking. One quartz veinlet (28.0-30.0 m), otherwise not silicified. Very rare oxidized pyrite. (Blah!)
38.0	41.8	ARG	S1 Sk Black argillite and silty argillite; variably siliceous; secondary quartz as clear and cloudy, interstitial swirls and blobs and as less abundant sharp-sided mm-scale veinlets that may contain minor quantities of opaque carbonate; unwashed powder gives very subtle reaction to HCl (audible but not visible) due to quartz-carbonate veinlets; ubiquitous but not abundant limonitic fractures and 1-2 mm splotches; minor greenish sericite development on surfaces; very, very, very, rare disseminated pyrite/limonite; very weakly carbonate increasing with depth. < 10% chips have light grey, bleached, clay altered appearance; < 1% fragments with strong, pervasive limonitic staining.

41.8	42.1	LAQM	C2 Monzonite; yellow-orange to red-orange; feldspar phyric – waxy phenocrysts < 3mm; strong sericitization of feldspar-rich matrix; all biotite altered beyond recognition – occurrences marked by abundant replacement by dark red-brown and black manganese oxide; hairline – manganese oxide stringers and fractures; moderately to strongly calcareous matrix; rare sub-mm quartz veinlets – very subtle and positively identified on one chip only; trace disseminations, oxidized pyrite/limonite < ¼ mm.
42.1	48.8	ARGG	S1 Sk Graphitic argillite; typically very, fine-grained but grainsize ranges from aphanitic to slightly silty; weak clear and cloudy quartz veining in flooding; silicification and stockwork are stronger near upper and veinlets often show minor limonitic staining; minor quartz-carbonate veining – very, very subtle reaction to HCl is heard but not seen in unwashed sample only; minor sericite; 44.0-48.8 m: decreased recovery of competent rock in washed sample; quartz veining is significantly less common near lower contact.
48.8	50.0	LAQM	C3 Ft* Feldspar-rich, quartz-poor monzonite; yellow-orange, red-orange and orange-brown – several variations in colour but limonitic staining is always pervasive and generally strong; phyric textures are not preserved; biotite is usually completely altered to unrecognizable orange-stained sericite that remains on chip surfaces, but < 2% chips show minor fresh, black biotite (LQM); all chips are strongly sericitized and/or argillically altered – leads to bleached-looking, or opaque, or waxy, or granular altered rock; strongly calcareous; no secondary quartz; trace disseminated limonite after pyrite < 1/6 mm; one chip contains >10% manganese oxide-coated pyrite. Decreased recovery and strong alterations suggest that interval may be a fault/shear.
50.0	55.4	ARGG	Black graphitic argillite; hard, angular fragments with very smooth surfaces and sharp edges; chert-like locally; excellent oily graphitic luster; weak quartz veining decreasing to almost absent near lower contact; rare limonitic surfaces near upper contact; very subtle, barely audible reaction to HCl – matrix appears very slightly calcareous; no visible sulfide.
55.4	56.4	LAQM	C2 Medium-orange to red-orange monzonite; homogeneous-looking rock in which original textures are subtle but preserved; biotite as subtle orange-stained sericitic 'ghosts'; minor sericitization of feldspar-rich matrix; rare chips with >5% very fine (<< ¼ mm) disseminated, partially oxidized pyrite (P2-P3) that appears to partially replace former biotite; the majority of rock is barren of sulfide; weakly to moderately calcareous – positive reaction to HCl is very slow to start, even from unwashed sample.
56.4	57.0	ARGG	Graphitic argillite, as 50.0-55.4 m; one fragment show mm-scale argillite inclusions/clasts within intrusive.
57.0	63.2	LAQM	C1 S2 Sk 5P3 Sb Monzonite; rich orange to red-orange – limonitic staining has colour variations but is typically very strong; no phyric textures preserved; textures of feldspar-rich matrix are easily discerned but are blurred by alterations; former biotite in abundance, as orange-stained, sericitic pseudomorphs 1-2 mm that almost always remain in situ, weakly calcareous – very positive reaction to HCl is very slow to start, even from unwashed sample; minor surface sericitization. Strongly silicified; all rocks have good vitreous luster; stronger silicification is associated with stronger pervasive hematitic staining and a more serious overprinting of original textures; >10% angular grey and red-grey quartz fragments < ½ cm are saturated with ultra fine disseminated sulfide – likely

			stibnite (grey and acicular) and pyrite – represent cm – to dm-scale quartz-stibnite veinlets; sub-mm veinlets are much less common, but are also present; great-looking rock-silica creates a warm feeling. < 5% disseminated pyrite; usually partially altered only (P2-P3); very difficult to see and percentage estimate may be incorrect – sulfide, usually contained within the quartz-rich areas are very fine-grained and difficult to see; some tarnished pyrite (< 1%) with rusty rims as corroded, disseminated cubes < ½ mm are much more easily seen, but these pyrite crystals are usually not associated with Au mineralization; some pyrite appears secondary after biotite. >2% stibnite within quartz fragments. (Yum!)
63.2	67.3	ARGG	Hard, black graphitic argillite as 50.0 – 55.4 m; very, very, very weakly calcareous matrix; rare milky quartz veinlets < 2mm; excellent greasy luster.
67.3	68.5	LAQM	C1 5P1 Monzonite, as 55.4-56.4m; opaque; pervasive sericitic and argillic alteration; < 5% disseminated cubes < 1/8 mm and as fine-grained clusters < ½ mm (after biotite) – fresh to completely altered to limonite, but usually only with weak rust or tarnish; rare sub-mm quartz veinlets.
68.5	74.0	SST	C1 P0 Medium grey Steel Formation Siltstone; variably silicified; dolomitic – very, very quiet reaction to HCl from unwashed sample only; platy; rare fragments show wispy laminations; interbedded with minor quantities of carbonaceous siltstone/argillite; minor sericitization; ultra fine (<< 1/10 mm) fresh pyrite disseminations – quantity is difficult to estimate as not all chips show this, and sulfides are so, so fine. 68.5-70.0 m: < 50% stockworked graphitic argillite.
74.0	80.0	ARGG	P0 Hard, angular graphitic argillite as 63.2-67.3 m but with weak quartz and lesser quartz – carbonaceous veining; disseminated fresh yellow cubic pyrite < ¼ mm; good oily luster; minor limonite near upper contact only. From 78.0 m: increased stockworked.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2210

NORTHING : 19453.8 EASTING : 23254 ELEVATION : 790.1

MAXDEPTH : 70 AZIMUTH : 316 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.00	OB	=>ARGG:LAQM
1.00	2.60	ARGG	Sk
2.60	8.00	LAQM	C3
8.00	14.00	SST	->LSST 60:40 ARGG +Lm C1
14.00	20.70	LAQM	C3 S2 Sk P4 Sb
20.70	26.00	SST	+Lm C2 P4
26.00	35.00	SST	90:10 ARGG +Lm C1 P0
35.00	37.00	ARGG	
37.00	38.50	AQM	+Lm C2
38.50	45.00	ARGG	60:40 SLTG C2 P0 Bx
45.00	52.00	ARGG	95:5 SST C2 P0
52.00	62.00	SST	50:50 SLTG C2 P0
62.00	66.00	SST	90:10 SLTG C3 P0
66.00	70.00	SST	C3 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2210

NORTHING : 19453.8 EASTING : 23254 ELEVATION : 790.1

MAXDEPTH : 70 AZIMUTH : 316 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.02	-1	C0	S1	DRY
2.00	4.00	.43	-1	C1	S1	DRY
4.00	6.00	.18	P4	C3	S0	DRY
6.00	8.00	.08	P4	C3	S0	DRY
8.00	10.00	.30	P4	C1	S1	DRY
10.00	12.00	.10	P4	C1	S2	DRY
12.00	14.00	.11	P4	C1	S1	DRY
14.00	16.00	.12	P4	C3	S0	DRY
16.00	18.00	.33	P4	C3	S1	DRY
18.00	20.00	.96	P0	C3	S2	DAMP
20.00	22.00	.44	P4	C3	S0	DRY
22.00	24.00	.06	P0	C2	S0	DRY
24.00	26.00	.11	P0	C1	S0	DAMP
26.00	28.00	.09	P0	C1	S0	DAMP
28.00	30.00	.04	P0	C1	S0	DAMP
30.00	32.00	.02	P0	C1	S0	DRY
32.00	34.00	.01	P0	C1	S0	DRY
34.00	36.00	.03	P0	C1	S0	DRY
36.00	38.00	.29	P0	C1	S0	DRY
38.00	40.00	.14	P0	C2	S1	DRY
40.00	42.00	.02	P0	C2	S2	DRY
42.00	44.00	.10	P0	C2	S2	DRY
44.00	46.00	.03	P0	C2	S1	DRY
46.00	48.00	.04	P0	C2	S1	DRY
48.00	50.00	.05	P0	C2	S1	DRY
50.00	52.00	.12	P0	C2	S1	DRY
52.00	54.00	.11	P0	C2	S0	DRY
54.00	56.00	.11	P0	C2	S0	DRY
56.00	58.00	.05	P0	C2	S0	DRY
58.00	60.00	.21	P0	C3	S0	DRY
60.00	62.00	.11	P0	C3	S0	DRY
62.00	64.00	.08	P0	C3	S0	DRY
64.00	66.00	.07	P0	C3	S0	DRY
66.00	70.00					
66.00	68.00	.05	P0	C3	S0	DRY
68.00	70.00	.07	P0	C3	S0	DRY

0.0	1.0	OB	=>ARGG :LAQM Fill, as determined by drill site technician; mixed graphitic argillite and orange limonitic monzonite.
1.0	2.6	ARGG	Sk Black graphitic stockworked argillite; siliceous matrix; rare limonitic surfaces.
2.6	8.0	LAQM	C3 Monzonite with strong, even pervasive limonitic staining; strong black speckling created due to 25-50% surface area coated with manganese oxide in similar occurrences (+ coating) former biotite; some chips are completely coated with manganese oxide; quartz-poor, feldspar-rich matrix retains pearly, sub-translucent luster although most fragments are coated with sericite (mostly orange splotches after biotite and wispy sericite after modal feldspar); rare chips with moderate argillic alteration and bleaching; intensely calcareous – very strong instantaneous reaction to HCl from matrix; not silicified or stockworked; very rare disseminated pyrite oxidized to limonite.
8.0	14.0	SST	->LSST 60:40 ARGG +Lm C1 Dirty-looking grey and black Steel Formation Siltstone intermixed with >10% stockworked, graphitic argillite; both rock types are increasingly siliceous and silicified from upper contact; SST becomes dominant rock type to lower contact. SST: Grey to dark orange; pervasive limonitic staining is strongest near contacts; splotchy manganese oxide on fractures near upper contact; sericitization increases to lower contact; rare oxidized disseminated and bedding-related pyrite; platy fragments; looks brecciated (micro = angular SST clast in argillitic matrix) near upper contact; lower contact is significantly less disturbed. ARGG: strong quartz stockwork, especially near center of interval; fractures and quartz (+ quartz-carbonate) veinlets are frequently limonitic; decreasingly abundant to lower contact; very rare sulfide.
14.0	20.7	LAQM	C3 S1 Sk P4 Sb Strong orange monzonite with yellowish hue; good textures – grain boundaries of feldspar-rich, quartz-poor monzonite are well preserved and rare white, waxy to earthy, clay-altered k-spar crystals < 2mm are very occasionally viewed in situ; biotite has altered to orange-stained sericite that remains on chips – occasional good pseudomorphs; minor manganese oxide after biotite (much, much less than described up-hole); rare fractures completely lined with manganese oxide; intensely calcareous; very strong sericitization – all chips coated with orange wisps and powder; minor pervasive silicification 16.0-20.0 m: < 15% angular silicified monzonite and sulfidic (stibnite-bearing) quartz veinlet fragments < ½ cm; increasing pervasive silicification to end of interval, associated with stronger staining, often hematitic; secondary quartz seems to carry > 5% secondary sulfide – very fine grained and fresh – often difficult to see and absolutely not identifiable in strongly stained rock. Decent-looking rock....it could run. 18.0-20.0 m: >5% Steel Formation Siltstone.
20.7	26.0	SST	+Lm C2 P4 Medium grey to tan Steel Formation Siltstone; siliceous, platy fragments; dolomitic – reaction to HCl is much quicker – stronger from unwashed sample; most fractures and surfaces (includes cleavage/bedding) with limonitic patina; < 25% rock with weak to moderate pervasive limonitic staining – decreases significantly from upper contact; ubiquitous oxidized pyrite (on fractures and as disseminations) and ultra, ultra fine unoxidized disseminated pyrite – quantities cannot be estimated; minor LAQM near 'lower contact'.
26.0	35.0	SST	90:10 ARGG +Lm C1 P0 Steel Formation Siltstone, as 20.7-26.0 m, but with >10% non-stockworked graphitic argillite and siltstone; non-steel sediments decreasingly abundant to 'lower contact'; numerous limonitic surfaces but only minor quantities are

			pervasively orange-stained; hard, platy fragments; dolomitic – very weak reaction to HCl from unwashed powder; ubiquitous fresh ultra-fine (<< 1/10 mm) disseminated pyrite (rare chips are saturated) and pyritic bedding horizons and stringers – rarely oxidized.
35.0	37.0	ARGG	Strongly graphitic argillite with weak mm-scale quartz stockwork.
37.0	38.5	AQM	+Lm C2 White textureless, featureless quartz monzonite with mm scale limonite-stained envelopes adjacent to fractures with >5% fresh disseminated pyrite cubes < 1/3 mm; calcareous – smelly reaction to HCl; rare limonite and sulfide from 38.0 m.
38.5	45.0	ARGG	60:40 SST C2 P0 Bx Interbedded black graphitic argillite and Steel Formation Siltstone; complex relationship including breccian; strong milky quartz and quartz-carbonate stockwork and quartz flooding; breccias are argillite healed with quartz and SST clasts in an argillitic matrix; < 20% yellowish pyrite as clots, disseminations and solid (occasionally cemented with quartz and with brecciated appearance locally) massive fragments < ½ cm representing diagenetic horizons. Could signify fault – entire interval designated as breccia.
45.0	52.0	ARGG	95:5 SST C2 P0 Graphitic silty argillite to siltstone with < 5% grey Steel Formation Siltstone; excellent graphitic sheen; weak quartz stockwork; no oxidization; minor ubiquitous fresh pyrite as horizons and disseminations; hard, irregular to platy fragments; moderately calcareous matrix – reaction to HCl is very slow to start.
52.0	62.0	SST	50:50 SLTG C2 P0 As 45.0-52.0 m but with equal quantities of graphitic siltstone and argillite with Steel Formation Siltstone; bedding laminations are strongly evident; weak quartz stockwork; moderately calcareous. Ubiquitous pyrite - >20% locally; pyrite as sub-cm massive chips representing pyritic horizons (usually in ARGG/SLTG) and as ultra, ultra fine disseminations in Steel Formation Siltstone – often saturated.
62.0	66.0	SST	90:10 SLTG C3 P0 As 52.0-62.0; dominantly strongly calcareous (likely dolomitic as reaction to HCl from washed sample is significantly less intense than that seen in unwashed) medium grey SST with >10% graphitic siltstone; siliceous; hard, platy fragments; ubiquitous disseminated pyrite (ultra-fine in SST) and also as fracture fill (sub-mm).
66.0	70.0	SST	C3 P0 Uniform dove-grey Steel Formation Siltstone; hard platy fragments; moderately siliceous; strongly calcareous – reaction is very slow to start (washed sample) – rolling reaction from unwashed sample – creates smelly gas; one white calcite veinlet fragment. Ubiquitous pyrite, as described above.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2211

NORTHING : 19220.4 EASTING : 23357.5 ELEVATION : 878.8

MAXDEPTH : 108 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.00	OB	=>SLT + SLTG + LAQM +Lm
5.00	13.00	SLTG	+Lm
13.00	13.10	LAQM	S1 Sk
13.10	16.00	SLTG	+Lm
16.00	24.50	LAQM	C1 1P3
24.50	27.80	SLTG	80:20 ARGG +Lm
27.80	33.50	AQM	C2 2P2
33.50	35.80	ARGG	S2 Sk TrP2
35.80	36.50	AQM	C1 1P2
36.50	38.50	ARGG	S2 Sk C1 1P2
38.50	53.50	AQM	C2 1P1
53.50	62.10	SLTG	S1 1P0
62.10	64.80	AQM	C2 TrP2
64.80	68.50	SLTG	S2 Sk 2P0
68.50	69.50	AQM	C1 S1 TrP2
69.50	80.50	SLTG	C1 S1 2P0
80.50	81.00	AQM	C1 5P1 As
81.00	88.10	SLTG	S1 Sk 3P1
88.10	101.50	AQM	C2 4P1 Sb
101.50	106.00	SLTG	S1 Sk 1P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2211

NORTHING : 19220.4 EASTING : 23357.5 ELEVATION : 878.8

MAXDEPTH : 108 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.09	-1	C0	S1	DRY
2.00	4.00	.08	-1	C0	S0	DRY
4.00	6.00	.04	P4	C0	S1	DRY
6.00	8.00	.02	-1	C0	S0	DRY
8.00	10.00	.02	-1	C0	S0	DRY
10.00	12.00	.03	-1	C0	S0	DRY
12.00	14.00	.04	P4	C0	S0	DRY
14.00	16.00	.03	-1	C0	S0	DRY
16.00	18.00	.04	P3	C1	S0	DRY
18.00	20.00	.05	P3	C1	S0	DRY
20.00	22.00	.04	P3	C1	S0	DRY
22.00	24.00	.04	P3	C1	S0	DRY
24.00	26.00	.03	P3	C0	S1	DRY
26.00	28.00	.05	P3	C0	S1	DRY
28.00	30.00	.01	P3	C1	S0	DRY
30.00	32.00	.01	P2	C2	S0	DRY
32.00	34.00	.01	P2	C2	S1	DRY
34.00	36.00	.02	P2	C1	S2	DRY
36.00	38.00	.02	P2	C1	S2	DRY
38.00	40.00	.01	P2	C1	S1	DRY
40.00	42.00	.01	P2	C2	S0	DRY
42.00	44.00	.01	P1	C2	S0	DRY
44.00	46.00	.01	P1	C2	S1	DRY
46.00	48.00	.02	P1	C2	S0	DRY
48.00	50.00	.03	P1	C2	S1	DRY
50.00	52.00	.07	P1	C2	S0	DRY
52.00	54.00	.01	P1	C1	S0	DRY
54.00	56.00	.03	P0	C0	S1	DRY
56.00	58.00	.01	P0	C0	S2	DRY
58.00	60.00	.01	P0	C0	S1	DRY
60.00	62.00	.02	P0	C0	S2	DRY
62.00	64.00	.02	P2	C2	S1	DRY
64.00	66.00	.03	P1	C1	S1	DRY
66.00	68.00	.02	P0	C0	S2	DRY
68.00	70.00	.02	P1	C1	S1	DRY
70.00	72.00	.01	P0	C1	S1	DRY
72.00	74.00	.02	P0	C1	S1	DRY
74.00	76.00	.03	P0	C1	S1	DRY
76.00	78.00	.02	P0	C1	S2	DRY
78.00	80.00	.04	P0	C1	S1	DRY
80.00	82.00	3.09	P1	C1	S1	DRY
82.00	84.00	.20	P1	C0	S1	DRY
84.00	86.00	.09	P1	C0	S1	DRY

86.00	88.00	.18	P1	C0	S1	DRY
88.00	90.00	.07	P1	C2	S0	DRY
90.00	92.00	.14	P1	C2	S0	DRY
92.00	94.00	.07	P1	C2	S0	DRY
94.00	96.00	.10	P1	C2	S0	DRY
96.00	98.00	.19	P1	C2	S0	DRY
98.00	100.00	.12	P1	C2	S0	DRY
100.00	102.00	.07	P1	C2	S1	DRY
102.00	104.00	.04	P0	C0	S1	DRY
104.00	106.00	.10	P0	C0	S1	DRY
106.00	108.00	.04	P0	C0	S1	DRY

0.0	5.0	OB	=>SLT +SLTG +LAQM +Lm Overburden as determined by drill technician; unwashed tray, 0-5 m chips coated with soil; minor organics, especially 0-2 m; a few large fragments, up to 1.5 cm, typical of fractured overburden; mostly relatively soft, platy siltstone, dark grey (non-graphitic) to greasy-black (graphitic) in colour; fine bedding laminations well-defined by limonite; a few smaller, hard, angular fragments of argillite; non-calcareous; moderate to strong orange limonite fractures; a few chips of quartz (from larger veins); 4-6 m, 10-20% chips of orangy-cream weak pervasive limonite altered monzonite; weak to moderate pervasive texture; subhedral biotite and k-spar altered to sericite and altered to limonite, stand out in quartz feldspar rich groundmass; < 1% fine disseminated pyrite, P4, altered to limonite.
5.0	13.0	SLTG	+Lm Dark grey to black, fine, graphitic siltstone; good graphitic lustre; soft, platy fragments with sub-angular to sub-rounded edges; fine bedding laminations well-defined by limonite; moderate to strong patchy orange limonite on most fractures; non-calcareous; very trace milky-clear blebs of quartz veinlets/micro-veinlets; appears to be slightly more coarse grained in a few fragments – medium grained siltstone; no important sulfides; very, very, trace, very fine disseminated pyrite, P0 throughout.
13.0	13.1	LAQM	S1 Sk Very thin sliver or interfinger (from lower LAQM) of pale orange, weakly pervasive limonite altered monzonite; opaque groundmass; all textures destroyed; no calcite; trace quartz micro-veinlet stockwork; trace remnants of biotite and k-spar as limonite altered anhedral blebs and minor leached out voids; sericite-rich groundmass; trace very fine (< ¼ mm) anhedral blebs of pyrite, P4, altered to limonite and manganese oxide.
13.1	16.0	SLTG	+Lm Dark grey to black, fine, graphitic siltstone, same as 5.0-13.0 m, see description; no sulfide.
16.0	24.5	LAQM	C1 1P3 Creamy-orange, weakly pervasive limonite altered monzonite; opaque, feldspar-rich groundmass; moderate preserved texture; quite noticeable due to orange limonite alteration of subhedral to anhedral biotite and k-spar; biotite altered to sericite to limonite; k-spar to sericite to limonite; gives creamy groundmass an orange hue; no secondary quartz; very trace quartz monzonite veinlets (not stockwork); very weakly calcareous; very trace small quartz eyes; a few dark orange/red limonite altered fracture surfaces; ~1-2% very fine (< ¼ mm) disseminated anhedral to subhedral blebs and speckles of pyrite, P3-P4, altering to limonite and manganese oxide; slightly coarser pyrite (< ½ mm), only P2 alteration.
24.5	27.8	SLTG	80:20 ARGG +Lm Dark grey to black, fine, graphitic siltstone; soft and platy with weakly detected bedding laminations and greasy lustre; interbedded with ~20% fragments of black, hard, small angular fragments of graphitic, siliceous argillite; moderate S1 quartz veinlet stockwork, a few fragments almost look brecciated with stockwork; orange patchy limonite and fracture coatings on many surfaces; no sulfide.
27.8	33.5	AQM	C2 2P2 Predominantly tan to greyish-white altered monzonite; fairly good preservation of texture with euhedral to subhedral altered k-spar and biotite pseudomorphs stained with limonite standing out in a opaque k-spar – sericite rich groundmass; k-spar altering to sericite, limonite, trace roscolite; biotite altered to sericite to limonite to pyrite; 27.8 to 28.5, weak pervasive limonite, borderline LAQM; no quartz eyes or secondary quartz and stockwork; moderate calcareous, C2; ~2% pyrite occurring both as very fine (¼ mm) disseminated anhedral blebs, P2-P3.

			altering to limonite and manganese oxide and as coarser (< ½ mm) disseminated granular blebs and cubes, less oxidized tarnished P1-P2 (bronzy); very trace needles of arsenopyrite or blades of marcasite.
33.5	35.8	ARGG	S2 Sk TrP2 Black, hard, siliceous, angular fragments of graphitic argillite; non-calcareous; moderate quartz veinlet/micro-veinlet stockwork, with many of the veinlets stained orange with limonite; trace granular-massive pyrite in and around some quartz veinlets, some P1, more P2-P3, (< ½ mm); no limonite alteration of fracture.
35.8	36.5	AQM	C1 2P2 Tan to greyish white altered monzonite, quite similar to 27.8-33.5 m; texture weak to moderate preserved with subhedral to anhedral blebs of k-spar and biotite, altered to sericite and stained with limonite (k-spar and biotite to sericite to limonite) standing out in a k-spar and sericite-rich, opaque groundmass; weak to moderate calcareous, C1; no secondary quartz or stockwork; ~2% pyrite occurring as 1) very fine (< 1//4 mm) disseminated, P2-P3, some P4, altering to limonite, 2) less oxidized P1-P2, bronzy cubic and granular pyrite, (< ½ mm), dispersed throughout.
36.5	38.5	ARGG	S2 Sk C1 1P2 Black, hard, siliceous, angular fragments of graphitic argillite; moderate S2 segmented quartz veinlet/micro-veinlet stockwork, many with orange limonite alteration; very weakly calcareous; a few soft, platy fragments with minor bedding laminations, very minor interbedded graphitic siltstone; 1% very fine (< ¼ mm) disseminated pyrite and concentrated granular pyrite, P1-P2, altering to limonite and manganese oxide, some brassy in colour.
38.5	53.5	AQM	C2 1P1 Light greyish-white, opaque to cloudy-translucent looking altered monzonite; good preservation of texture, especially towards end of unit, feldspar-sericite-quartz rich groundmass with abundant well-shaped euhedral to subhedral, beige and silvery-white sericite altered biotite pseudomorphs and subhedral to anhedral plus beige plus silvery sericite altered k-spar, some relatively fresh; patches where altered phenocrysts stained with pale orange limonite related to fracture in intrusive; very trace large rounded quartz eye; xenolith of argillite from 50-52m; moderate to strongly calcareous, C2; trace white illite-montmorillonite, vein or alteration of k-spar?; very trace, extremely tiny quartz micro-veinlets, visible through k-spar and biotite phenocrysts; 40-42 m, thin sliver of argillite? or contamination? 1-2% very fine disseminated pyrite (< ¼ mm) P1-P2, altering to manganese oxide and slightly coarser < ½ mm granular blebs of weakly tarnished pyrite.
53.5	62.1	SLTG	S1 1P0 Dark grey to black, fine grained, graphitic siltstone; mostly relatively soft, platy fragments with smooth surfaces and sub-angular to sub-rounded edges; towards upper and lower contacts where tends to be an increase in mm-scale quartz veinlets/micro-veinlets, fragments harder and more jagged, probably due to weak silicified flooding; moderate graphitic, greasy appearance; weak fine, bedding laminations; non-calcareous; no limonite alteration; ~1% very, very fine (< ¼ mm) fresh disseminated pyrite (anhedral speckles and cubes – some striated) throughout siltstone, fine blebs of yellowy-bronzy pyrite in around edges of micro-veinlets and veinlets; locally, in some chips, tons of pyrite (< 80% pyrite in chip).
62.1	64.8	AQM	C2 TrP2 White, opaque, altered, monzonite; very poor preservation of textures; of textures; appears equigranular and sugary-looking, but up close can see faint outlines of remnant k-spar phenocrysts and biotite; altered biotite appears as beige shreds and beige subhedral hexagons in white groundmass, altered to sericite; k-spar altered to white clay and sericite (difficult to see) but can see sub

			to anhedral k-spar phenocrysts where sericite altered to pale green roscolite; very trace small Quartz eyes; moderate to strongly calcareous, C2; very trace mm-scale quartz micro-veinlets, not stockwork; no limonite alteration at all; trace very fine (< ¼ mm) disseminated blebs of pyrite, P2; altering mostly to manganese oxides with minor limonite; occasional chip locally packed with blebs and subhedral cubes of slightly tarnished pyrite, P1.
64.8	68.5	SLTG	S2 Sk 2P0 Dark grey to black, fine, graphitic siltstone, as in 53.5-62.1 m; can see fine bedding laminations; moderate to strongly graphitic, greasy luster; some platy, some angular fragments (contain quartz); strong S1-S2 quartz veinlet/micro-veinlet stockwork; veinlets contains wisps of carbon, as well as locally conchoidal blebs and cubes of fresh to slightly tarnished (P1) pyrite in and along edges of veinlets; ~1-2% very fine disseminated blebs and disseminated cubes (¼ mm) dispersed throughout, some chips abundant pyrite concentrations; non-calcareous.
68.5	69.5	AQM	C1 S1 TrP4 White, opaque, equigranular; sugary-looking altered monzonite, as in 62.1-64.8 m; textures destroyed; faint k-spar phenocrysts, altered to beige and white sericite and green roscolite; very few anhedral to subhedral sericite altered biotite pseudomorphs; small (< ½ mm) Quartz eyes; weakly calcareous, C1; trace (¼ – ½ mm in width) quartz micro-veinlets; trace fine disseminated pyrite, P2, altering to manganese oxide, locally concentrated in a few chips, trace coarser (< ½ mm) subhedral blebs.
69.5	80.5	SLTG	C1 S1 2P0 Dark grey to black, fine, graphitic siltstone, same as other above units; platy, soft; greasy lustre; weak bedding laminations; very weak reaction with HCl, after a few seconds; very weak S1 quart veinlet/micro-veinlets, doesn't appear to be stockworked; 76-78 m, S2 veinlets; 78-80m, thin interbed of argillite?, chips hard, angular and crunchy when squished; 1-2% very fine (< ¼ mm) disseminated pyrite (blebs and cubes) throughout siltstone; slightly coarser (< ½ m) concentrations of pyrite in around edges of some quartz veinlets; slightly more tarnished (P1), rest fairly fresh.
80.5	81.0	AQM	C1 5P1 As Light greyish-white, altered monzonite; absolutely no texture remains, almost looks like a siliceous siltstone; cloudy-opaque groundmass; weakly calcareous, C1; abundant sulfide, trace silvery grey, slender acicular needles of silvery-white arsenopyrite; 5% bronzy, slightly tarnished, P1, occurring as thin micro-veinlets of massive pyrite, fine disseminated anhedral blebs (< ¼ mm) and slightly coarser blebs up to ½ mm of granular – massive pyrite; possibly trace pyrrhotite?; very trace faint outline of sericitized k-spar.
81.0	88.1	SLTG	S1 Sk 3P1 Dark grey to black, fine, graphitic siltstone; platy, greasy appearance; weak bedding laminations; non-calcareous; same as previous units; moderate to strong S1 quartz veinlet/micro-veinlets, weakly stockworked, many with coarse blebs (< ½ mm) of granular-massive pyrite (see some cubic shape) in and along edges of quartz; a few chips (< ½ %) of fine massive pyrite (>90% of chip); very thin pyrite veinlets and very fine disseminated blebs and cubes; overall 2-3% fresh to slightly tarnished pyrite.
88.1	101.5	AQM	C2 4P1 Sb Light grey to white, cloudy, weakly translucent-looking, altered quartz monzonite; some chips opaque-looking; quartz-sericite rich groundmass; texture moderately preserved (especially in middle and towards bottom of unit); 3-5% sub to anhedral silvery-white and beige (weak limonite?) sericitic biotite pseudomorphs to pyrite; sub to euhedral prismatic k-spar phenocrysts altering to sericite (some relatively fresh) very trace sericite to roscolite; moderate to strongly calcareous, C2 ~3-5% very fine (, ¼ mm) to coarse (< ¾ mm)

			disseminated blebs of fresh (yellow) to weakly tarnished (bronzy) pyrite; trace P2 to limonite; some cubes; pyrite replacing trace illite-clay; very trace bladed marcasite.
101.5	108.0	SLTG	S1 Sk 1P0 Dark grey to black, fine, graphitic siltstone; platy, soft; greasy lustre; weak bedding laminations; non-calcareous; moderate S1 quartz veinlets/micro-veinlet stockwork; ~1% yellowy fresh pyrite, granular – massive blebs (fine to coarse (< ½ mm) as quartz-pyrite veinlets/micro-veinlets in and along edges), pyrite veinlets/micro-veinlets and fine disseminations.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2212

NORTHING : 19219.4 EASTING : 23345 ELEVATION : 878.6

MAXDEPTH : 69 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.00	NS	
2.00	6.50	OB	=>ARG +Lm
6.50	14.00	SLT	->SLTG +Lm
14.00	15.00	LAQM	
15.00	19.00	SLT	+Lm
19.00	20.00	LAQM	
20.00	29.50	SLT	+Lm
29.50	30.10	LAQM	C1
30.10	32.00	ARGG	Sk
32.00	34.70	LAQM	C3
34.70	38.20	ARGG	+Lm
38.20	43.80	LAQM	C2 Qe
43.80	44.00	ARGG	
44.00	45.00	LAQM	C3 Qe
45.00	54.90	AQM	C3 Qe
54.90	58.50	SLTG	Sk P0
58.50	59.50	AQM	C3
59.50	69.00	SLTG	C2 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2212

NORTHING : 19219.4 EASTING : 23345 ELEVATION : 878.6

MAXDEPTH : 69 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00		-1	-1	-1	-1
2.00	4.00	.05	-1	C0	S1	DRY
4.00	6.00	.04	-1	C0	S1	DRY
6.00	8.00	.04	-1	C0	S1	DRY
8.00	10.00	.03	-1	C0	S1	DRY
10.00	12.00	.04	-1	C0	S1	DRY
12.00	14.00	.04	-1	C0	S1	DRY
14.00	16.00	.04	P4	C0	S1	DRY
16.00	18.00	.03	-1	C0	S1	DRY
18.00	20.00	.03	P4	C0	S1	DRY
20.00	22.00	.04	-1	C0	S1	DRY
22.00	24.00	.04	-1	C0	S1	DRY
24.00	26.00	.04	-1	C0	S1	DRY
26.00	28.00	.02	-1	C0	S1	DRY
28.00	30.00	.03	P4	C0	S0	DRY
30.00	32.00	.03	-1	C1	S1	DRY
32.00	34.00	.02	-1	C3	S0	DRY
34.00	36.00	.02	P0	C2	S1	DRY
36.00	38.00	.02	P0	C1	S1	DRY
38.00	40.00	.03	P1	C2	S1	DRY
40.00	42.00	.02	P1	C3	S0	DRY
42.00	44.00	.02	P1	C3	S0	DRY
44.00	46.00	.02	P0	C3	S0	DRY
46.00	48.00	.02	P0	C3	S0	DRY
48.00	50.00	.03	P0	C3	S0	DRY
50.00	52.00	.02	P0	C3	S0	DRY
52.00	54.00	.01	P4	C3	S0	DRY
54.00	56.00	.06	P4	C3	S1	DRY
56.00	58.00	.01	P0	C0	S1	DRY
58.00	60.00	.01	P0	C1	S1	DRY
60.00	62.00	.01	P0	C2	S1	DRY
62.00	64.00	.01	P0	C2	S1	DRY
64.00	66.00	.02	P0	C2	S1	DRY
66.00	68.00	.02	P0	C2	S1	DRY
68.00	69.00	.01	P0	C2	S1	DRY

0.0	2.0	NS	No recovery.
2.0	6.5	OB	=>ARG +Lm Overburden, as determined by drill site technician; soil-rich with minor organics; pad fill.
6.5	14.0	SLT	->SLTG +Lm Dark grey and black argillite siltstone; very fine grained; dominant cleavage appears coincident with bedding; platy (rather than angular) fragments, increasingly carbonaceous to lower contact; limonitic fractures and bedding planes decrease from upper contact – quite rare near lower contact; rare mm-scale quartz veinlets – occasionally with weak limonitic staining within matrix and along selvages; sericitic fractures are common; clayey and sericitic planes at lower contact; not calcareous; no visible sulfide; minor softer grey shale (< 5%).
14.0	15.0	LAQM	Yellowish orange monzonite; moderate to strong pervasive limonitic staining; quartz – poor; original textures discernible but blurred; some void space < 2mm may represent former k-spar phenocrysts; biotite altered to dark orange and less common silver and orange sericitic pseudomorphs – account for strongest orange colouration of rock; opaque to sub-translucent; pearly to earthy locally. Not calcareous; all surfaces show moderate to strong sericitization – secondary after biotite and modal feldspar; not pervasively silicified – very weak orange-stained quartz veinlets < 1 mm; very localized argillic alteration – yellowish clay; no manganese oxide. < 1% disseminated pyrite < ¼ mm altered to dark red-purple, cubic to rounded limonite flecks; rare fractures look as though they hosted slightly higher sulfide concentrations – tiny blackish flecks.
15.0	19.0	SLT	+Lm Black siltstone; weakly carbonaceous; abundant orange-stained sericitic/limonitic fractures and bedding plane surfaces; much as 6.5-14.0 m; < 10% fragments are shale-like with bleaching/softening of groundmass; very, very rare quartz veinlets < 1.5 mm – orange-stained; not calcareous; no visible sulfide.
19.0	20.0	LAQM	Dark orange-brown monzonite, as 14.0-15.0 m, but with much stronger pervasive limonitic staining and intense sericitic and argillic alteration; opaque, sucrosic, incompetent looking rock; no phyric textures; groundmass textures are discernible but blurred; not calcareous or silicified; all biotite altered beyond recognition – limonitic/sericitic remains blend in with other very strong sericitization of rock; former biotite is very, very rarely partially coated with fine manganese oxide; < 1% disseminated pyrite altered to limonite; void space < 3 mm after former k-spar phenocrysts; cruddy, worn out rock.
20.0	29.5	SLT	+Lm Argillitic siltstone; black; non to increasingly carbonaceous to lower contact; overall grain size decreases; breaks into small platy fragments; most fracture and bedding planes with yellow to orange limonite-stained sericite and clay; very rare quartz veining; not calcareous; no visible sulfide.
29.5	30.1	LAQM	C1 Monzonite with strong, even, dull orange-brown limonitic staining; all original textures are absent – rock has very fine grained feldspar-rich, opaque, sucrosic recrystallized appearance; resembles limonitic Steel Formation Siltstone but rare chips still contain biotite remnants; calcareous matrix; no secondary quartz; no visible sulfide; stronger limonitic staining in fractures; textures improve from 30.0m.

30.1	32.0	ARGG	Sk Black, siliceous graphitic argillite to silty argillite; hard, platy to irregular fragments with sharp edges; excellent oily graphitic luster locally; ultra-fine (<< ½ mm) bedding laminations; greenish sericite development on several surfaces; occasional limonitic fractures; weak mm-scale clear and milky quartz stockwork; no sulfide; < 10% fragments are soft, medium grey and bleached.
32.0	34.7	LAQM	C3 Cream to pale orange monzonite; limonitic staining is very weak and barely pervasive; borderline phase, but rock is not fresh; fine-grained feldspar-rich matrix is opaque with a pearly to waxy and a micro-sucrosic recrystallized texture – due to sericitic and argillic alteration; incompetent locally, where alterations are strongest; dominant colouration of rock due to dark orange-brown shreds of altered biotite; biotite also as creamy, sericitic pseudomorphs; no manganese oxide; very strongly calcareous matrix; no silicification or stockwork; no sulfide. (Incredibly uninteresting rock!)
34.7	38.2	ARGG	+Lm Black graphitic argillite; ranges from aphanitic (chert-like) to silty, but generally very fine-grained; excellent greasy luster; moderate to strong mm-scale milky and clear multi-phase quartz stockwork; minor carbonate inclusions (sub-mm) within some veinlets; rare calcite-filled fractures; many sericitic surfaces; limonitic fractures are very common; rare slickensides; trace fresh disseminated pyrite – very rare.
38.2	43.8	LAQM	C2 Qe Dull, light orange, grain size bleached monzonite; pervasive limonitic staining is much stronger than in 32.0-34.7m, and is much more even; original textures of quartz-poor, feldspar-rich rock are weakly preserved but rock is very strongly sericitic and argillically altered – opaque, granular and soft; only rare biotite pseudomorphs remain identifiable; rare, unstained k-spar phenocrystals < 3mm and very rare clear quartz eyes < 1mm; appearance is very uniform and non-impressive; moderately calcareous matrix; not silicified; trace to 2% tarnished, silvery pyrite as partial replacement of former biotite and as concentrations (to 10%) on rare fractures; none of this pyrite looks like the 'right' pyrite; all textures improve with depth; < 1% chips lack limonitic staining.
43.8	44.0	ARGG	Graphitic argillite; as raft?; small clasts of argillite caught within adjacent intrusive rock.
44.0	45.0	LAQM	C3 Qe As 38.2-43.8 but original textures and luster is much better preserved; rare sulfide; strongly calcareous; not silicified; occasional quartz eyes; sharp change into.
45.0	54.9	AQM	C3 Qe White monzonite; completely lacks limonitic staining; good feldspar phyric texture – phenocrysts < 4 mm are intensely clay altered and remain in situ; matrix contains slightly more quartz than is typically seen; quartz eyes increase in size and abundance to lower contact – still not abundant; feldspar-rich matrix is variably fresh and pearly to strongly argillically and sericite altered; biotite as subtle creamy, sericitic ghosts. At 50.0m: sub-dm argillite-quartz-intrusive breccia – fault? Trace tarnished, silvery pyrite is secondary after biotite; rare sulfide as disseminations. Sharp lower contact.

54.9	58.5	SLTG	Sk P0 Graphitic siltstone; platy; fine bedding laminations; weak stockwork near upper contact; excellent graphitic luster; ubiquitous yellow pyrite as inclusions within and along selvages of sub-cm quartz veinlets, as stringers and ultra-fine wispy coatings on fractures – diagenetic mostly.
58.5	59.5	AQM	C3 Opaque, waxy, white monzonite lacks all features and textures; strongly calcareous; looks like putty – bleh.
59.5	69.0	SLTG	C2 P0 Dark grey to black, graphitic siltstone as 54.9 – 58.5m; excellent greasy luster, platy fragments with fine bedding laminations; moderate quartz stockwork (mm-scale milky veinlets, and rarer interstitial swirls and blobs) – stronger locally soft and bleached-looking. Ubiquitous and locally quite abundant (!) yellow pyrite as fine (< ¼ mm disseminated cubes, as fracture-fill and stringers and as rare massive clots signifying sub-cm diagenetic pyrite horizons.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2213

NORTHING : 19219.9 EASTING : 23311.1 ELEVATION : 871.2

MAXDEPTH : 100 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.00	OB	=> LAQM + ARG + SLTG C1 1P4
5.00	28.20	SLTG	+Lm
28.20	29.80	LAQM	C1 S1 1P2
29.80	33.80	ARGG	S2 Sk TrP2
33.80	37.00	LAQM	80:20 AQM C1 S1 Sk 2P2 Qe
37.00	41.80	AQM	C1 3P2 Qe
41.80	43.00	ARGG	S2 Sk Bx TrP1
43.00	60.10	AQM	C1 1P2
60.10	73.20	SLTG	60:40 ARGG S2 Sk TrP0
73.20	90.50	AQM	C1 4P0
90.50	100.00	ARGG	C1 S1 Sk TrP0

86.00	88.00	.07	P0	C1	S0	DRY
88.00	90.00	.11	P0	C1	S0	DRY
90.00	92.00	.07	P0	C1	S1	DRY
92.00	94.00	.02	P0	C1	S1	DRY
94.00	96.00	.02	P0	C1	S1	DRY
96.00	98.00	.01	P0	C1	S1	DRY
98.00	100.00	.01	P0	C1	S1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2213

NORTHING : 19219.9 EASTING : 23311.1 ELEVATION : 871.2

MAXDEPTH : 100 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.04	P4	C1	S0	WET
2.00	4.00	.02	P4	C1	S0	WET
4.00	6.00	.02	P4	C1	S0	WET
6.00	8.00	.02	-1	C0	S0	WET
8.00	10.00	.01	-1	C0	S0	WET
10.00	12.00	.01	-1	C0	S0	WET
12.00	14.00	.03	-1	C0	S1	WET
14.00	16.00	.01	-1	C0	S1	DRY
16.00	18.00	.01	-1	C0	S0	DRY
18.00	20.00	.02	P4	C0	S1	DRY
20.00	22.00	.02	-1	C0	S1	DRY
22.00	24.00	.01	-1	C0	S1	DRY
24.00	26.00	.03	P3	C0	S1	DRY
26.00	28.00	.04	-1	C0	S1	DRY
28.00	30.00	.05	P2	C1	S1	DRY
30.00	32.00	.08	P2	C0	S2	DRY
32.00	34.00	.08	P2	C1	S1	DRY
34.00	36.00	.01	P2	C1	S1	DRY
36.00	38.00	.01	P2	C1	S0	DRY
38.00	40.00	.01	P2	C1	S0	DRY
40.00	42.00	.02	P2	C1	S0	DRY
42.00	44.00	.01	P1	C2	S2	DRY
44.00	46.00	.02	P1	C2	S0	DRY
46.00	48.00	.03	P1	C2	S0	DRY
48.00	50.00	.03	P1	C2	S0	DRY
50.00	52.00	.02	P1	C2	S0	DRY
52.00	54.00	.03	P2	C2	S1	DRY
54.00	56.00	.03	P2	C2	S0	DRY
56.00	58.00	.02	P2	C2	S0	DRY
58.00	60.00	.02	P2	C2	S0	DRY
60.00	62.00	.02	P1	C1	S1	DRY
62.00	64.00	.02	P0	C1	S2	DRY
64.00	66.00	.01	P0	C0	S1	DRY
66.00	68.00	.03	P0	C0	S1	DRY
68.00	70.00	.01	P0	C0	S2	DRY
70.00	72.00	.02	P0	C0	S2	DRY
72.00	74.00	.80	P0	C0	S2	DRY
74.00	76.00	2.45	P0	C1	S0	DRY
76.00	78.00	.28	P0	C1	S0	DRY
78.00	80.00	.20	P1	C1	S0	DRY
80.00	82.00	.08	P0	C1	S0	DRY
82.00	84.00	.12	P0	C1	S0	DRY
84.00	86.00	.06	P0	C1	S0	DRY

0.0	5.0	OB	=>LAQM and ARG and SLTG C1 1P4 Overburden, as determined by drill site technician; 0-6m in unwashed tray, moist and soil – rich with minor organics; fragments coated with mud, some quite large, up to 2.0 m, typical of fractured overburden; fill consists mostly of LAQM (>80%) and ARG and SLTG LAQM: orangy tan-brown, weak to moderate pervasive limonite altered quartz monzonite; texture – weak to moderate preserved with silvery-white, subhedral to anhedral sericite altered biotite pseudomorphs altered to limonite and manganese oxide and subhedral, sericite altered k-spar phenocrysts altered to limonite and/or manganese oxide, standing out in a tan-creamy opaque k-spar-sericite rich groundmass; weakly calcareous, C1; 1% very fine (< ¼ mm) disseminated anhedral blebs of limonite and manganese oxide altered pyrite; no secondary quartz or stockwork; trace rounded quartz eyes; ARG: black, hard angular fragments of graphitic argillite; weakly siliceous, S1 quartz micro-unit stockwork; patchy orange limonite fractured coatings; SLTG: dark grey, platy fragments of graphitic siltstone with sub-rounded edges; patchy limonite fractured coatings.
5.0	28.2	SLTG	+ Lm Dark grey to black, fine graphitic siltstone; mostly platy fragments with sub-rounded edges; weak to moderate defined bedding laminations; non-calcareous; good greasy-graphitic lustre; many fragments relatively soft, easily scratched, but a few 40%, black, harder angular fragments, very weakly interbedded with minor units of argillite?; patchy orange limonite on many surfaces, well-coated limonitic fractures, decrease down hole; very weak quartz veinlets, S1, not stockwork, appears to increase slightly down hole; pretty much no sulfides, very, very trace disseminated on fractures, P4, altered to dark red limonite.
28.2	29.8	LAQM	C1 S1 1P2 Pale orange-tan, weak to moderate pervasive limonite altered quartz monzonite; very little preservation of texture; occasional very faint outline of a sericite altered k-spar or biotite, most altering to sericite altering to limonite, mixes in with sericite (some quartz) rich groundmass; trace, very small, (< ½ mm) sub-rounded quartz eyes; minor S1 quartz micro-veinlet, stockwork?; very weak calcareous reaction with HCl; weak to moderate voids, leached out k-spar and biotite; a few limonite altered fracture surfaces with dark red limonite; < 1% very fine disseminated and disseminated anhedral blebs of pyrite, P2, moderately oxidized to manganese oxide; trace pyrite micro-veinlets.
29.8	33.8	ARGG	S2 SK Tr P2 Small, black, hard, angular fragments of siliceous, graphitic argillite; weak S2 quartz veinlet/micro-veinlet stockwork; appears to be a patchy white or yellow clay coating on many fractures, overprinted with orange limonite; some limonite alteration of units; trace P1-P2, fine to coarse (< ½ mm) blebs of pyrite, included in and around veinlets/micro-veinlets; non-calcareous; strong graphitic lustre; a few platy, sub-rounded fragments, could be weakly interbedded siltstone; trace LAQM contamination.
33.8	37.0	LAQM	80:20 AQM C1 S1 SK 2P2 Qe Predominantly pale orange-tan, weakly pervasive, limonite altered quartz monzonite with ~ 20% non-pervasive limonite monzonite fragments; weak to moderate preserved texture; increasing towards 37.0 m (AQM); opaque to weakly translucent-looking feldspar-sericite rich groundmass; faint to well-defined sericite altered to limonite altered k-spar phenocrysts and biotite altered to sericite altered tolimonite pseudomorphs (orange to beige in color, moderate to strong in LAQM, weak in AQM); very few, very small (a few coarser) sub-angular to sub-rounded quartz eyes; minor S1 quartz veinlet/micro-veinlet stockwork ; weakly calcareous, C1; trace P2-P3 manganese oxide altered pyrite porphyroblasts in k-spar phenocrysts; 2-3% very fine (< ¼ mm) to coarser (<1mm) disseminated and disseminated subhedral to anhedral granular blebs; a

			few fragments with fine pyrite micro veinlets; varies from P1-P3, altering to manganese oxide; mostly P2. < 1% ARGG/SLT fragments, contamination from above.
37.0	41.8	AQM	C1 3P2 Qe Light grey to tan to white, bleached looking, altered quartz monzonite; fairly good textures with tan/beige anhedral to subhedral sericite altered biotite pseudomorphs and white unaltered to silvery and beige sericite altered sub- to euhedral k-spar phenocrysts in a cloudy, weakly translucent-looking groundmass; < 1% large, clear, sub-rounded quartz eyes; weakly calcareous, C1; trace roscolite alteration of sericite; minor pyrite alteration of a few sericite altered k-spar and biotite phenocrysts; very trace SLTG contamination; very minor in situ fragments of quartz micro-veinlets??; 2-3% very fine disseminated and disseminated blebs and cubes, mostly P2, altering to manganese oxide; slight coarser pyrite (< ½ -1mm), less tarnished, P1, cubes and granular blebs; weak, very thin pyrite micro-veinlets; (unit borderline P1-P2)
41.8	43.0	ARGG	S2 SK Bx TrP1 Black, hard, siliceous, angular fragments of graphitic argillite; S2 quartz veinlet/micro-veinlet stockwork, many units segmented; can see contacts in fragments between ARG and AQM, moderate silica flooding into the argillite along these boundaries; non-calcareous; no limonite; contact looks brecciated, appears to be medium grey angular clasts of silt or bleached, clay altered argillite and AQM in black argillite and vice-versa; trace granular blebs of pyrite, P1.
43.0	60.1	AQM	C2 1 P2 Light grey to tan/beige to white, bleached altered quartz monzonite; good preservation of texture, very similar to 37.0 to 41.8m; opaque, milky to cloudy looking quartz-feldspar-sericite rich groundmass; fairly well-defined 1) tan/beige sericite altered biotite pseudomorphs, sub- to anhedral in shape and 2) k-spar phenocrysts, milky white (unaltered) to silvery-white and beige (sericite altered); sub- to anhedral in shape; phenocrysts stand out in clearer, cloudy groundmass; very trace, < 3% over entire unit, clear, subrounded, fairly small (< ½ mm); moderately calcareous, C2; very trace, 42-44 mm and 52-54, jagged fragments of clear quartz, very trace quartz micro-veinlets; < 1% very, very fine disseminated specks of pyrite (< ¼ mm, many < 1/8mm) altering to manganese oxide and some limonite around edges; coarser pyrite (¼ - ½ mm), less oxidized P1 disseminated anhedral to euhedral cubes and granular blebs.
60.1	73.2	SLTG	60:40 ARGG S2 SK TrP0 Interbedded dark grey to black, fine graphitic siltstone and black, hard angular fragments of graphitic argillite; siltstone is softer and platy with weak bedding laminations and sub-rounded edges, not crunchy when smushed in tray, great graphitic lustre – strongly graphitic, predominantly SLT from 60-62 and 66.0-73.2 m; argillite more from 62-66m, crunchy when smushed, but weakly interbedded throughout; non-calcareous, C0, except 60-64 m, very weakly; S1-S2 quartz veinlet/micro-veinlet stockwork; trace very fine disseminated pyrite as anhedral to subhedral granular blebs in veins and dispersed throughout siltstone; P0, fresh; 60-62, 66-70 m, poor recovery due to faults? Increase in pyrite near lower contact.
73.2	90.5	AQM	C1 4P0 Light grey altered monzonite; cloudy, translucent-looking quartz and lesser feldspar-rich matrix; good texture, well-defined silvery-white and tan sericite altered biotite pseudomorphs and milky white (relatively unaltered) to silvery-white sericite and clay altered k-spar phenocrysts; no quartz eyes; 78-84 m, weak orange limonite staining of some phenocrysts and surfaces from larger fracture; very minor sericite altered to green roscolite; pyrite replacement of a few k-spars; S1-S2 quartz stockwork from 72-72 m along upper contact, rest of unit, no secondary quartz or stockwork; 3-5% very fine disseminated,

			disseminated blebs and granular massive blobs of bronzy (P1) and brassy (P0) pyrite; mostly P0; disseminations include cubes – some striated; weakly calcareous, C1.
90.5	100.0	ARGG	C1 S1 SK TrP0 Black, hard, angular fragments of graphitic argillite; sharp jagged edges, not rounded, a few slightly platy; hard, crunchy when smushed in tray; moderate graphitic lustre; very weak calcareous reaction with HCl; moderate to strong S1 quartz veinlet/micro-veinlet stockwork; trace – 1% fresh pyrite as disseminated subhedral to anhedral granular-massive inclusions in and around quartz units; very thin, 100% pyrite micro-units; trace fine (< ¼ mm) disseminations in matrix; subhedral to euhedral cubes; slight decrease in pyrite away from upper contact.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2214

NORTHING : 19271 EASTING : 23342.4 ELEVATION : 860.3

MAXDEPTH : 98 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	OB	=>LAQM+ARG C1 S1 Sk 2P4
6.00	10.50	LAQM	C2
10.50	17.00	ARG	90:10 SH S2 Sk TrP4
17.00	26.00	SLTG	80:20 SH S1 TrP1
26.00	27.00	ARGG	S2 Sk
27.00	29.80	LAQM	C1 S1 Sk 4P2
29.80	33.00	ARGG	S1
33.00	35.90	LAQM	S1 6P2
35.90	37.00	ARGG	S1 Sk
37.00	39.80	AQM	C1 6P1
39.80	47.00	ARGG	S1 Sk C1 TrP1
47.00	54.00	AQM	C1 3P1 Sb
54.00	64.00	AQM	S1 3P1 Sb
64.00	70.00	AQM	3P2 Sb
70.00	78.00	ARGG	90:10 SST S2 Sk C1 Bx Ft
78.00	80.00	SST	C2 TrP1 Bx
80.00	86.20	SST	70:30 ARGG C1 S2 Sk 1P0 Bx Ft
86.20	93.00	AQM	C2 2P2
93.00	98.00	QM	C3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2214

NORTHING : 19271 EASTING : 23342.4 ELEVATION : 860.3

MAXDEPTH : 98 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	-1.00	-1	-1	-1	WET
2.00	4.00	.16	P4	C1	S0	WET
4.00	6.00	.07	P4	C1	S1	WET
6.00	8.00	.03	P4	C1	S0	WET
8.00	10.00	.03	P4	C2	S0	WET
10.00	12.00	.02	P3	C0	S2	WET
12.00	14.00	.01	-1	C0	S2	WET
14.00	16.00	.02	P3	C0	S1	WET
16.00	18.00	.03	P1	C0	S1	WET
18.00	20.00	.06	P1	C0	S1	DRY
20.00	22.00	.16	P1	C0	S1	DRY
22.00	24.00	.04	P1	C0	S1	DRY
24.00	26.00	.03	P1	C0	S1	DRY
26.00	28.00	6.89	P2	C0	S1	DRY
28.00	30.00	2.64	P2	C1	S1	DRY
30.00	32.00	.54	-1	C0	S1	DRY
32.00	34.00	.81	P2	C0	S1	DRY
34.00	36.00	1.53	P1	C0	S1	DRY
36.00	38.00	.05	P1	C0	S1	DRY
38.00	40.00	.07	P1	C1	S0	DRY
40.00	42.00	.17	P1	C0	S1	DRY
42.00	44.00	.48	P1	C1	S1	DRY
44.00	46.00	.08	P1	C1	S1	DRY
46.00	48.00	.11	P1	C1	S1	DRY
48.00	50.00	.08	P1	C1	S0	DRY
50.00	52.00	.13	P1	C1	S0	DRY
52.00	54.00	.18	P1	C1	S0	DRY
54.00	56.00	.11	P1	C0	S0	DRY
56.00	58.00	.19	P1	C0	S0	DRY
58.00	60.00	.24	P1	C0	S1	DRY
60.00	62.00	.17	P1	C0	S0	DRY
62.00	64.00	.25	P2	C0	S1	DRY
64.00	66.00	.56	P2	C0	S0	DRY
66.00	68.00	.15	P2	C0	S0	DRY
68.00	70.00	.20	P2	C0	S1	DRY
70.00	72.00	.05	P0	C0	S2	DRY
72.00	74.00	.09	P0	C1	S2	DRY
74.00	76.00	.05	P0	C1	S2	DRY
76.00	78.00	.07	P0	C1	S1	DRY
78.00	80.00	.04	P1	C2	S0	DRY
80.00	82.00	.01	P0	C0	S1	DRY
82.00	84.00	.03	P0	C0	S2	DRY
84.00	86.00	.12	P0	C1	S2	DRY

0.0	6.0	OB	=>:AQM + ARG C1 2P4 S1 Sk Fill-overburden, as determined by drill technician; 0-2 m no recovery; 2-5 m, unwashed tray fragments moist, muddy and soil-rich; minor organics in both washed and unwashed trays; larger fragments up to 1.5 cm, typical of fractured overburden; mostly LAQM with some ARG. LAQM: Dull, earthy, orange-brown, moderately pervasive limonite altered monzonite; moderate pervasive of texture with a few well-defined creamy-milky weakly clay altered k-spar phenocrysts; fine k-spars altered to limonite; very few remnant biotite pseudomorphs, biotite altering to sericite to limonite and manganese oxide; opaque, feldspar and sericite rich matrix, mostly stained with weak to moderate pervasive limonite alteration; no quartz eyes; weakly calcareous, C1; moderate manganese oxide ~10% disseminated blebs, as fracture coatings, biotite and k-spar altering to manganese oxide and pyrite altering to manganese oxide; ~2% ? very fine disseminated anhedral blebs of pyrite, P3-P4, mostly P4, altered to dark red limonite flecks with some to manganese oxide. ARG: Black hard angular fragments of argillite; moderate S1 quartz veinlet/micro-veinlet stockwork; patchy orange limonite alteration of a few fragments; very trace platy fragments, softer than argillite or graphitic siltstone.
6.0	10.5	LAQM	C2 Dull, earthy, orange-brown moderate to strongly pervasive limonite altered monzonite; k-spars range from faint to well-defined subhedral to anhedral milky-white phenocrysts, clay altered, and altering to orange limonite and manganese oxide; biotite appears as shreds and anhedral blebs of sericitic pseudomorphs, altered/altering (rims) to limonite altering to manganese oxide; opaque, feldspar-sericitic rich groundmass, mostly stained orange with pervasive limonite; no quartz eyes; moderate to strongly calcareous, C2; 1-2% very fine (< ¼ mm) disseminated anhedral specks and blebs of pyrite, P3-P4, altering to dark red limonite flecks with a few to manganese oxide; < 3% disseminated anhedral blebs of manganese oxide, as fracture coatings, and k-spar and biotite and pyrite altering to manganese oxide; very trace S1 quartz-manganese oxide micro-veinlet; minor dark orange limonite as fracture coatings.
10.5	17.0	ARG	90:10 SH S2 Sk TrP4 Black, hard, angular fragments of non-graphitic argillite; moderate S2 quartz veinlet/micro-veinlet stockwork; bright orange patchy limonite on many surfaces, as fracture coatings and as patches-blebs in quartz veinlets; non-calcareous; trace pyrite, occurring as fine disseminated anhedral blebs seen on fracture and within quartz veins, P3-P4 altering to limonite; 14-16 m trace fresh disseminated subhedral to anhedral blebs and cubes; pyrite altering to limonite fracture coatings, < 2% LAQM chips, contamination. SH: ~10% of fragments soft, play, bleached shale; sub-rounded edges; weak to moderate pervasive limonite alteration; light greyish-brown in color; moderated to strong argillic alteration?
17.0	26.0	SLTG	80:20 SH S1TrP1 Dark grey to black, platy fragments of fine graphitic siltstone; platy with sub-angular to sub-rounded edges; weak crude bedding laminations; patchy orange, dark orange limonite alteration of a few surfaces and fracture, decreasing downhole; non-calcareous; easily scratched (therefore not argillite); good greasy graphitic lustre; weak S1 quartz veinlets/micro-veinlets; trace pyrite, mostly occurs as fine (< ¼ mm) disseminated subhedral-euhedral, slightly tarnished cubes and as a few fragments, completely concentrated with pyrite (90% pyrite), P1; but occasional fracture coating and disseminated anhedral bleb of pyrite, P3-P4 altered to limonite. ~20% dark grey, platy, soft shale fragments. <2% LAQM chips contaminated from LAQM above.

26.0	27.0	ARGG	S2 Sk Black, hard, angular fragments of fine, graphitic argillite; good graphitic lustre; weak S2 quartz veinlet/micro-veinlet stockwork, and segmented; non-calcareous; weak crude bedding laminations?; no visible pyrite.
27.0	29.8	LAQM	C1 4P2 S1 Sk Bright rich orange to pale orange-yellow-tan variably pervasive limonite altered monzonite; ranges from strongly pervasive limonite fragments with little pervasive of texture biotite and k-spar altering completely to sericite and dark red and orange limonite, most pyrite closely oxidized to dark red limonite, P3, these fragments probably represent the oxidized rim closest to the fracture; pale-orange, tan chips weak to moderate pervasive limonite, likely represent less oxidized inner core of fractured rock, patchy orange limonitic sericitic biotite pseudomorphs and k-spar in a lighter coloured matrix; weak to moderate preservation of texture; less oxidized pyrite ~P2; dark orange and red limonite fracture; weak calcareous; overall ~3-5% pyrite as fine (< 1/3 mm) anhedral granular blebs of pyrite, mostly P2, oxidized to limonite and manganese oxide, some P3 and P4; very trace limonite stained cloudy quartz chips; very trace S1 veinlets and flooding?
29.8	33.0	ARGG	S1 Black, angular, fragments of fine graphitic argillite; excellent graphitic-greasy lustre; mostly jagged edges with some sub-angular to sub-rounded; non-calcareous, C0; moderate S1 quartz veinlets/micro-veinlets, do not appear stockworked, some segmented; very, very trace fine disseminated fresh pyrite.
33.0	35.9	LAQM	6P2 S1 Orange to pale orange-tan-yellow variably pervasive limonite altered monzonite; similar to 27.0-29.8m, but slightly less limonitic; oxidized rims with less oxidized cores; orange weak to moderate pervasive limonite to very weak to weak pervasive limonite; poor preservation of texture; creamy to pale orange opaque feldspar-rich groundmass with trace faint outlines of sericitic altered biotite and k-spar; ~6% fine (< ¼ m) disseminated anhedral blebs of P1-P2 pyrite, altering to limonite and manganese oxide; non-calcareous, weak silica-flooding?
35.9	37.0	ARGG	S1 Sk Black hard angular fragments of fine, non-calcareous, graphitic argillite; moderate S1 quartz veinlet/micro-veinlet stockwork; very, very trace disseminated fresh pyrite.
37.0	39.8	AQM	C1 6P1 Predominant light greyish-white, bleached altered monzonite with a few fragments (< 30% from 38-40) with patchy limonite and very weakly pervasive limonite; limonite represents fragments close to oxidized fracture; weak calcareous; weak to moderate pervasive of texture with subhedral to anhedral beige and silver – white (and milky) sericitic altered biotite pseudomorphs and k-spar phenocrysts; no quartz eyes; cloudy translucent-looking quartz-rich groundmass; no secondary quartz or flooding; 5-7%, slightly tarnished subhedral to anhedral blebs of pyrite (< 1/3 mm), some cubes are striated.
39.8	47.0	ARGG	S1 Sk C1 TrP1 Black, hard, angular fragments of weakly graphitic argillite; moderate S1 quartz veinlet/micro-veinlet stockwork; very weakly calcareous, C1; trace very fine (< ¼ mm) disseminated subhedral-anhedral blebs of pyrite, P1, slightly tarnished, dispersed throughout siltstone and as inclusions within quartz veinlets; wisps of carbon in quartz veinlet, as well;
47.0	54.0	AQM	C1 3P1 Sb Light grey to whitish, bleached, altered monzonite; fragments very from opaque, whitish, feldspar-sericite rich matrix to lesser cloudy, weakly translucent-looking quartz-feldspar-sericitic groundmass; moderate pervasive texture; faint to well-defined milky white sericite and clay altered k-spar phenocrysts

			completely altering to manganese oxide and green roscolite, subhedral to anhedral in shape; many faint (silvery-white) to well defined (beige), sericite altered biotite pseudomorphs, and alteration to pyrite and manganese oxide; weakly calcareous, appears to be no secondary quartz or stockwork; 47.0-48.2m, weak limonite alteration of k-spar and biotite pseudomorphs altering to orange patchy limonite; 47-50 m xenoliths of black argillite and grey strongly silica flooded argillite (?? – grey could be AQM with stibnite in matrix????) 3-4% pyrite occurring as fine (< ¼ mm) disseminated specks, disseminated anhedral blebs, subhedral-euhedral cubes and as coarser (< ½ mm) subhedral-anhedral blebs, granular massive conchoidal blebs and fracture coatings; trace fine pyrite micro-veinlets; most sulfide very fresh, fine P1-P2, coarser P0-P1, slightly tarnished, rims altering to manganese oxide with trace altering to limonite, trace dark red flecks; trace fine disseminated stibnite and alteration to red kermesite.
54.0	64.0	AQM	S1 3P1 Sb Light grey to whitish, bleached, altered monzonite, same texture as AQM above, see description 47-54 m; but not calcareous; very trace S1 quartz micro-veinlets (very difficult to see, distinguished because cutting across k-spar phenocrysts), parallel veins, not stockworked; overall ~3% pyrite, borderline P1-P2, tarnished and alteration to manganese oxide (most P1?); disseminated fine (< ¼ mm) to coarse (< 1mm) anhedral blebs, subhedral cubes, granular-massive blebs, granular massive fracture coatings and thin fine, segmented pyrite micro-veinlets; finer pyrite tends to be more P2, coarser P0-P1; trace fine disseminated blebs of stibnite; oxidization tending to increase downhole in AQM??? < 2% ARG fragments due to contamination.
64.0	70.0	AQM	3P2 Sb Light grey to whitish bleached altered monzonite, same intrusive as above, see texture description 47.0-54.0 m but non-calcareous and an increase in pyrite oxidization to P2-P3; fine (< ¼ mm) disseminated anhedral blebs and subhedral cubes mostly oxidizing to black manganese oxide; rims well-oxidized, with some tarnished cores; coarser massive pyrite, still just slightly tarnished P0-P1; very trace clear quartz eye or fragments of quartz veinlet?; trace fine disseminated stibnite. < 2% argillite fragments due to contamination.
70.0	78.0	ARGG	90:10 SST S2 Sk C1 Bx Ft Black, hard, angular fragments of weakly graphitic argillite; sharp; jagged edges, not platy; crunchy when smushed in tray; weak S2 clear – milky quartz veinlets/micro-veinlet stockwork; mixed with ~10% medium – dark grey, medium grained, sugary-looking Steel Formation Siltstone; SST found both in situ (sub-angular clasts in ARGG, separated by carbon-rich veinlets? (brecciated altering to fault?) and as free fragments; weakly calcareous, C1; trace fresh to slightly tarnished pyrite, occurring as disseminated subhedral-euhedral cubes, fine (< ¼ mm) granular inclusions in veins and as fine segmented pyrite veinlets.
78.0	80.0	SST	C2 TrP1 Bx Light grey/whitish to tan, medium grained, uniform, calcareous siltstone; Steel Formation Siltstone; moderately calcareous, C2; looks quartz-rich; fragments of SST separated by black, carbonaceous (or manganese oxide) matrix and veinlets - stockwork and parallel – looks brecciated; minor tan weathering altering to trace limonite; trace pyrite as fine (< ¼ mm) disseminated anhedral specks of tarnished P1 and as coarser (< 1mm) subhedral cubes of brassy fresh pyrite.
80.0	86.2	SST	70:30 ARGG Bx C1 S2 Sk P0 Ft* Breccia consisting of medium dark grey fragments of uniform, very weak calcareous, siliceous-looking siltstone and dark grey to black silica flooded graphitic; S2 quartz veinlet/micro-veinlet stockwork (as clear free fragments and dark grey, cloudy quartz micro-veinlets); sub-angular clasts of SST in ARGG

			and vice versa; definite movement of rock - fault breccia?; Tr-1% fine to coarse (< ¾ mm) subhedral to euhedral cubes and blebs of fresh P0.
86.2	93.0	AQM	C2 2P2 Tan/beige to light grey-white, bleached, altered monzonite; pretty good preservation of texture with fairly defined milky-white k-spar phenocrysts, in situ and free, up to 2mm in size; very soft, sericite and clay altered and minor green roscolite; abundant shreds and anhedral blebs of silvery-white and tan sericitic biotite pseudomorphs; no quartz eyes; moderately calcareous, C2, slow to start but very positive reaction with HCl within a few seconds; towards lower contact with QM, bleached AQM with trace remnant of brown/black biotite, rims altered to sericite; near 93.0, some k-spars appear pale blue in color, sericite altering to ?; some k-spar and biotite pseudomorphs, sericite being replaced by pyrite; ~2% disseminated anhedral blebs of pyrite P2-P3 altering to manganese oxide and lesser limonite (< 1/3 mm) and lesser coarser pyrite (< ¾ mm) as granular-massive blebs of fresh to slightly tarnished P0-P1; very trace cloudy-grey S1 quartz parallel veinlets from 88-90.0m.
93.0	98.0	QM	C3 Medium to dark grey, cloudy, weakly translucent-looking very unaltered monzonite; excellent texture with abundant brown-black, subhedral to euhedral, flakes and books of biotite; biotite starting to alter to sericite, near rims; quartz-rich groundmass, very few k-spar phenocrysts??, milky-white, soft, clay altered (to illite); no quartz eyes; strongly calcareous, C3; weak jaggedy fragments of clear quartz, (weakly stained with limonite); no pyrite.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2215

NORTHING : 19249.4 EASTING : 23466.8 ELEVATION : 863.8

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.00	OB	=>ARG+LAQM+SLT +Lm S1 Sk TrP4
5.00	8.50	LAQM	C1 3P3
8.50	20.00	ARGG	S1 Sk TrP3 +Lm
20.00	29.10	LAQM	70:30 AQM C2 S2 Sk TrP3
29.10	45.00	ARGG	90:10 SLTG S1 Sk 1P1
45.00	47.50	AQM	C1 10P1
47.50	52.80	ARGG	C1 S3 Sk 5P0
52.80	90.00	AQM	C1 S1 Sk 2P1 Sb

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2215

NORTHING : 19249.4 EASTING : 23466.8 ELEVATION : 863.8

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	P3	C0	S1	DRY
2.00	4.00	.03	P4	C0	S1	DRY
4.00	6.00	.03	P3	C1	S1	DRY
6.00	8.00	.03	P3	C1	S0	DRY
8.00	10.00	.03	P4	C1	S1	WET
10.00	12.00	.03	P3	C0	S1	DRY
12.00	14.00	.02	P3	C0	S1	DRY
14.00	16.00	.02	P3	C0	S1	DRY
16.00	18.00	.03	P2	C0	S1	DRY
18.00	20.00	.02	P2	C0	S1	DRY
20.00	22.00	.04	P3	C2	S1	DRY
22.00	24.00	.05	P3	C2	S2	DRY
24.00	26.00	.05	P3	C2	S2	DRY
26.00	28.00	.03	P2	C2	S1	DRY
28.00	30.00	.03	P2	C2	S2	DRY
30.00	32.00	.15	P1	C0	S2	DRY
32.00	34.00	.22	P1	C0	S1	DRY
34.00	36.00	.04	P2	C0	S1	DRY
36.00	38.00	.05	P1	C0	S1	DRY
38.00	40.00	.04	P0	C0	S1	DRY
40.00	42.00	.25	P0	C0	S1	DRY
42.00	44.00	.07	P0	C0	S2	DRY
44.00	46.00	.07	P1	C1	S1	DRY
46.00	48.00	.78	P1	C1	S1	DRY
48.00	50.00	.24	P0	C1	S2	DRY
50.00	52.00	.11	P0	C1	S3	DRY
52.00	54.00	.17	P0	C1	S0	DRY
54.00	56.00	.23	P0	C1	S1	DRY
56.00	58.00	.31	P0	C1	S1	DRY
58.00	60.00	.33	P0	C1	S1	DRY
60.00	62.00	1.49	P1	C1	S0	DRY
62.00	64.00	1.82	P1	C1	S0	DRY
64.00	66.00	.78	P1	C1	S1	DRY
66.00	68.00	4.11	P1	C1	S2	DRY
68.00	70.00	3.02	P1	C1	S3	DRY
70.00	72.00	.58	P1	C1	S2	DRY
72.00	74.00	.87	P2	C1	S0	DRY
74.00	76.00	3.93	P1	C1	S0	DRY
76.00	78.00	2.02	P1	C1	S1	DRY
78.00	80.00	.85	P0	C1	S1	DRY
80.00	82.00	1.65	P1	C1	S1	DRY
82.00	84.00	2.07	P1	C1	S1	DRY
84.00	86.00	.24	P1	C1	S1	DRY

86.00	88.00	.61	P1	C1	S0	DRY
88.00	90.00	.08	P1	C1	S0	DRY

0.0	5.0	OB	=>ARG+LAQM+SLT+LM S1 Sk TrP4 Overburden, as determined by drill technician; 0-5.0 m soil-rich, slightly moist; large fragments, up to 1.5 cm, typical of fractured overburden; lithologies consist mostly of argillite with minor LAQM and SLT. ARG: hard, black, angular fragments of siliceous, non-graphitic argillite; non-calcareous; moderate S1 quartz veinlet/micro-veinlet stockwork; both patchy and uniform limonite coated fracture, some may have been pyritic fracture, oxidized to limonite; trace very fine disseminated blebs of oxidized altered to limonite and manganese oxide. LAQM: < 20% fragments of dull orange-brown, moderate to strongly pervasive limonite altered monzonite; fairly poor preservation of texture; opaque, feldspar-rich matrix with faint outlines of +/- limonite and +/- manganese oxide, silvery-white sericitic biotite pseudomorphs, anhedral in shape and a few, weak to moderate altered, creamy-milky sericite and clay altered k-spar phenocrysts; no quartz eyes; weak S1 quartz veinlets/micro-veinlets; non-calcareous; up to 3% (??) very fine disseminated blebs of pyrite, < ¼ mm, P4, altered to limonite and manganese oxide; weakly coated fracture with manganese oxide. SLT: dark grey, soft, platy fine to sometimes medium grained siltstone; clay altered; sub-rounded, smooth edges; weak bedding laminations; non-calcareous; ~1% very fine disseminated anhedral blebs of pyrite, P4 altered to manganese oxide.
5.0	8.5	LAQM	C1 3P3 Dull, earthy-looking tan-brown, weakly pervasive limonite altered monzonite; cloudy, weakly translucent-looking quartz and feldspar-rich groundmass; bright orange, limonite altered anhedral blebs of remnant k-spar and biotite small phenocrysts, give fragments orange hue; k-spar altering to sericite to +/- limonite, +/- manganese oxide, biotite altering to sericite to +/- limonite, +/- manganese oxide; most finer k-spar and biotite altered to limonite, coarser phenocryst, less limonite altered to creamy-milky sericite k-spar and silvery-white sericitic biotite pseudomorphs; moderately preservation of texture; weakly calcareous, C1; no secondary quartz or stockwork; ~3% very fine (< ¼ mm) disseminated anhedral blebs of moderately to strongly oxidized pyrite, P3; minor biotite altering to sericite to pyrite.
8.5	20.0	ARGG	S1 Sk TrP3 +Lm Dark grey to black, fine, angular fragments of weakly graphitic argillite; hard, "crunchy" when smushed in tray; weak to moderate S1 quartz veinlet/micro-veinlet stockwork; very weakly graphitic near top, greasy lustre increases downhole, 18-20 m, excellent graphitic lustre; non-calcareous; moderate limonite alteration of some fracture surfaces; especially 8.5-16.0 m; weak interbedded fine soft, platy graphitic siltstone from 14.0-18.0 m; < 5% of fragments; trace fine pyrite, P3, altered to limonite, occurring as fracture coatings, very fine (< ¼ mm) disseminated and inclusions in and around edges of a few veinlets.
20.0	29.1	LAQM	70:30 AQM C2 S2 Sk TrP3 Predominantly pale orange to tan, weak to moderately pervasive limonite altered monzonite, texture weakly preserved increase in texture in less altered tan LAQM); borderline S1-S2 quartz veinlet/micro-veinlet stockwork; some larger quartz chips, as well as thin veinlets cutting LAQM, can see minor stockwork in a few micro-veinlets; associated silica flooding into groundmass; too bad, not too much sulfide, < 1% fine disseminated anhedral blebs of limonite oxidizing pyrite, P2-P3, mostly P3; quartz-rich groundmass, with weak to moderate preservation of texture; biotite pseudomorphs altering to silvery-white sericite to limonite; faint to moderately defined creamy and sericite altered k-spar phenocrysts, some stained with pale orange limonite; could be < 1% very fine (< ¼ mm) quartz eyes ??; ~30% light to medium grey, opaque, non-pervasive limonite altered monzonite; less silicified (ie. no stockwork) but quartz-feldspar

			rich groundmass; well-defined anhedral to euhedral clay or sericite altered k-spar phenocrysts and silvery-white, sericitic, +/- pyrite altered biotite pseudomorphs; very weak limonite staining of a few phenocrysts; pyrite less altered, ~P2.
29.1	45.0	ARGG	90:10 SLTG S1 Sk 1P1 Dark grey to black, hard, angular fragments of fine, graphitic argillite; moderate to strong S1 quartz veinlet/micro-veinlet stockwork, increases in quartz vein stockwork towards contacts with intrusives, above and below argillite; non-calcareous; 30-32 m, relatively poor recovery, ~ ½ tray full, fault?; excellent greasy-looking graphitic lustre; very trace orange patchy limonite on a few surfaces and within and around quartz veinlets; 29.1 – 40.0 m, trace –1% very fine disseminate pyrite, increasing to about 5-7% near lower contact with AQM; fresh to slightly tarnished; disseminated anhedral to subhedral blebs, fine (1/4 mm) to coarser (< ½ mm), with cubes and dodecahedron crystal shape, some striated; weakly interbedded with soft platy, dark grey graphitic siltstone.
45.0	47.5	AQM	C1 10P1 Light grey to whitish, bleached altered monzonite; weak to poor preservation of texture; opaque white, feldspar-rich matrix with 1)faint to defined, silvery-white and tan sericitic altered biotite pseudomorphs and 2) milky-white to beige sericite and clay +/- roscolite altered k-spar phenocrysts; minor pyrite replacement of biotite pseudomorphs sericite; no visible quartz eye; weakly calcareous C1; 8-10% disseminated anhedral to subhedral bronzy blebs of concentrated fine pyrite; good crystal shape of many disseminated cubes and dodecahedrons; mostly slightly tarnished, P1, some P0 and P2 to manganese oxide; no secondary quartz or stockwork; all pyrite < ½ mm.
47.5	52.8	ARGG	C1 S3 Sk 5P0 Black hard angular fragments of fine graphitic argillite; borderline S2-S3 quartz veinlet/micro-veinlet stockwork and flooding; weakly calcareous, C1; moderate graphitic lustre; no limonite; 3-7%, overall ~5%, fine to coarse (< ½ mm) disseminated anhedral blebs, cubes +/- striated and dodecahedrons of fresh pyrite; a few fine micro-veinlets; inclusions in some quartz veinlets.
52.8	90.0	AQM	C1 S1 Sk 2P1 Sb Light grey to whitish, opaque to cloudy translucent-looking altered monzonite; good textures with well-defined milky +/- sericite altered anhedral to euhedral k-spar phenocrysts and beige to silvery-white sericite altered biotite pseudomorphs, very trace, clear, sub-rounded quartz eyes; 64-72 m moderate S2-S3 quartz veinlet/micro-veinlet stockwork and silica flooding; 76-86 m S1-S2 quartz micro-veinlet; weakly calcareous, C1; 72-76 m pale yellowy-orange patchy limonite alteration of AQM due to fracture; very minor sericite alteration to green roscolite; overall ~2-3% very fine disseminated anhedral to subhedral blebs (< ¼ mm – ½ mm) of slightly tarnished (to manganese oxide) pyrite; some cubes and dodecahedrons, good crystal shape, with some striations; increase in pyrite from 62-70 m, where stockwork; trace disseminated needles and blebs of silvery-grey stibnite, very trace alteration to red kermesite.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2216

NORTHING : 19250.6 EASTING : 23467.1 ELEVATION : 863.7

MAXDEPTH : 94 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=>ARG+LAQM+SH S1 TrP4
3.00	5.00	ARG	S1 TrP4
5.00	8.00	LAQM	95:5 LQM C1 2P4
8.00	13.50	SHG	S1 FT*?
13.50	16.00	LAQM	95:5 SHG C2 1P3 Bx?
16.00	19.80	LAQM	75:25 AQM C3 S1 2P3
19.80	22.50	ARGG	S1 FT*?
22.50	23.50	LAQM	C1 1P3 Ft?
23.50	27.00	SHG	
27.00	31.00	ARG	80:20 SHG S1 Sk TrP1
31.00	37.90	LAQM	C2 S2 Sk 1P2 Qe
37.90	40.20	SLTG	S1 TrP1
40.20	52.00	LAQM	C2 2P3 Sb
52.00	62.20	AQM	80:20 LAQM C2 S2 4P2 Sb
62.20	64.00	LAQM	C2 2P3
64.00	78.00	AQM	90:10 LAQM C2
78.00	88.00	LAQM	C2 1P2
88.00	91.50	ARGG	S1
91.50	92.20	AQM	3P1
92.20	94.00	ARGG	S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2216

NORTHING : 19250.6 EASTING : 23467.1 ELEVATION : 863.7

MAXDEPTH : 94 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.10	P4	C1	S1	DRY
2.00	4.00	.05	P4	C1	S1	DRY
4.00	6.00	.33	P4	C1	S1	DRY
6.00	8.00	.08	P4	C1	S0	WET
8.00	10.00	.04	-1	C0	S1	WET
10.00	12.00	.04	-1	C0	S0	WET
12.00	14.00	.05	P3	C0	S1	WET
14.00	16.00	.03	P3	C2	S0	DRY
16.00	18.00	.03	P2	C3	S1	DRY
18.00	20.00	.06	P3	C3	S0	DRY
20.00	22.00	.04	-1	C0	S1	DRY
22.00	24.00	.11	P3	C0	S1	DRY
24.00	26.00	.09	-1	C0	S0	DRY
26.00	28.00	.25	P1	C0	S1	DRY
28.00	30.00	.76	P1	C0	S2	DRY
30.00	32.00	.36	P2	C0	S2	DRY
32.00	34.00	.11	P2	C2	S2	DRY
34.00	36.00	.12	P2	C2	S2	DRY
36.00	38.00	.30	P2	C2	S2	DRY
38.00	40.00	.08	P1	C0	S1	DRY
40.00	42.00	.11	P1	C1	S0	DRY
42.00	44.00	.33	P2	C2	S0	DRY
44.00	46.00	.12	P3	C2	S0	DRY
46.00	48.00	.10	P3	C2	S1	DRY
48.00	50.00	.07	P3	C2	S0	DRY
50.00	52.00	.08	P2	C2	S0	DRY
52.00	54.00	.08	P1	C2	S1	DRY
54.00	56.00	.09	P1	C2	S1	DRY
56.00	58.00	.09	P2	C2	S0	DRY
58.00	60.00	.11	P2	C2	S0	DRY
60.00	62.00	.09	P2	C2	S0	DRY
62.00	64.00	.08	P3	C2	S0	DRY
64.00	66.00	.06	P2	C2	S0	DRY
66.00	68.00	.09	P2	C2	S0	DRY
68.00	70.00	.40	P2	C2	S0	DRY
70.00	72.00	.13	P2	C2	S1	DRY
72.00	74.00	.16	P2	C2	S0	DRY
74.00	76.00	.32	P2	C2	S0	DRY
76.00	78.00	.41	P2	C2	S1	DRY
78.00	80.00	.15	P3	C2	S0	DRY
80.00	82.00	.24	P2	C2	S0	DRY
82.00	84.00	.29	P2	C2	S0	DRY
84.00	86.00	.97	P2	C2	S0	DRY

86.00	88.00	.41	P2	C2	S0	DRY
88.00	90.00	.20	-1	C0	S0	DRY
90.00	92.00	.14	P1	C0	S1	DRY
92.00	94.00	.31	P1	C0	S0	DRY

0.0	3.0	OB	=>ARG +LAQM +SH S1 TrP4 Overburden, as determined by drill technician; 0-3.0 m consists of mixed lithologies, minor organics and soil-coated fragments in unwashed tray; mostly ARG and LAQM with minor SLT and SH. ARG: black, hard, non-calcareous, weakly graphitic argillite; both equant and platy fragments with sharp, angular jagged edges; not scratchable; weak to moderate S1 quartz veinlet/micro-veinlets, does not appear stockworked, a few free fragments of milky quartz; trace weak crude bedding laminations; patchy orange and yellow limonite-clay on a few fracture surfaces and within or around edges of quartz veins; no sulfide. LAQM: bright orangy-brown, moderate to strong pervasive limonite altered monzonite; most texture is destroyed, k-spars difficult to see, (altered to limonite?), occasional orange limonite-sericite shred or subhedral to anhedral hexagonal sericitic biotite pseudomorphs; no quartz eyes; creamy-orange stained opaque feldspar rich groundmass; 1-2% fine (< ¼ mm) disseminated anhedral blebs of pyrite, P4, altered to limonite; weakly calcareous C1; one fragment of LQM, fresh brown-black biotite. SH: medium grey to brownish (weak pervasive limonite), soft, platy, fine grained shale (some pieces less soft, could be SLT); surfaces smooth and uniform, edges sub-rounded; no sulfide; limonite fracture; weak bedding laminations; non-calcareous.
3.0	5.0	ARG	S1 TrP4 Black, hard, angular fragments of non-calcareous, non-graphitic argillite; some pieces platy, but jaggedy, angular edges and corners; patchy limonite fracture coatings; weak cloudy S1 quartz veinlets/micro-veinlets, some stained with limonite; very trace subhedral to euhedral cubes of pyrite, P4, altered to limonite; < 2% fragments of medium grey-brown, soft platy bleached shale, very trace interbeds or contamination from above.
5.0	8.0	LAQM	95:5 LQM C1 2P4 Dull, earthy, orange-brown, weak to moderate pervasive limonite altered monzonite (5-6 m moderate pervasive limonite, 6-8 m weak pervasive limonite, decreases slightly downhole); moderate preservation of texture with a few faint weakly clay altered anhedral milky orange k-spar phenocrysts and shreds/subhedral-anhedral hexagonal of sericitic biotite pseudomorphs, stained orange with limonite; trace very small < ½ mm, sub-angular to sub-rounded quartz eye; opaque tan-orange feldspar-quartz rich groundmass; weakly calcareous, C1; ~2% fine (< ¼ mm) disseminated anhedral blebs of pyrite, mostly P4, some P3, altering to dark red limonite and lesser manganese oxide; 6-8m, mostly large fragments up to 1.5 cm, typical of strongly fractured rock; no secondary quartz or stockwork.
8.0	13.5	SHG	S1 Ft* Dark grey to black, soft, fissile graphitic shale; extremely soft, easy to break and scratch – perhaps moderate clay alteration; sub-rounded to rounded eyes; good graphitic sheen; a few fragments weak pervasive limonite alteration; moderate limonite alteration of a few fracture; weak S1 quartz veinlets/micro-veinlets from 8-10 m, no stockwork; 8.0-13.5 m very poor recovery (< ¼ of trays full), unwashed sample, soft and moist clay – gouge), most likely a fault; no sulfide; non-calcareous.
13.5	16.0	LAQM	95:5 SHG C2 1P3 Light-medium brown, weakly pervasive limonite altered monzonite; moderate preservation of texture with occasional fairly well-defined, subhedral to euhedral milky-white to orange stained sericite/clay altered k-spar phenocrysts and subhedral to anhedral biotite pseudomorphs altering to sericite to patchy orange limonite, in a tan brown, opaque, weakly pervasive limonite groundmass; no quartz eyes; "dirty" intrusive, ~5% free fragments of shale, as described above, appears to be a few fine to coarse angular clast in situ – intrusive breccia?;

			moderately calcareous, C2; no secondary quartz or stockwork; relatively poor recovery (½ tray full)??; 1-2% fine (< ¼ mm) disseminated anhedral blebs of pyrite, P3-P4, altering to manganese oxide and limonite; minor biotite altering to manganese oxide, as well.
16.0	19.8	LAQM	75:25 AQM C3 S1 2P3 Predominant bright orange limonite-rich strongly pervasive limonite altered monzonite with ~25% fragments (mostly between 16-18m) of light-medium altered monzonite; LAQM rims, AQM cores of fractured rock; LAQM-weak preservation of texture; occasional euhedral to anhedral milky-white well-defined k-spar to pale orange faint k-spars, sericite/clay altered to limonite; and a few silvery-white subhedral to anhedral sericitic biotite pseudomorphs, mostly altered to patchy orange limonite, no quartz eyes; a strongly orange stained opaque feldspar–rich matrix; AQM: moderate preservation of texture with anhedral to euhedral silvery-white sericitic biotite pseudomorphs, well-defined and a few milky-white well-defined subhedral to euhedral k-spars (some faint, almost destroyed); in a cloudy-grey weakly translucent-looking groundmass; overall strongly calcareous, C3; trace clear fragments of angular quartz, S1 quartz veinlets, free and in situ; overall, since mostly LAQM 2% pyrite, P3 altering to both limonite and manganese oxide as fine (< ¼ mm) disseminated anhedral blebs; minor pyrite replacement of sericitic pseudomorphs; very trace disseminated fresh pyrite cubes; AQM to mostly P2, altering to manganese oxide; trace SH xenoliths towards lower contact.
19.8	22.5	ARGG	S1 Ft? Black, hard, angular, fragments of graphitic argillite; weak to moderate graphitic lustre; non-calcareous; strong S1 quartz veinlets, segmented, does not appear stockworked; crunchy when smushed in tray, not platy, more equant fragments; patchy bright orange limonite-clay on quite a few surfaces (probably fracture coatings, not altered pyrite); no visible sulfide; poor recovery altering to (< ¼ of tray) fault?; trace LAQM contamination; trace SH.
22.5	23.5	LAQM	C1 1P3 Ft? Bright orange limonite rich, strongly pervasive limonite altered monzonite; poor preservation of texture; trace remnants of silvery-white subhedral to anhedral sericitic pseudomorphs; clay altered k-spars; very weakly calcareous, C1; no secondary quartz or stockwork; 1% fine disseminated pyrite as anhedral blebs P3, oxidized to manganese oxide and limonite, poor recovery, less than ¼ of tray full – fault?, some fragments quite soft; no quartz eye; breccia with ARG/SLTG??
23.5	27.0	SHG	Predominant dark grey, soft, platy-fissile graphitic shale; excellent graphitic lustre; extremely soft, very easily scratched and broken, clay alteration; rounded corners and edges; weak bedding laminations; a few fragments weak pervasive limonite; no quartz stockwork; non-calcareous; no sulfide, sooty-looking; no limonite; trace LAQM contamination from above.
27.0	31.0	ARG	80:20 SHG S1 Sk TrP1 Mostly black, hard, angular fragments of graphitic argillite; borderline S1-S2 quartz veinlet/micro-veinlet stockwork; many milky quartz veinlets stained with pale orange limonite; non-calcareous; clear-cloudy quartz veinlets, no limonite stain; interbedded with ~20% extremely soft, dark grey, platy (rounded edges) fragments of graphitic shale; trace –1% fine (< ¼ mm) disseminated subhedral-euhedral cubes and dodecahedrons of fresh pyrite, P0-P1.
31.0	37.9	LAQM	C2 S2 Sk 1P2 Qe Creamy-orange weak to moderate pervasive limonite altered quartz monzonite; moderate silica flooding of groundmass, S2, with moderate to strong S1 clear-milky quartz veinlets/micro-veinlets, can see stockwork and free fragments; silicification of groundmass, with moderate preservation of texture; faint to

			well-defined, larger, opaque, milky-white, clay altered k-spars, finer k-spar as orange limonite stained subhedral to anhedral blebs; silvery and white and orange limonitic subhedral to anhedral sericitic altered biotite pseudomorphs; < 1% very small (< ½ mm) sub-angular quartz eyes?; tannish-orange, opaque to weakly translucent looking matrix-quartz and feldspar and sericite-rich; moderately calcareous, C2; 1-2% pyrite, occurring as very fine (¼ mm) disseminated anhedral blebs, P2-P3, altering to manganese oxide and limonite, and as coarser (< ¾ mm), subhedral to anhedral granular blebs and cubes, some striated, disseminated, less oxidized, mostly P1; very trace stibnite anhedral blebs and needles in quartz veinlet; minor pyrite alteration of sericite and k-spars, around rims or starting from middle.
37.9	40.2	SLTG	S1 TrP1 Dark greyish-black, fine, platy fragments of graphitic siltstone; relatively smooth, platy surfaces with sub-angular to sub-rounded edges and corners; not as hard, as argillite – scratchable; good bedding laminations; good greasy graphitic lustre; could be trace harder angular fragments of argillite; non-calcareous; weak S1 quartz pyrite veinlets/micro-veinlets; ~trace slightly tarnished pyrite occurring as 1) very fine (< 1/8 mm) disseminated throughout SLT 2) very fine pyrite micro-veinlets and 3) goldy-looking granular inclusions in around selvages of vein.
40.2	52.0	LAQM	C2 2P3 Sb Very weak-weak to moderate-strongly pervasive limonite altered monzonite; 40-42 and 50-52 creamy-tan, very weak pervasive limonite, more of a creamy groundmass, but orange +/- limonite altered subhedral to anhedral blebs of fine, sericitic altered k-spar and biotite pseudomorphs, gives chips a weak orange hue (borderline AQM); more moderately pervasive limonite altered monzonite orangy-brown groundmass, larger sericite altered k-spars, some milky-white or beige stand out in darker matrix; biotite altering to sericite to limonite subhedral to anhedral pseudomorphs; opaque, sugary-looking feldspar-sericite rich groundmass; very, very trace quartz micro-veinlets, could be very weakly silica flooded < S1; moderately calcareous, C2, slow to start, but quite positive reaction with HCl after a few seconds; less calcareous with less limonite alteration; overall ~2% pyrite, occurring as fine (< ¼ mm) disseminated anhedral blebs, coarser (< ¾ mm) granular masses and as pyrite replacements of sericitized k-spar biotite; finer pyrite mostly P3 altering to manganese oxide, slightly coarser pyrite more P2; trace disseminated needles of stibnite.
52.0	62.2	AQM	80:20 LAQM C2 S1 4P2 Sb Predominant light greyish white, bleached altered monzonite with no pervasive limonite; pretty good preservation of texture with silvery-white and beige subhedral to anhedral sericitic altered k-spar phenocrysts and biotite pseudomorphs; whitish-grey, opaque to cloudy, feldspar-rich matrix; ~20% of fragments more LAQM, stained with pale orange limonite, represent limonite altered rim of rock closest to fracture; k-spar altering to sericite to limonite, biotite altering to limonite; orange-tan groundmass; pyrite more oxidized, P3, but overall, more AQM with 3-5% very fine (< ¼ mm) disseminated anhedral blebs P2-P3, coarser (< ½ mm) granular blebs and subhedral-euhedral cubes (some striated), P1-P0, less oxidized; oxide slightly increases downhole; trace quartz – stibnite veinlets; moderately calcareous, C2.
62.2	64.0	LAQM	C2 2P3 Creamy-orange weakly pervasive limonite altered monzonite; fairly good texture with larger subhedral to anhedral k-spars, fairly well-defined, cloudy-white, altered to sericite and finer orange-brown shreds and subhedral to anhedral blebs of limonite altered biotite and k-spar; creamy-tan to orangy-tan, opaque feldspar-sericite rich matrix; moderately calcareous, C2; no secondary quartz or stockwork; ~2% very fine (< ¼ mm) disseminated anhedral blebs of

			pyrite, P3, altered to manganese oxide, slightly coarser granular blebs (< ¾ mm) P1-P2, slightly tarnished.
64.0	78.0	AQM	90:10 LAQM C2 2P2 Mostly opaque, sugary-looking light grey-white, altered monzonite; feldspar rich groundmass; with ~10-15% of fragments weak-moderately pervasive limonite, and limonite stained fracture; texture and alteration similar to 52.0-62.0, see description; AQM cores, LAQM rims near fracture, trace sericite alteration to green roscolite; no secondary quartz or stockwork; a few fragments of free opaque-milky k-spars; 1-2% very fine (< ¼ mm) disseminated anhedral blebs P2-P3, oxidized to manganese oxide; coarser granular blebs and cubes of pyrite (lesser %), more P1; P3 micro-veinlets of pyrite in or around selvages of very trace parallel quartz micro-veinlets.
78.0	88.0	LAQM	C2 1P2 Tan to pale orange weak to moderate pervasive limonite altered monzonite; moderate preservation of texture with abundant and subhedral silvery-white and orange (limonite altered) biotite pseudomorphs; less obvious silvery and orange sericite and limonite altered faint k-spar phenocrysts; less obvious silvery and orange sericite and limonite altered faint k-spar phenocrysts; < 1% very small (< ½ mm) sub-angular to sub-rounded quartz eye; in a tan-orange weakly translucent-looking groundmass; moderately calcareous, C2; no secondary quartz or stockwork; very trace xenolith of ARG from 78-80 m; < 5% AQM fragments (light grey-white) towards lower contact; ~1-2% fine (1/8 – ¼ mm) disseminated anhedral blebs and specks of pyrite, P2; oxidized mostly to manganese oxide, some dark red limonite; pyrite up to ½ - ¾ mm, P1-P2, less oxidized minor pyrite replacement of sericite pseudomorphs.
88.0	91.5	ARGG	S1 Very black, hard, angular fragments of argillite; good graphitic lustre; very little quartz veinlets (especially 88-90 m), trace S1 quartz veinlets toward lower contact with intrusive; very trace dark orange patchy limonite, P4?, very, very trace coarser (< ½ mm) disseminated subhedral blebs and cubes of pyrite, P2; to manganese oxide and limonite; non-calcareous.
91.5	92.2	AQM	3P1 Thin unit of beige-tan, bleached altered monzonite; moderate textures, with large, fairly well-defined, sericite altered k-spar phenocrysts stained with orange limonite; smaller k-spars – creamy limonite altered appear more clay altered; faint outlines of a few silvery-white sericitic alteration to limonite biotite pseudomorphs, no quartz eye; cloudy, weakly transparent looking groundmass; non-calcareous; ~3% fine to coarse (< ½ mm) disseminated anhedral blebs and cubes of pyrite, P1; slightly tarnished.
92.2	94.0	ARGG	S1 Black, hard, angular fragments of graphitic argillite; same as 88.0-91.5 m.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2217

NORTHING : 19290 EASTING : 23470.1 ELEVATION : 856.1

MAXDEPTH : 104 AZIMUTH : 0 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.20	OB	=>LAQM + ARG C1 S1 3P4
8.20	9.90	LAQM	C1 TrP4 Ft*
9.90	20.00	LAQM	C2 4P4
20.00	29.80	LAQM	C3 2P3
29.80	33.00	LAQM	C2 2P3
33.00	39.50	LAQM	C3 2P3 Qe
39.50	40.50	ARGG	S1
40.50	47.00	LAQM	C3 S1 1P3
47.00	52.00	LAQM	C3 S1 2P3
52.00	62.00	LQM	C3 S1 TrP3
62.00	64.10	LAQM	C2 TrP3
64.10	68.00	LAQM	C3 TrP3 Qe
68.00	70.20	LAQM	C2 3P3
70.20	74.50	LAQM	C2 2P2
74.50	78.10	LAQM	C2 S1 2P3
78.10	82.00	ARGG	C1 S1 Sk TrP3
82.00	93.00	LAQM	C2 S1 Sk 2P2 Qe
93.00	95.00	ARGG	95:5 SST C1 S1 Sk TrP3
95.00	104.00	SST	C1 TrP1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2217

NORTHING : 19290 EASTING : 23470.1 ELEVATION : 856.1

MAXDEPTH : 104 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	P4	C1	S0	DRY
2.00	4.00	.04	P4	C1	S1	DRY
4.00	6.00	.04	P4	C1	S1	DRY
6.00	8.00	.05	P4	C1	S1	DRY
8.00	10.00	.06	P4	C1	S0	DRY
10.00	12.00	.10	P4	C3	S0	DRY
12.00	14.00	.08	P4	C3	S0	DRY
14.00	16.00	.11	P4	C2	S0	DRY
16.00	18.00	.18	P4	C2	S0	DRY
18.00	20.00	.09	P4	C2	S0	DRY
20.00	22.00	.10	P3	C3	S0	DRY
22.00	24.00	.18	P3	C3	S0	DRY
24.00	26.00	.14	P3	C3	S0	DRY
26.00	28.00	.10	P3	C3	S0	DRY
28.00	30.00	.13	P3	C3	S0	DRY
30.00	32.00	.11	P3	C2	S0	DRY
32.00	34.00	.08	P3	C2	S0	DRY
34.00	36.00	.15	P3	C3	S1	DRY
36.00	38.00	.09	P3	C3	S0	DRY
38.00	40.00	.16	P3	C3	S1	DRY
40.00	42.00	.07	P3	C2	S0	DRY
42.00	44.00	.07	P3	C2	S0	DRY
44.00	46.00	.04	P3	C2	S1	DRY
46.00	48.00	.09	P2	C2	S0	DRY
48.00	50.00	.06	P3	C3	S0	DRY
50.00	52.00	.04	P3	C3	S1	DRY
52.00	54.00	.06	-1	C3	S0	DRY
54.00	56.00	.01	P3	C3	S0	DRY
56.00	58.00	.04	P3	C3	S0	DRY
58.00	60.00	.04	-1	C3	S1	DRY
60.00	62.00	.04	P3	C3	S1	DRY
62.00	64.00	.07	P3	C2	S0	DRY
64.00	66.00	.06	P3	C3	S0	DRY
66.00	68.00	.07	P3	C3	S0	DRY
68.00	70.00	.63	P3	C2	S0	DRY
70.00	72.00	.93	P2	C2	S0	DRY
72.00	74.00	.21	P2	C2	S0	DRY
74.00	76.00	.57	P3	C2	S1	DRY
76.00	78.00	.24	P3	C2	S0	DRY
78.00	80.00	.21	P3	C1	S1	DRY
80.00	82.00	.21	P3	C1	S1	DRY
82.00	84.00	.32	P3	C2	S0	DRY
84.00	86.00	1.26	P2	C2	S1	DRY

86.00	88.00	.48	P2	C2	S1	DRY
88.00	90.00	.11	P2	C2	S1	DRY
90.00	92.00	.10	P2	C2	S1	DRY
92.00	94.00	.31	P2	C1	S1	DRY
94.00	96.00	.22	P3	C1	S1	DRY
96.00	98.00	.10	P1	C1	S0	DRY
98.00	100.00	.06	P1	C1	S0	DRY
100.00	102.00	.05	P1	C1	S1	DRY
102.00	104.00	.04	P0	C2	S0	DRY

0.0	8.2	OB	=>LAQM+ARG+LQM C1 S1 3P4 Overburden-fill as determined by drill technician; 0-8.2 m unwashed tray, fragments coated with brown soil, soil rich, and minor organics; fragments of mixed lithologies, up to 1.5 cm in size, typical of fractured overburden. LAQM: fragments orange to tan-brown in colour, moderate to strong pervasive limonite altered biotite pseudomorphs and fine k-spars; occasional orange stained creamy-milky larger k-spar; no quartz eye; limonite blebs stand out in opaque tan feldspar-rich groundmass; no secondary quartz or stockwork; ~3-4% very fine (< ¼ mm) disseminated anhedral blebs of pyrite, P4, some P3, altered to dark red limonite and manganese oxide; weak calcareous C1. ARG: dark grey to black, hard, angular fragments of graphitic argillite; weak S1 quartz veinlets/micro-veinlets, not stockwork; trace patchy limonite on may surfaces; trace pyrite, P4, altered to limonite as blebs in veinlets. Others: trace LQM, just like LAQM, except dark brown-black biotite and minor medium-dark grey, soft, platy, rounded shale.
8.2	9.9	LAQM	C1 TrP4 Ft* Pale orange, weakly pervasive limonite altered monzonite; silvery-white orange-stained sericite-rich groundmass with dark orange shreds of limonite altered sericite biotite pseudomorphs and sub-anhedral creamy-milky (some weakly stained orange) k-spar phenocrysts; bleached-looking intrusive, no quartz eye; weakly calcareous, C1; trace, fine (< ¼ mm) disseminated anhedral blebs of pyrite, P4, altered to limonite; very poor recovery could be fault due to bleaching of intrusive; no secondary quartz or stockwork.
9.9	20.0	LAQM	C2 4P4 Creamy-orange, weakly pervasive limonite altered monzonite; bleached, creamy-milky, opaque feldspar-sericite rich groundmass; up to 3 mm milky (weakly stained with limonite) subhedral to anhedral k-spar phenocrysts; orange to dark orange limonite subhedral to anhedral blebs and shreds of limonite altered biotite (stand out in groundmass, give fragments orange hue); no quartz eyes; unit stands out due to bleaching but also to oxide pyrite; overall ~3-5% fine (< ¼ mm) to coarse (< ½ mm) disseminated anhedral blebs of oxidized pyrite, P4, some P3 (can tell was a sulfide) altered to dark red limonite and black manganese oxide; moderately calcareous, C2, 10-14 m, C3,; trace green roscolite of feldspar; no secondary quartz or stockwork; a few fragments (especially 16-18) moderate limonite alteration, pervasive or as fracture coating, limonite "rims", close to fracture.
20.0	29.8	LAQM	C3 2P3 Orange-tan to pale orange, weak to moderate pervasive limonite altered monzonite; fairly good preservation of texture with pale orange to dark orange sub to anhedral shreds and hexagons of biotite (biotite altering to sericite to limonite) and fine k-spar (k-spar altering to sericite to limonite) standing out in a pale orange-tan-beige (dependent on limonite) opaque feldspar-sericite rich matrix; occasional larger milky-cream subhedral moderate to weakly defined feldspar phenocrysts; no quartz eye; no secondary quartz or stockwork; moderate to strongly calcareous, C3, instantaneous reaction with HCl; 1-3% disseminated fine (< ¼ mm) anhedral blebs of pyrite and coarser (< ½ mm) disseminated granular blebs; mostly P3, alteration to dark red limonite with some manganese oxide, some P4, trace P2 (larger granular blobs); a lot of anhedral blebs concentrated together, not all disseminated.
29.8	33.0	LAQM	C2 2P3 More of a creamy-pale orange tan, "bleached" weak to moderately pervasive limonite altered monzonite as in 10.0-20.0m, see description for texture details; moderately calcareous, C2; no secondary quartz or stockwork; 1-2% very fine (< ¼ mm) to coarse (< ½ mm) disseminated anhedral blebs and granular masses of oxidized pyrite, P3-P4, borderline, but can still tell most of it was pyrite, so overall P3.

33.0	39.5	LAQM	C3 2P3 TrQe Bright-dark orange, limonite-rich, moderately strongly pervasive limonite altered monzonite; fairly weak preservation of texture with very few k-spars and occasional silvery-white subhedral hexagonal of sericitic biotite pseudomorphs altering to limonite; orange limonite-clay biotite and fine k-spar shreds faintly stand out in limonite stained weakly transparent-looking matrix; trace very small (< ½ mm) sub-rounded quartz eye; very trace quartz veinlet 34-36 m; very trace chips of AQM (no limonite); ~2% pyrite, P3, altering to limonite and manganese oxide; occurs as fine < ¼ mm to ½ mm disseminated sub to anhedral blebs.
39.5	40.5	ARGG	S1 Black, hard angular fragments of graphitic argillite; very weak S1 quartz micro-veinlets; minor orange patchy limonite; 38-40 m tray can see chips with contact between upper LAQM and ARG; pretty much no sulfide, very, very trace disseminated pyrite sub-euhedral cubes, P4 (to limonite) and fresh.
40.5	47.0	LAQM	C3 S1 1P3 Orange-tan weak to moderate pervasive limonite altered monzonite, slightly bleached-looking opaque feldspar-sericite rich matrix with limonite altered sub to anhedral sericitic biotite pseudomorphs and k-spar, sericitic biotite hexagons appear to be altering from core to rim "out" with limonite; all phenocrysts appear to be altered or almost altered to limonite; moderate strongly calcareous, near instant reaction with HCl; very trace in situ fragments of jaggedy, clear quartz (I think veinlet, could be quartz eye); 1-2%, borderline P2-P3 in oxidized to limonite and less manganese oxide; nature of pyrite is a fine (< ¼ mm) disseminated sub-anhedral blebs and coarser more granular-massive blobs (less oxidized P2).
47.0	52.0	LAQM	C3 S1 2P3 Orangy-brown/green, weak to moderate pervasive limonite altered monzonite; less altered than LAQM above, not as bleached, more of a greeny matrix, sericitic biotite pseudomorphs, more silvery-white, less limonite altered, only cores of pseudomorphs altering to limonite; faint outlines of milky orange-stained k-spars; no quartz eye; trace brown/black fresh biotite cores; moderately to strongly calcareous, C3; very trace fragments of limonite stained quartz; 1-3% pyrite, borderline P2-P3 oxidized to limonite and manganese oxide; pyrite as fine sub-anhedral cubes/blebs, many concentrated together.
52.0	62.0	LQM	C3 S1 TrP3 Orange green to brown weak to strongly pervasive limonite monzonite; excellent texture with ~2-5% brown-black flakes and books of fresh biotite; some rims altering to silvery sericite; relatively unaltered; very few k-spar, only as a few opaque, free, milky clay altered fragments/phenocrysts; 56-58 m < 5% fragments of medium-dark grey, unaltered monzonite, no pervasive limonite at all, fresh QM; < 1% small (< ½ mm) sub-angular to sub-rounded quartz eyes; some fragments strongly pervasive limonite, "rims" closest to fracture; weak clear to orange stained S1 fragments of quartz veinlets; not stockwork, no secondary quartz flooding; very few sulfide, trace disseminated sub-euhedral specks and cubes, P3-P4, altering to limonite, some stained with manganese oxide, < ¼ mm.
62.0	64.1	LAQM	C2 TrP3 Orange-beige weak to moderate pervasive limonite altered monzonite; poor preservation of texture, sugary-looking, opaque, feldspar-sericite rich groundmass; a few fragments with milky clay altered sub-anhedral k-spars and limonite shreds of altered biotite; a few fragments with strong pervasive limonite; no secondary quartz or stockwork; moderately calcareous, C2; trace very fine < ¼ mm disseminated anhedral specks and blebs of strongly oxidized pyrite, P3 to limonite and some manganese oxide.

64.1	68.0	LAQM	C3 TrP3 Qe Grey-orange to greeny-orange, weak to moderate pervasive limonite altered quartz monzonite; weak to moderate preservation of texture; weakly transparent-looking groundmass; quartz feldspar-rich; a few silvery grey sub-anhedral biotite pseudomorphs, well-defined biotite altering to sericite to limonite to manganese oxide or pyrite; k-spar altering to sericite/clay altering to limonite, not well defined; < 1% very fine to fine (< ¼ mm) disseminated anhedral blebs and concentrated blebs of pyrite P2-P3, oxidized to limonite; trace dark grey-green non-limonite fragments – cores near fractured rock.
68.0	70.2	LAQM	C2 3P3 Bright and orange, limonite-rich, moderate to strongly pervasive limonite altered monzonite; moderate to strong limonite stained matrix both opaque and weakly transparent-looking orange and red; feldspar-quartz –sericite rich; a lot of texture destroyed, trace remnants as patchy orange sub-anhedral blebs of sericite and fine k-spar, some silvery white hexagonal pseudomorphs; very few fragments of AQM cores with LAQM rims; sugary-looking matrix; no secondary quartz or sulfide, moderately calcareous, C2; ~3% disseminated cubes and sub-anhedral blebs of fine (< ¼ mm) pyrite, P3, altered to limonite, some stained with manganese oxide.
70.2	74.5	LAQM	C2 2P2 Creamy-orange, weakly pervasive limonite altered monzonite; bleached, creamy milky opaque feldspar-sericite rich groundmass, as 10.0-20.0, see description for texture and alteration; fine (< ¼ mm) porphyroblasts of oxidized pyrite in milky k-spars; no secondary quartz or stockwork; 2-3% fine (< ¼ mm) disseminated anhedral blebs and coarser (< ½ mm) groundmass blebs of pyrite; borderline P2-P3, more P3 to mostly limonite; moderately calcareous, C2
74.5	78.1	LAQM	C2 S1 2P3 Orange-tan, weak to moderate pervasive limonite altered monzonite; appears to be a bleached, opaque, feldspar-sericite rich groundmass beneath limonite staining; biotite completely altering to sericite to limonite, sub-anhedral shreds and pseudomorphs; k-spar altering to sericite/clay altering to limonite, very few well-defined; no secondary quartz flooding but very trace clear cloudy S1 quartz parallel micro-veinlets, not stockwork; moderately calcareous, C2; ~2% pyrite, P2-P3, alteration to limonite and manganese oxide, as fine (< ¼ mm) disseminated blebs or concentrated blebs; more pyrite 74.5-76.0 m.
78.1	82.0	ARGG	C1 S1 Sk TrP3 Black, hard angular fragments of fine, graphitic argillite; most equant, some platy, but sharp, jagged edges; very weak crude bedding laminations; strong milky-cloudy S1 quartz veinlet/micro-veinlet stockwork; weak graphitic lustre; many units stained with orange limonite; orange patchy clay-limonite on a few surfaces; weakly calcareous, C1; trace very fine (< ¼ mm) disseminated anhedral blebs and sub-euhedral cubes of pyrite, P3, altering to dark red limonite; < 2% more medium grey fragments of bleached argillite or interbedded siltstone.
82.0	93.0	LAQM	C2 S1 Sk 2P2 Qe Bright orange limonite-rich weak to strongly pervasive limonite altered monzonite; variable limonite ranging from weak yellowy-orange fragments to strong dark orange-red fragments; weak S1 quartz veinlet/micro-veinlets (Sk?) clear-milky; appears to be minor silica flooding; therefore, a bit of texture destroyed; weak-moderate preservation of sub to anhedral sericitic biotite pseudomorphs and sericite altered k-spars, some silvery-white and milky white but many altered to pale orange-red limonite blebs (dependent on pervasive limonite); weakly translucent looking to opaque, tan-orange quartz-sericite rich groundmass; very trace large ½ - 1 mm sub-rounded clear quartz eyes; moderately calcareous, C2; 2-3% very fine (< ¼ mm) to coarse (< ½ mm) disseminated anhedral blebs of pyrite, P2-P3, altering to dark red limonite, some

			P4, some P1 dependent on pervasive limonite alteration and limonite fracture coatings; 90-92 m increase in pyrite, sub-euhedral cubes (< ½ mm), P1-P2 to about 4-5%; < 2% fragments of light grey AQM (mostly 88-90 m).
93.0	95.0	ARGG	95:5 SST C1 S1 Sk TrP3 Black, hard, angular fragments of fine graphitic argillite; more equant shape, less platy; good graphitic lustre; very weakly calcareous, C1; moderately milky-cloudy S1 quartz veinlet/micro-veinlet stockwork; patchy orange limonite as fracture coatings as well as within or around quartz veinlets; trace pyrite, as fracture coatings and as fine disseminated anhedral blebs and subhedral cubes, P3-P4, altering to both dark red limonite and manganese oxide; ~5% fragments of medium grey, fine, uniform, calcareous siltstone very thin micro-veinlet stockwork, blackish in colour, quartz-pyrite (altered to manganese oxide)???
95.0	104.0	SST	C1 TrP1 Medium to dark grey, fine, uniform, calcareous Steel Formation Siltstone; weakly-moderately calcareous C1-C2; kinda siliceous-looking; smooth platy surfaces with angular edges; weak crude bedding laminations; weak thin interbeds of graphitic argillite from 99.0-102.0; very trace limonite fracture coatings; trace pyrite occurring as fine (< ¼ mm) disseminated sub-euhedral cubes, P0-P1, and as very thin pyrite micro-veinlets, dark grey-black with some bronzy colour, P3; very trace < 1% LAQM fragments, contamination from above.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2218

NORTHING : 19315.2 EASTING : 23470 ELEVATION : 846.2

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	9.00	LAQM	C3
9.00	12.00	LAQM	C3 S1 Sk
12.00	16.00	LAQM	C3
16.00	16.40	ARG	S2 Sk
16.40	22.10	LAQM	95:5 AQM C3 5P3
22.10	29.80	LAQM	C3 S1 Sk 3P3
29.80	33.00	SST	75:25 LSST +Lm C1 S2 10P4
33.00	36.20	SHG	1P3
36.20	40.00	LAQM	C2 S2 Sk P3 Qe
40.00	44.00	LAQM	C2 S1 3P2
44.00	48.50	LAQM	C2 S1 Sk TRP4 Sb
48.50	53.90	AQM	C2 S1 7P0 Sb
53.90	60.80	LAQM	C3 S1 3P2
60.80	61.80	ARGG	S2 P0
61.80	64.90	AQM	C2 S1 Sk 6P0
64.90	66.50	LAQM	->AQM C3 6P1
66.50	67.50	ARGG	S3 Sk
67.50	69.70	AQM	C2 7P0
69.70	73.00	ARGG	C1 5P0
73.00	78.00	SST	60:40 ARGG C2 P0
78.00	86.00	SST	90:10 ARGG C1 P0 Bx
86.00	90.00	ARGG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2218

NORTHING : 19315.2 EASTING : 23470 ELEVATION : 846.2

MAXDEPTH : 90 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.16	P4	C3	S0	WET
2.00	4.00	.15	P4	C3	S0	WET
4.00	6.00	.10	P4	C3	S0	DRY
6.00	8.00	.08	P4	C3	S0	DRY
8.00	10.00	.16	P4	C3	S1	DRY
10.00	12.00	.13	P3	C3	S1	DRY
12.00	14.00	.09	P4	C3	S0	DRY
14.00	16.00	.07	P4	C3	S0	DRY
16.00	18.00	.11	P4	C3	S1	DRY
18.00	20.00	.07	P4	C3	S0	DRY
20.00	22.00	.08	P3	C3	S0	DRY
22.00	24.00	.09	P4	C3	S0	DRY
24.00	26.00	.08	P4	C3	S1	DRY
26.00	28.00	.11	P3	C3	S1	DRY
28.00	30.00	.11	P3	C3	S2	DRY
30.00	32.00	.15	P4	C2	S2	DRY
32.00	34.00	.11	P4	C1	S2	DRY
34.00	36.00	.12	P3	C0	S3	DRY
36.00	38.00	.12	P3	C2	S2	DRY
38.00	40.00	.14	P3	C2	S1	DRY
40.00	42.00	.40	P2	C2	S1	DRY
42.00	44.00	.10	P2	C2	S1	DRY
44.00	46.00	.64	P4	C2	S1	DRY
46.00	48.00	.31	P4	C2	S1	DRY
48.00	50.00	.15	P2	C2	S2	DRY
50.00	52.00	.20	P0	C2	S1	DRY
52.00	54.00	.19	P0	C3	S1	DRY
54.00	56.00	.13	P1	C3	S1	DRY
56.00	58.00	.30	P2	C3	S1	DRY
58.00	60.00	.07	P4	C3	S1	DRY
60.00	62.00	.65	P1	C2	S1	DRY
62.00	64.00	1.34	P0	C1	S1	DRY
64.00	66.00	.44	P1	C3	S1	DRY
66.00	68.00	.30	P0	C2	S2	DRY
68.00	70.00	.10	P0	C1	S1	DRY
70.00	72.00	.06	P0	C2	S0	DRY
72.00	74.00	.02	P0	C1	S0	DRY
74.00	76.00	.02	P0	C2	S1	DRY
76.00	78.00	.02	P0	C2	S0	DRY
78.00	80.00	.02	P0	C1	S1	DRY
80.00	82.00	.04	P0	C1	S1	DRY
82.00	84.00	.02	P0	C1	S2	DRY
84.00	86.00	.39	P0	C1	S2	DRY

86.00	90.00					
86.00	88.00	.10	-1	C0	S1	DRY
88.00	90.00	.04	-1	C0	S1	DRY

0.0	9.0	LAQM	C3

Dark yellowish orange monzonite; original textures are very well preserved – creamy, soft, clay-altered k-spar crystals and crystal fragments ≤ 3 mm are commonly viewed in situ and are obvious to unaided eye; fine grained feldspar-rich matrix is sub-translucent to locally opaque; luster is typically pearly; staining of matrix is even and moderate to weak locally; strongest orange coloration of rock is due to abundance of orange-stained sericitized pseudomorphs of former biotite; limonitic, sericitic biotite is very commonly partially coated/replaced with manganese oxide – in many cases, the manganese oxide appears to coat sulfides (fine anhedral pyrite clusters) that have replaced cores of former biotite; manganese oxide also creates fine dendritic to flowery tracings of larger feldspar phenocrysts (pyrolucite?); abundance of manganese oxide spots (≤ 15% locally) creates distinct black speckling – combined with orange former biotite in a weakly stained groundmass gives rock an ugly, dirty appearance; slightly more quartz-rich matrix than is typically seen in Bohemian; no phyric quartz eyes.

Intensely calcareous matrix – very strong, positive reaction to HCl – instantaneous, rolling reaction from unwashed sample; no calcite veinlets; not silicified or stockworked.

< 1% pyrite; most oxidized sulfides seem to be secondary after biotite (partial replacement of cores) and then coated with manganese oxide; minor dark purple-brown clots and clusters ≤ 1mm of limonite, occurring adjacent to biotite and some phyric feldspar might be replacement of former pyrite; very, very rare cubes of limonite after pyrite ≤ ¼ mm.

Note: Lower 'contact' assigned where rock appears more quartz-rich (primarily modal quartz) – not sharp or distinct.

Wet to 3.0m.

9.0	12.0	LAQM	C3 S1 Sk

Dark orange-brown limonitic altered quartz monzonite; weakly feldspar phyric – rare creamy, clay-altered phenocrysts ≤ 3 mm preserved in situ; abundant modal quartz – much more than is typical, but still not too much; vitreous to pearly luster; translucent, weakly limonite-stained fine grained feldspar-rich matrix; moderate to locally very strong sericitization of modal feldspar and some former biotite – coats surfaces with yellow and orange wisps and powder; most biotite altered to orange and brown sericitic pseudomorphs to barely recognizable forms – rarely partially coated with manganese oxide; < 1% chips with 1-2 flecks of fresh black to weakly altered biotite crystals and books; fine manganese oxide coats some fractures – not nearly as common as in 0.0-9.0 m.

Intensely calcareous matrix (as above); weak pervasive silicification and rare quartz veining – cloudy, angular quartz fragments ≤ 4 mm; secondary quartz appears barren of sulfides.

< 1% nearly completely altered (to limonite) pyrite as mm-scale clots and clusters; very rare manganese oxide coated pyrite after biotite and on rare fractures.

(Blech)

12.0	16.0	LAQM	C3

Limonitic altered quartz monzonite; mottled pink, orange and greenish-greyish orange; original textures are preserved but blurred by strong sericitization of fine grained, feldspar-rich matrix and biotite; minor phyric feldspar; no quartz eyes; pearly and sub-translucent, except where sub-opaque, sugary-textured rock has been strongly sericitized; former biotite as unrecognizable limonitic, sericitic shreds (often indistinguishable from sericitized groundmass) and as silvery pseudomorphs with patchy limonite – minor patchy, partial replacement by manganese oxide, possibly coating sulfides after biotite.

			Intensely calcareous (as above); no quartz stockwork; very weakly silicified? – doesn't seem overly so; variable sericitization; argillic alteration of phyric k-spar only. Rare, trace limonite-altered pyrite – not significant.
16.0	16.4	ARG	S2 Sk Strongly silicified and moderately stockworked non-graphitic argillite with many greenish sericitization surfaces, often with minor patchy limonite; hard, angular fragments; not calcareous; no visible sulfides.
16.4	22.1	LAQM	95:5 AQM C3 5P3 Limonitic altered quartz monzonite; < 5% chips lack limonitic staining (mostly within 20.0-22.0 m interval) excellent textures; pearly to sub-vitreous; sub-translucent; ubiquitous, moderate to strong sericitization of modal feldspar – remains as orange wisps on most surfaces – creates granular recrystallized appearance where strongest; phyric k-spar crystals ≤ 4 mm are very weakly clay and sericite altered and are atypically limonite stained; more modal quartz than is typical in Bohemian; biotite altered to orange-stained; silvery sericite – pseudomorphs are common, but not dominant; ubiquitous (but <5%) manganese oxide partially replaces some former biotite and sulfides; intensely calcareous – very strong, instantaneous reaction to HCl; not silicified, although very rare sub-mm quartz veinlets are observed. Trace to 5% pyrite – variably oxidized, ranging from fresh in AQM to complete limonite, but most frequently in most abundance as nearly completely oxidized crystals and clusters; pyrite as manganese oxide coated, sub-cubic disseminations ≤ ½ mm that form higher concentrations on some fractures; pyrite also as corroded, dark purple, slightly metallic-looking mm-scale clusters that appear secondary after some former biotite; pyrite in AQM is absolutely fresh – occurs similarly – ultra fine (< 1/10 mm) are also observed. Transitional contacts.
22.1	29.8	LAQM	C3 S1 SK 3P3 Dark orange monzonite with strong, even pervasive limonitic staining; modal quartz is slightly less abundant than described earlier; phyric textures are locally well preserved, textures of feldspar-rich matrix are well preserved, although crystal edges are smoothed due to strong pervasive sericitization of rock; biotite as good silver and orange sericite pseudomorphs and as unrecognizable sericitic masses, often partially replaced by manganese oxide, that blend with the rest of the sericite; < 5% manganese oxide, increasing to lower contact, is most common on rough planar structures/fractures; intensely calcareous; manganese oxide as tracings on k-spar ? Very strong sericitization and lesser clay alteration of groundmass; where strongest, rock has opaque, microsucrosic, occasionally waxy to bleached appearance; sericite and clay as orange stained wisps and powder (mixed with carbonate) on chip surfaces where pearly, subtranslucent feldspar-rich grain is less altered. Weak localized pervasive silicification accompanied by minor clear, sub-mm, irregular quartz veinlets and wisps; textures in these silicified fragments are destroyed and rare, sericitized fragments have slightly sheared-looking fabric. ≤ 3% pyrite as disseminated cubes ½ mm, as clusters of fine grained pyrite ≤ 1mm, as disseminations ≤ ¼ mm that also occur in higher concentration on some fractures, as tiny (<< ¼ mm) cubes (manganese oxide coated), that occur in cores of former biotite; most sulfides are completely altered to limonite at upper contact, but overall oxidation decreases to lower contact; very rare quartz veinlets associated with strongly oxidized pyritic selvages (to 1 mm thick); sulfide content increases to lower contact; finer sulfides are more strongly oxidized.

29.8	33.0	SST	75:25 LSST +Lm C1 S2 10P4 Steel Formation Siltstone; colour variations from grey to orange; ≥ 25% fragments with very strong, even pervasive limonitic staining; most other planes/structure with limonite coating; variable silicified – from absent to intense but not associated with quartz veining; weakly and decreasingly calcareous – best, but still weak, reaction to HCl from unwashed sample. >10% pyrite (>25% in some chips) pyrite completely coats some cleavage/bedding horizons and as tiny (<< ¼ mm) disseminated cubes; oxidation varies from fresh to completely altered to limonite and/or coated with manganese oxide; rare light orange siltstone has micro leopard-spot appearance due to < 40% manganese oxide-coated pyrite cubes ≤ 1/6 mm. < 5% intrusive; transitional into:
33.0	36.2	CH	1P3 Chert; Duo Lake Formation ?; dark grey to black, intensely siliceous, aphanitic, glassy rock breaks with conchoidal to sub-planar fracture into angular chips with sharp edges; < 25% fragments with weak to moderate pervasive limonitic staining; contains minor SST, intensely silicified; could also be horizon within Steel Formation Siltstone; not calcareous; sericite on several structures; rare sub-mm partially oxidized pyrite cubes ≤ 1 mm. Minor quartz-healed micro-brecciation and gorgeous tiny slickensides suggest movement, probably at lower contact.
36.2	40.0	LAQM	C2 S2 SK P3 Qe Quartz monzonite; light orange; feldspar-rich matrix contains more quartz than is typical – weak to moderate pervasive limonitic staining; strongest orange colouration of rock due to powdery, orange-stained sericitized biotite that remain in situ; sub-vitreous luster seems due to primary quartz rather than as silification; cloudy, angular quartz veinlet fragments ≤ ½ cm lack associated sulfides; groundmass, where silicified, has lost original textures and behaves as quartz; most original textures are very well preserved; rare grey quartz eyes ≤ 4mm are possibly secondary; calcareous matrix – strong reaction to HCl is slow to start, even from unwashed powder; weak to locally moderate sericitization. Trace pyrite (manganese oxide-coated disseminated cubes ≤ ¼ mm) and corroded, dark red cubes ≤ 1mm. Slickensides near upper contact also suggest a sheared contact.
40.0	44.0	LAQM	C2 S1 3P2 As 36.2-40.0 m; glassy-looking matrix due to pervasive silification (?) – looks too smooth to be primary; rare quartz veinlets; calcareous matrix; < 3% pyrite as sub-mm, partially oxidized (P2) clots that appear secondary after biotite; rare disseminated oxidized pyrite < ¼ mm; manganese oxide is very rare – coats some former biotite; decreased staining to lower contact. Transitional into:
44.0	48.5	LAQM	C2 S1 SK TrP4 Sb Rich orange limonitic altered quartz monzonite; much as 40.0-44.0 m, but with stronger, even pervasive limonitic staining; no phyric minerals preserved; weak to moderate pervasive silification and quartz veining – secondary quartz lacks sulfides, except for 46.0-48.0 m where dm-scale clear quartz veinlets contain fine stibnite; original textures of feldspar-rich matrix are blurred due to silification and sericitization; trace dark red-purple limonite flecks ≤ ¼ mm after cubic pyrite. (Looks OK). Transitional into:

48.5	53.9	AQM	C2 S1 7P0 Sb White and light grey altered quartz monzonite; rare preserved phyric minerals – white, clay-altered k-spar; grain boundaries of feldspar-rich matrix are blurred; pearly to sub-vitreous matrix; opaque to sub-translucent; biotite as silver to creamy sericitic ghosts; < 5% limonitic staining as mm-scale alteration envelopes around fractures; moderately to increasingly strongly calcareous matrix – very positive reaction to HCl is slow to start but persists and creates smelly gas (sulfuric); weakly sericitized; some feldspar altered to green roscolite. >7% fresh, disseminated pyrite; yellow-black clusters (< 2 mm) of ultra fine (< 1/10 mm) pyrite appears secondary after biotite – at least, in similar occurrence; pyrite also as striated, yellow disseminated cubes < ¼ mm and as subhedral, pitted looking crystals << ¼ mm note: none of this pyrite looks like the type typically associated with gold; really tarnished and ragged-looking up near upper contact; rare stibnite in quartz below 52.0 m. Transitional into:
53.9	60.8	LAQM	C3 S1 3P2 Monzonite, as 48.5-53.9 m, but with increasingly strong pervasive limonitic staining; original textures quite well preserved; rock retains vitreous to sub-vitreous luster; strongly calcareous; no quartz veinlets; 5% weakly oxidized pyrite to < 1% completely oxidized, finer pyrite toward lower contact; rare partially oxidized phyric, sub-mm stringers; sericitization of modal feldspar increases with depth.
60.8	61.8	ARGG	S2 P0 Black, graphitic argillite; strongly silicified/siliceous matrix; rare quartz veinlets; hard, angular fragments; sharp edges and smooth faces; trace fresh disseminated, yellow pyrite cubes ≤ ½ mm.
61.8	64.9	AQM	C2 S1 SK 6P0 Grey feldspar-phyric monzonite, much as 48.5-53.9 m; more strongly sericitized; moderately to strongly calcareous; very weak, localized silicification; rare quartz veinlets; pearly to sub-vitreous luster except where sericitic and argillic alterations are strongest. >6% fresh disseminated pyrite, as described 48.5-53.9 m. Transitional into:
64.9	66.5	LAQM	→ AQM C3 6P1 As 61.8-64.9m, but with weak to moderate, even, pervasive limonitic staining; transitional into unstained rock below 66.0 m; > 6% disseminated pyrite cubes, stringers, clusters, etc. are very weakly oxidized to fresh; all sulfides visible without microscope.
66.5	67.5	ARGG	S3 Sk Black graphitic argillite with very strong silicification as interstitial milky and clear swirls and blobs, and as discrete mm-scale veinlets; trace fresh disseminated, cubic pyrite.
67.5	69.7	AQM	C2 7P0 White and light grey altered quartz monzonite, as 64.9-66.5 m and 61.8-64.9 m; original textures easily discerned, but rock shows weak to moderate pervasive argillic and sericitic alteration; pearly to waxy luster; moderately calcareous; not silicified or stockworked; opaque to sub-translucent. >7% fresh disseminated pyrite cubes (often striated and with excellent cubic crystal shape ≤ ¼ mm), fine subhedral disseminated pyrite, mm-scale clusters after very fine grained pyrite (after biotite occasionally) and as sub-mm stringers; cubic pyrite is more prevalent than in other intervals; most sulfides are easily viewed without microscope.

69.7	73.0	ARGG	C1 5P0 Black graphitic argillite; weakly silicified, rare quartz veinlets; ≤ 5% pyrite as yellow, mm-scale fine grained clusters. Transitional into:
73.0	78.0	SST	60:40 ARGG C2 P0 Medium and dark grey Steel Formation Siltstone interbedded with black graphitic argillite to siltstone; platy fragments; weakly to strongly calcareous; weak quartz and calcite veinlets; variable, but typically weak pervasive silification; ubiquitous fresh disseminated pyrite; some SST is saturated with ultrafine disseminated fresh pyrite ≤ 1/10 mm ; wispy laminations in occasional SST fragments.
78.0	86.0	SST	90:10 ARGG C1 P0 Bx As 73.0-78.0 m, but with >10% graphitic argillite; interesting micro brecciated fragments – SST clasts in an argillic matrix and argillite clasts within a milky quartz cement; massive pyrite chunks ≤ 7 mm – horizons of diagenetic pyrite SST is typical medium grey; no limonite.
86.0	90.0	ARGG	Black graphitic argillite to silty argillite; not calcareous; excellent greasy luster; rare quartz veinlets near upper contact; sharp-edged angular fragments.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2219

NORTHING : 19313.1 EASTING : 23501.6 ELEVATION : 838.4

MAXDEPTH : 66 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.00	OB	=>LAQM:ARG
3.00	5.90	LAQM	->OB* C2
5.90	11.20	CH	+Lm S2 Sk Bx
11.20	19.50	LAQM	C3 3P4
19.50	24.00	LAQM	->LQM C3
24.00	35.00	LQM	C3
35.00	42.00	LAQM	C3 3P3
42.00	42.10	ARG	
42.10	47.50	LAQM	C3 S1 Sk 2P3 Qe
47.50	48.00	AQM	C3
48.00	52.00	LAQM	C2 S1 Sk 5P3 Qe
52.00	66.00	SST	90:10 ARG +Lm P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2219

NORTHING : 19313.1 EASTING : 23501.6 ELEVATION : 838.4

MAXDEPTH : 66 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.11	P4	C1	S1	WET
2.00	4.00	.11	P4	C1	S1	WET
4.00	6.00	.07	P4	C2	S1	WET
6.00	8.00	.05	-1	C0	S2	WET
8.00	10.00	.04	-1	C0	S2	WET
10.00	12.00	.08	P4	C1	S2	WET
12.00	14.00	.09	P4	C3	S0	DRY
14.00	16.00	.15	P4	C2	S0	DRY
16.00	18.00	.18	P4	C2	S0	DRY
18.00	20.00	.15	P4	C3	S1	DRY
20.00	22.00	.10	P4	C3	S0	DRY
22.00	24.00	.19	P4	C3	S0	DRY
24.00	26.00	.22	P4	C3	S0	DRY
26.00	28.00	.10	P4	C3	S0	DRY
28.00	30.00	.15	P4	C3	S0	DRY
30.00	32.00	.06	P4	C3	S0	DRY
32.00	34.00	.12	P4	C3	S0	DRY
34.00	36.00	.15	P4	C3	S0	DRY
36.00	38.00	.20	P3	C3	S1	DRY
38.00	40.00	.23	P3	C2	S1	DRY
40.00	42.00	.17	P2	C3	S1	DRY
42.00	44.00	.26	P3	C3	S1	DRY
44.00	46.00	.41	P4	C3	S1	DRY
46.00	48.00	.09	P3	C3	S1	DRY
48.00	50.00	.91	P4	C2	S0	DRY
50.00	52.00	.77	P4	C2	S1	DRY
52.00	66.00					
52.00	54.00	.86	P2	C2	S1	DRY
54.00	56.00	.17	P2	C2	S1	DRY
56.00	58.00	.23	P2	C2	S1	DRY
58.00	60.00	.11	P0	C0	S0	DRY
60.00	62.00	.17	P0	C0	S0	DRY
62.00	64.00	.13	P0	C0	S0	DRY
64.00	66.00	.06	P0	C0	S0	DRY

0.0	3.0	OB	=>LAQM:ARG Fill; muddy wet samples with significant organic material; mixed lithologies equal graphitic argillite and orange-stained monzonite; note: technician's log indicates fill to 0.5 m and rock type as LAQM.
3.0	5.9	LAQM	→OB C2 Grayish-orange monzonite; discernible textures; rare ultrafine limonitic flecks and boxworks ≤ 1/6 mm; moderately calcareous; no secondary quartz; variable sericitization; very rare minor oxide. Muddy, wet sample – possibly still overburden.
5.9	11.2	CH	+Lm S2 Sk Bx Black chert; Duo Lake Formation ?; aphanitic; glassy; smooth surfaces with conchoidal to planar fractures; moderate to weak, multiphase milky quartz stockwork and very strong network of clear to orange-stained hairline quartz veinlets, fractures – stringers; quartz-healed, clast-supported micro-brecciation is also seen; greenish-orange sericite is viewed on many, many surfaces; increasingly silicified and becoming argillitic toward lower contact; not calcareous; no visible sulfides. Note: unwashed samples are still wet and muddy; permafrost in overburden or colluvium?
11.2	19.5	LAQM	C3 3P4 Medium orange limonitic altered monzonite; original textures are reasonably well preserved; white, soft, clay-altered k-spar crystals ≤ 3 mm are viewed in situ; minor modal quartz; overall bleached appearance due to pervasive argillic and sericitic alteration; pearly to waxy luster; ≤ 20% of surface area of chips coated with manganese oxide speckles that partially coat a lot of former biotite and some pyrite that appears to have partially replaced biotite; biotite has altered completely to orange-stained sericite – good pseudomorphs are rare; orange-stained sericite splotches (after biotite) envelope and are associated with manganese oxide – provide strongest orange colouration; opaque to sub-translucent grain; pearly to waxy luster; where alterations are strongest, rock has an opaque, micro-sucrosic recrystallized texture. Trace to > 3% dark red, corroded subhedral to anhedral limonite after disseminated pyrite ≤ 1 mm; rare chips with oxidized phyric clots ≤ ½ cm; possible up to 10% pyrite locally – based on quantity of sub-cubic manganese oxide flecks, especially on surfaces (fractures) and in very close association with former biotite – suggesting partial replacement of biotite; in other words, there were sulfides here, but I can't accurately determine the origin or percentage. Not silicified or stockworked; very strongly calcareous matrix, distinctly weakly bleached-looking when compared with adjacent rock. Transitional into:
19.5	24.0	LAQM	→LQM C3 Monzonite; transitional phase where biotite is increasingly fresh and black; most biotite remains altered; pervasive limonitic staining decreases to 24 m where ≥ 25% rock is fresh and blue; original textures and luster are well preserved; weakly to moderately sericitized grain; intensely calcareous – instantaneous, rolling reaction to HCl; rare, trace disseminated oxidized pyrite. Then suddenly:
24.0	35.0	LQM	C3 Dark orange monzonite with a small proportion (< 5%) of all biotite that remains fresh and black; all other biotite is variably altered to limonite/sericite – doesn't always maintain good pseudomorphic form; some sample intervals are significantly less biotite-altered than others – eg. 28-30 m contains abundant fresh black biotite; very strong pervasive limonitic staining; variable sericitized; good textures, luster and translucence; intensely calcareous – instantaneous, rolling reaction to HCl; intense staining and sericitization near upper contact, accompanied by decreased sample recovery could represent a faulted 'contact' – post mine-?.

			Rare trace manganese oxide coated disseminated cubic oxidized pyrite ≤ 1/6 mm. Gradual transition into:
35.0	42.0	LAQM	C3 3P3 Dark orange limonitic altered quartz monzonite; all original textures and features are very well preserved but feldspar-rich matrix has a slightly homogenous sub-translucent, pearly to sub-vitreous luster; all biotite altered to orange-stained sericite pseudomorphs that remain in situ; sericitization of modal feldspar is very localized; very strongly calcareous matrix but reaction to HCl is not rolling as noted in LQM intervals above; weakly silicified locally – rare fragments are infused with pyritic quartz. >3% pyrite as disseminated and interconnected clots ≤ 2 mm that show partial to complete alteration to limonite (P2-P4); oxidized pyrite also as sub-mm stringers; dark red sub-cubic limonite – altered disseminated pyrite ≤ ¼ mm is most likely to be associated with gold mineralization. 38.0-42.0 m: ≤ 15% monzonite lack limonitic staining; feldspar altered to roscolite occasionally, all sulfides remain fresh;.
42.0	42.1	ARG	Siliceous silty argillite with limonitic, sericitic surfaces; not calcareous; minor quartz swirling; no visible sulfides; raft?
42.1	47.5	LAQM	C3 S1 Sk 2P3 Qe Orange monzonite as 35.0-42.0 m, but with 15% chips with very strong, dark pink-red hematitic staining; hematitic chips are weakly to moderately silicified; remaining chips are weakly pervasively silicified locally; weak clean sub-mm sharp-sided quartz veinlets; original textures are discernible although rock is strongly sericitized – pseudomorphs are destroyed and partially replaced by minor specks of fine manganese oxide; 1 - 3% partially oxidized (2% as average) pyrite as described 42.1-47.5 m; chips with strong pervasive hematitic staining (and strong sericitization and silification) may contain >10% dark red flecks of limonite after pyrite ≤ ¼ mm to << 1/10 mm – fracture-related alteration and mineralization? Maybe this'll kick; note: percentage and degree of oxidation assigned in modifier string is an average.
47.5	48.0	AQM	C3 Dark blue grey calcareous altered quartz monzonite; no limonitic staining; biotite as silvery, sericitic ghosts; trace ultrafine fresh pyrite is secondary after biotite.
48.0	52.0	LAQM	C2 S1 Sk 5P3 Qe Dark orange limonitic altered quartz monzonite, as 42.1-47.5 m; good textures and luster; weak localized pervasive silification and rare quartz veinlets; strong surficial sericitization throughout; all biotite altered to ragged orange-stained sericitic shreds – good pseudomorphs are not common; strongly calcareous matrix; clear quartz eyes 1-3mm are present but non-abundant. 7-3% (5% as average) disseminated pyrite ¼ to < 1/10 mm disseminated throughout – completely to decreasingly less oxidized with depth (P4 altered to P2); subhedral; only minor quantities of pyrite appear secondary after biotite; P3 oxidation state assigned as average for interval; transitional. (Could run?)
52.0	66.0	SST	90:10 ARG +Lm P0 Medium grey Steel Formation Siltstone; numerous pale yellow-orange limonitic planes and fractures; < 10% weakly carbonaceous argillite; good, platy, competent fragments; minor fresh disseminated and stratiform pyrite; weakly silicified; locally very very weakly calcareous – very subtle reaction to HCl from unwashed sample - is barely audible.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2220

NORTHING : 19358.9 EASTING : 23450.5 ELEVATION : 846.8

MAXDEPTH : 72 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.00	OB	=> LAQM+LQM+ARGG C2 2P4
5.00	8.00	LAQM	C3 S2 Sk 2P4 Qe
8.00	14.20	LAQM	C3 S1 Sk 3P4 Qe?
14.20	18.00	LAQM	C3 3P4
18.00	22.00	LQM	70:30 LAQM C3 TrP4 Ft*
22.00	31.00	LQM	C3 S1
31.00	40.50	LAQM	C3 3P4
40.50	54.80	ARGG	S2 Sk TrP4
54.80	66.20	LAQM	C2 S1 3P4 Qe
66.20	67.50	ARGG	S1 Tr P4
67.50	72.00	LSST	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2220

NORTHING : 19358.9 EASTING : 23450.5 ELEVATION : 846.8

MAXDEPTH : 72 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.08	P4	C1	S0	DRY
2.00	4.00	.16	P4	C2	S0	DRY
4.00	6.00	.05	P4	C3	S2	DRY
6.00	8.00	.06	P4	C3	S1	DRY
8.00	10.00	.33	P4	C3	S1	DRY
10.00	12.00	.19	P4	C3	S1	DRY
12.00	14.00	.41	P4	C3	S1	DRY
14.00	16.00	.70	P4	C3	S0	DRY
16.00	18.00	.11	P4	C3	S0	DRY
18.00	20.00	.06	P4	C3	S0	DRY
20.00	22.00	.05	P4	C3	S0	DRY
22.00	24.00	.06	-1	C3	S1	DRY
24.00	26.00	.06	P4	C3	S1	DRY
26.00	28.00	.29	-1	C3	S1	DRY
28.00	30.00	.04	-1	C3	S1	DRY
30.00	32.00	.07	-1	C3	S1	DRY
32.00	34.00	.29	P4	C2	S0	DRY
34.00	36.00	.85	P4	C3	S0	DRY
36.00	38.00	.12	P4	C3	S0	DRY
38.00	40.00	.11	P4	C3	S0	DRY
40.00	42.00	.05	P3	C1	S1	DRY
42.00	44.00	.04	P4	C0	S1	DRY
44.00	46.00	.03	-1	C0	S2	DRY
46.00	48.00	.02	P4	C0	S2	DRY
48.00	50.00	.03	P4	C0	S1	DRY
50.00	52.00	.02	-1	C0	S1	DRY
52.00	54.00	.02	P4	C0	S2	DRY
54.00	56.00	.51	P4	C1	S1	DRY
56.00	58.00	.60	P3	C2	S1	DRY
58.00	60.00	.11	P4	C2	S0	DRY
60.00	62.00	.12	P4	C2	S1	DRY
62.00	64.00	.11	P4	C2	S1	DRY
64.00	66.00	.06	P4	C2	S0	DRY
66.00	68.00	.06	P4	C1	S1	DRY
68.00	70.00	.08	-1	C1	S0	DRY
70.00	72.00	.05	-1	C1	S0	DRY

0.0	5.0	OB	=>LAQM + LQM + ARG C2 2P4 Only 0.5 m of OVB/Fill determined by drill tech, but actually 5.0 m, as can be seen by 1) minor organics, 2) moist nature of unwashed tray to soil rich? and 3) large fragments, up to 1.8 cm, typical of fractured near surface rock; lithologies consist mostly of LAQM and LQM with minor ARG. LAQM: mostly orangy-brown, moderate to strongly pervasive limonite altered monzonite; very little to no texture, with biotite and k-spar to limonite; a few remnants of silvery-white sericitic altered biotite shreds; weakly calcareous, C1; trace –1% very fine (1/8 - ¼ mm) pyrite, P4, oxidized to limonite, disseminated; no quartz eyes; then there's another LAQM that's borderline LQM, pale orange greeny-tan with weak pervasive limonite alteration; texture pretty good borderline unaltered, strong, well-defined sub-euhedral sericitic biotite pseudomorphs to limonite; k-spar? Altered to limonite; no quartz eyes; groundmass sericite-rich; ~1% disseminated anhedral blebs of fine (< ¼ mm) pyrite biotite to manganese oxide. LQM: greeny-tan-average, weakly pervasive limonite altered monzonite with 2-5% abundant, well-defined flakes and books of brown/black biotite, alteration to sericite around rims; k-spar? to sericite to limonite?; trace sulfide, P4 to limonite and manganese oxide. ARG: a few hard black angular fragments of graphitic argillite.
5.0	8.0	LAQM	C3 S2 Sk 2P4 Qe Orange grey moderately pervasive limonite altered monzonite; fairly good preservation of texture with well-defined sub-euhedral sericitic biotite pseudomorphs altering to 70% orange limonite, less defined k-spars altering to sericite 90% limonite, in a greyish-orange, weakly-translucent quartz-rich groundmass; moderate to strong calcareous, C3; moderate fragments of cloudy quartz stockwork, free and in situ, only weak, if any, silica flooding; < 1% small to large (2 mm) cloudy quartz eyes?; ~2% very fine (< ¼ mm) to coarse (< ½ mm) disseminated anhedral blebs of pyrite, P4, altered to limonite; sulfide in quartz, reason for grey quartz.
8.0	14.2	LAQM	C3 S1 Sk 3P4 Qe Orangy tan-brown (weak green tinge?) moderate pervasive limonite altered quartz monzonite; a bit less altered than above LAQM; strong, definitive silvery-white sericitic biotite pseudomorphs to limonite and milky-beige, less defined sub-anhedral k-spars; trace sub-rounded (1 mm) quartz eye?; moderate to strong cloudy-grey (sulfide?) to whitish S1 quartz veinlet/micro-veinlet stockwork; weak silica flooding; quartz-sericite rich groundmass; orange limonite altered shreds and phenocrysts of biotite and k-spar stand out; ~2-3% fine (< ¼ mm) to coarse (< ½ mm) disseminated sub-anhedral blebs of pyrite, P4 (P3 towards lower contact) oxidized to limonite; strong calcareous, C3.
14.2	18.0	LAQM	C3 3P4 Dull, earthy, orange-brown, limonite-rich, moderate to strong pervasive limonite altered monzonite; more intense strong limonite alteration than LAQM above, results in less defined sericitic biotite pseudomorphs; preservation of texture fairly poor (dependent on limonite intensity); biotite completely altering to 90% sericite altering to limonite; k-spar completely altering to sericite altering to 50% limonite; no quartz eyes; brownish-orange opaque matrix; doesn't appear to be any secondary quartz or stockwork; moderate to strong calcareous, C3; intense reaction with HCl; very trace bleached AQM fragments; 2-5% fine (< ¼ mm) to coarse (< ½ m) disseminated anhedral blebs of pyrite, P4, borderline with P3, alteration to mostly limonite
18.0	22.0	LQM	70:30 LAQM C3 TrP4 Ft* Predominant orangy-brown to orange greeny-brown, weak to moderate pervasive limonite monzonite; excellent texture with 2-3% equigranular flakes of brown/black fresh biotite; a few fragments have sub-euhedral, milky-white clay altered k-spar phenocrysts, a few "free" soft k-spars as well; ~20-30% of

			fragments are bleached, LAQM , very weak pervasive limonite, with biotite to sericite to limonite, opaque, sericite-feldspar-rich groundmass; bleached fragments are fairly incompetent, plus poor recovery from 20-22 m, therefore most likely a fault; strongly calcareous, C3; no secondary quartz or stockwork; trace fine (1/8 – ¼ mm) disseminated pyrite, P4, only in LAQM
22.0	31.0	LQM	C3 S1 Orangy-brown to greeny-brown, weak to moderate pervasive limonite monzonite; excellent texture with 3-5% brown/black flakes and books of biotite, some beginning to alter to sericite around rims; occasional sub-euhedral milky-white clay altered k-spar; no quartz eyes; appears to be S1 silica flooding of groundmass and trace fragments of clear quartz veinlets?; pretty much no pyrite therefore, no gold!; strongly calcareous, C3; quartz vein weakly translucent-looking matrix.
31.0	40.5	LAQM	C3 3P4 Creamy orange, weak to moderate pervasive limonite altered monzonite; "bleached" creamy-milky feldspar-sericite rich groundmass, stained with weak to moderate limonite; biotite and fine k-spar to sericite to limonite orange shreds; occasional weakly defined k-spar and silica-white sub-anhedral biotite pseudomorphs; strongly calcareous C3; no secondary quartz or stockwork; more moderate to strong limonite (can't see bleached groundmass) towards top of unit; ~3% very fine (< ¼ mm) to coarse (< ½ mm) disseminated and conchoidal anhedral blebs of pyrite, P4, some P3, altered to limonite and manganese oxide; trace very small (< ½ mm) sub-angular quartz eyes.
40.5	54.8	ARGG	S2 Sk Tr P4 Extremely black, hard, angular fragments of graphitic silty argillite; fine to medium grained, can see small bumps on many fracture surfaces; small, hard, equant-shaped chips, not very many platy fragments; weak graphitic lustre of fragments but unwashed tray, very sooty; strong S1 weak S2 cloudy-milky quartz veinlets/micro-veinlet stockwork; quite a few free fragments of quartz, so lots of larger veinlets as well; non-calcareous; trace limonite, mostly as blebs in or around selvages of veinlets, but very trace as patchy fracture coatings, more towards top of unit; trace pyrite, P3-P4, oxidized to limonite, as anhedral inclusions near quartz veinlets; ~53-54.8, thin sliver or finger of lower LAQM, < 2% chips; small angular clast soft ARGG in a few quartz veinlets to intrusive breccia contact?
54.8	66.2	LAQM	C2 3P4 S1 Qe Bright orange-brick red, limonite-rich, moderate pervasive limonite altered quartz monzonite; in many fragments groundmass is tan-creamy, with weakly pervasive limonite, but very intense orange to dark red limonite alteration of fine biotite and k-spar, give matrix a strong orange-red hue and more moderate to strong pervasive limonite in many fragments; groundmass ranges from opaque to weakly translucent-looking, both feldspar and quartz rich; occasional remnant of sub-anhedral milky-white k-spar phenocrysts; texture more destroyed, dependent on pervasive limonite alteration; both small < ½ mm to 2 mm, clear-cloudy sub-rounded – sub-angular quartz eyes, overall < 1% moderate calcareous, C2; overall ~3% pyrite, P3-P4, mostly P4 oxidized to limonite, some manganese oxide as fine (< ¼ mm) disseminated sub-anhedral blebs of pyrite, see some cubes; 2-3% fragments between 58-64 m, appear to be light to medium grey Steel Formation Siltstone, some in situ of LAQM, slivers of SST brought up during intrusion? (very slight possibility could be AQM, with no texture, but doubt it) very weak silica flooding of a few chips, so worth noting, S1.
66.2	67.5	ARGG	S1 TrP4 Black, hard, angular fragments of graphitic argillite; fairly equant in shape, not platy; slightly silty argillite, a few bumps on a few surfaces; non-calcareous; weak graphitic lustre; weak patchy orange limonite on a few surfaces; fracture

			coatings and oxidized pyrite fracture coating, to trace P4; very weak S1 quartz veinlets/micro-veinlets stained with orange limonite.
67.5	72.0	LSST	C1 Tan-beige, weakly pervasive limonitic, fine, uniform, calcareous siltstone; Steel Formation; a few light grey fresher fragments, but most either 1) weak pervasive limonite or 2) limonite coatings; < 2% hard, black, angular fragments of argillite, contamination, or very weak thin interbedding; trace LAQM contain; trace crude "wispy" bedding laminations; very, very trace disseminated anhedral blebs of pyrite (P4), typical of SST; very, very trace thin micro-veinlets of quartz, not worth noting in modifier.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2221

NORTHING : 19333.9 EASTING : 23400.2 ELEVATION : 851.4

MAXDEPTH : 80 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>LAQM C3
4.00	10.00	LAQM	C3
10.00	12.50	LAQM	C3 S2 Sk P4 Sb
12.50	17.50	LAQM	C3
17.50	19.00	FT	=>LAQM C3
19.00	26.00	LAQM	C3 S1 Sk
26.00	30.20	LQM	75:25 QM C3
30.20	34.00	LAQM	C3
34.00	39.00	LAQM	C3 S2 Sk P4 Qe
39.00	42.00	LAQM	C3 S2 Sk P4
42.00	44.50	LAQM	C3 S2 Sk 5P4
44.50	58.00	LAQM	C3 S1 Sk
58.00	71.00	LAQM	C3
71.00	80.00	ARGG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2221

NORTHING : 19333.9 EASTING : 23400.2 ELEVATION : 851.4

MAXDEPTH : 80 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.20	P4	C3	S0	DRY
2.00	4.00	.37	P4	C3	S0	DRY
4.00	6.00	.12	P4	C1	S1	DRY
6.00	8.00	.15	P4	C3	S0	DRY
8.00	10.00	.21	P4	C3	S0	DRY
10.00	12.00	.39	P4	C3	S2	DRY
12.00	14.00	.50	P4	C3	S1	DRY
14.00	16.00	1.04	P4	C3	S0	DRY
16.00	18.00	.08	P4	C2	S0	DRY
18.00	20.00	.07	P4	C2	S0	DRY
20.00	22.00	.28	P4	C2	S1	DRY
22.00	24.00	.25	P4	C3	S1	DRY
24.00	26.00	.09	P4	C3	S1	DRY
26.00	28.00	.08	-1	C3	S0	DRY
28.00	30.00	.07	-1	C3	S0	DRY
30.00	32.00	.16	-1	C3	S0	DRY
32.00	34.00	.04	-1	C3	S0	DRY
34.00	36.00	1.50	P4	C3	S2	DRY
36.00	38.00	2.79	P4	C3	S1	DRY
38.00	40.00	1.90	P4	C3	S1	DRY
40.00	42.00	.24	P4	C3	S2	DRY
42.00	44.00	.68	P4	C3	S2	DRY
44.00	46.00	.75	P4	C3	S0	DRY
46.00	48.00	1.04	P4	C3	S1	DRY
48.00	50.00	2.10	P4	C3	S1	DRY
50.00	52.00	.32	P4	C3	S1	DRY
52.00	54.00	1.49	P4	C3	S1	DRY
54.00	56.00	2.51	P4	C3	S0	DRY
56.00	58.00	1.57	P4	C3	S2	WET
58.00	60.00	.22	P4	C3	S0	WET
60.00	62.00	.13	P3	C3	S0	WET
62.00	64.00	.08	P3	C3	S0	DRY
64.00	66.00	.12	P2	C3	S0	WET
66.00	68.00	.07	P4	C3	S0	WET
68.00	70.00	.32	P4	C3	S1	WET
70.00	72.00	.26	P4	C0	S1	WET
72.00	74.00	.05	-1	C0	S0	WET
74.00	76.00	.14	-1	C0	S0	WET
76.00	78.00	.07	-1	C0	S0	DRY
78.00	80.00	.05	-1	C0	S0	DRY

0.0	4.0	OB	=>LAQM C3 Overburden; pad fill composed mostly of monzonite with minor argillite; poor recovery; unwashed sample has soil-like appearance and chips are larger; note: drill site technician didn't designate this interval as OB.
4.0	10.0	LAQM	C3 Dark orange limonitic altered quartz monzonite; pervasive limonitic staining is strong and even, good igneous textures; k-spar crystals ≤ 4 mm, commonly viewed in place, are weakly to strongly clay-altered, are very weakly to unstained and are occasionally associated with fine, black tracings of manganese oxide; feldspar-rich groundmass contains slightly more modal quartz than is typically encountered in the Bohemian zone – still minor quantities and no quartz eyes; groundmass is opaque to pearly and opaque to translucent; strong sericitization and localized argillic alteration of modal feldspar has given rock a wispy to microgranular recrystallized appearance; biotite altered to orange sericitic masses – cores replaced by pyrite – manganese oxide – easily identified but good pseudomorphs are very rare; very strongly calcareous matrix – reaction to HCl is instantaneous – strong – rolling and bubbling in unwashed sample; < 5% manganese oxide throughout. Not stockworked or significantly silicified; rare trace fine pyrite ≤ ¼ mm is usually coated with manganese oxide and most common occurrence indicates replacement of former biotite.
10.0	12.5	LAQM	C3 S2 Sk P4 Sb Rich, dark orange monzonite very much as 4.0-10.0m; contains < 10% silicified rock with dark red hematitic staining; < 10% clear to cloudy, angular quartz fragments that contain massive and disseminated stibnite; secondary quartz also as interstitial swirls and irregular veinlets and also as clear, occasionally sheeted, veinlets ≤ 1mm; weak quartz flooding locally; ≤ 3% (??) disseminated pyrite completely oxidized and rarely coated with manganese oxide – some of these sulfides seem secondary after biotite; dark red-purple sub-cubic to rounded limonite flecks ≤ ¼ mm; < 5% chips are intensely altered – clay and sericite with abundant (≤ 40%) manganese oxide flecks – soft and incompetent with no original textures. (Looks good.)
12.5	17.5	LAQM	C3 Monzonite, as 4.0-10.0 m, but with colour variations from orange to brown to creamy; good igneous textures; clay-altered k-spar phenocrysts lack staining; decreased manganese oxide; rare oxidized sulfides. Transitional into:
17.5	19.0	FT	=> LAQM C3 Pale yellow-orange bleached and argillically altered monzonite, as in RC98-2222 19.8-22.0 m; opaque and micro-granular; silvery biotite; original textures are good but blurry; calcareous, not silicified, no sulfides.
19.0	26.0	LAQM	C3 S1 Sk Feldspar phyric monzonite as 12.5-17.5 m; wild variations in colour from yellow to red to orange to brown, strong sericitization; not silicified or stockworked; rare sulfides; very strongly calcareous (rolling reaction to HCl); 15-20% chips with bleached appearance – argillic alteration; resembles RC98-2222 16.0-19.8 m, as alteration effects adjacent to an interpreted fault/shear; rare clear and orange-stained quartz veinlet fragments and silicified intrusive quartz-rich fragments; strong sericitization throughout. Then suddenly!
26.0	30.2	LQM	75:25 QM C3 Rich orange quartz monzonite; 10-15% fresh black mm-size biotite crystals; original textures and luster are excellently preserved; intensely calcareous matrix; instantaneous reaction to HCl – stronger in chips that have fine, wispy,

sericite and/or carbonate coating; < 25% chips (half of 26.0-28.0 m interval) are blue-grey and lack limonitic staining; not silicified, no sulfides.

30.2 34.0 LAQM C3

Dull orange-brown monzonite, as 4.0-10.0 m (and other similar intervals); good textures; strong even staining (mostly one colour) of feldspar-rich, quartz poor matrix, except for clay-altered k-spar crystals ≤ 2 mm; no quartz stockwork or flooding; intensely calcareous; strong sericitization; no sulfides; as RC98-2222, 22.0-28.0m.

34.0 39.0 LAQM C3 S2 Sk P4 Qe

Rich reddish-orange limonitic altered quartz monzonite; translucent, pearly to glassy luster; original textures discernible; staining of fine-grained feldspar-rich matrix is weak to moderate – dominant colouration of rock due to orange stained sericitized biotite, partially coated with and replaced by abundant manganese oxide, that is seen coating most chip surfaces; modal feldspar is only weakly sericitized; more modal quartz than is typically in Bohemian; rare clear and cloudy quartz eyes ≤ 3 mm; intensely calcareous where not silicified; abundant manganese oxide.

Moderate to strong pervasive silification with weaker associated clear quartz stockwork; quartz is often smoky and appears to contain ultrafine disseminated sulfides (too tiny to identify); rock has really glassy luster.

Trace dark red and manganese oxide coated disseminated pyrite; unit likely contained higher sulfide concentrations, but quantities are difficult to estimate due to intensity of silification; rare chips show ≤10% oxidized pyrite ≤1/4mm – also along rare veinlet selvages.

(Looks sort of yummy – hopefully it should run).

Subtle transitional boundaries.

39.0 42.0 LAQM C3 S2 Sk P4

Dull pale greyish orange monzonite with orange stained sericitized biotite; excellent original textures; < 5% manganese oxide; biotite also as silvery pseudomorphs; intensely calcareous; very strong quartz stockwork with mm-scale veinlets; rare ultrafine (< 1/10 mm) dark orange disseminated pyrite; strongly silicified matrix combined with higher than average modal quartz content; sub-cubic, dark purple oxidized pyrite also in concentrations to >10% on some veinlets; translucent; < 5% manganese oxide after biotite.

Visually distinct from 34.0-39.0 m.

42.0 44.5 LAQM C3 S2 Sk 5P4

Silicified and stockworked monzonite, much as 34.0-39.0 m, but without quartz eyes and containing ≥ 5% dark red/purple to black sub-cubic disseminated oxidized pyrite ≤ ¼ mm.

44.5 58.0 LAQM C3 S1 Sk

Dark orange-brown monzonite, as 4.0-10.0 m; strong pervasive staining of strongly sericitized feldspar-rich matrix, intensely calcareous; ubiquitous and locally abundant manganese oxide coats former biotite and pyrite that was secondary after biotite and some disseminated pyrite and fractures.

< 10% dark red hematite-stained, silicified and stockworked rock – occurs at fairly regular intervals (4-5 m apart), with strongest veining and staining in 48.0-50.0 m and 56.0-58.0m (sheeted veinlet packages to 1cm wide); these locally delicious intervals might be associated with mineralization (I hope so.)

Ubiquitous but trace quantities of pyrite; as very dark red to purple-black disseminated flecks ¼ mm to < 1/10 mm, forming concentrations to > 5% (locally) within hematitic silicified rock; in more common intrusive the pyrite more frequently occurs as replacements of biotite and rare disseminations ≤ ¼ mm; > 3% oxidized pyrite in 56.0-58.0m where stockworking is strongest.

Wet from 56.0m.

58.0	71.0	LAQM	C3 Orange-brown feldspar-phyric monzonite as has been repeatedly described; good textures; even, strong, pervasive limonitic staining; rare disseminated pyrite, manganese oxide as partial coating of former biotite, now sericitized and limonite-stained - < 2%; very strong sericitization and intensely calcareous; no quartz veining except in << 5% chips that are silicified and are strongly hematite-stained – dm-scale fracture-related horizons every 2-3 m? Poor recovery of competent material near lower contact – possible shear/fault contact?
71.0	80.0	ARGG	Very black, strongly graphitic argillite; weak quartz veining (milky mm-scale veinlets < 1 mm) to 73.0 m hard, angular homogeneous fragments; locally silty, but generally very fine-grained; not calcareous; no visible sulfides, very rare greenish sericite-coat planar surfaces; very, very rare limonite; excellent greasy luster.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2222

NORTHING : 19351.2 EASTING : 23400.2 ELEVATION : 847.7

MAXDEPTH : 70 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	LAQM	C3
6.00	11.00	LAQM	C3 S1 P4
11.00	16.00	LAQM	C3
16.00	19.80	LAQM	C3 S1 Sk
19.80	22.00	FT	=>LAQM C2
22.00	28.00	LAQM	C2
28.00	34.00	LAQM	C3 S2 Sk 5P4 Sb
34.00	38.00	LAQM	C3 4P4
38.00	41.00	LAQM	C3
41.00	48.50	LAQM	C3 P4
48.50	52.40	LAQM	C3
52.40	54.10	ARGG	+Lm
54.10	63.00	LAQM	C3
63.00	69.00	ARGG	=>LQM+LAQM C3
69.00	70.00	SST	->OB* C3 1P4

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2222

NORTHING : 19351.2 EASTING : 23400.2 ELEVATION : 847.7

MAXDEPTH : 70 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.09	P4	C3	S0	DRY
2.00	4.00	.04	P4	C3	S0	DRY
4.00	6.00	.05	P4	C2	S0	DRY
6.00	8.00	.19	P4	C3	S1	DRY
8.00	10.00	1.73	P4	C3	S1	DRY
10.00	12.00	.13	P4	C3	S0	DRY
12.00	14.00	.10	P4	C3	S0	DRY
14.00	16.00	.08	P4	C3	S0	DRY
16.00	18.00	.10	P4	C3	S1	DRY
18.00	20.00	.08	P4	C3	S1	DRY
20.00	22.00	.11	P4	C2	S0	DRY
22.00	24.00	.05	P4	C1	S0	DRY
24.00	26.00	.06	P4	C1	S0	DRY
26.00	28.00	.05	P4	C2	S0	DRY
28.00	30.00	.74	P4	C2	S0	DRY
30.00	32.00	1.17	P4	C3	S1	DRY
32.00	34.00	.34	P4	C3	S2	DRY
34.00	36.00	.45	P4	C3	S0	DRY
36.00	38.00	2.29	P4	C3	S1	DRY
38.00	40.00	.46	P4	C3	S1	DRY
40.00	42.00	.23	P4	C3	S0	DRY
42.00	44.00	1.18	P4	C3	S1	DRY
44.00	46.00	1.78	P4	C3	S1	DRY
46.00	48.00	2.04	P4	C3	S1	DRY
48.00	50.00	.24	P4	C3	S1	DRY
50.00	52.00	.11	P4	C3	S0	DRY
52.00	54.00	.03	P4	C3	S1	DRY
54.00	56.00	.12	P4	C3	S1	DRY
56.00	58.00	.16	P4	C3	S0	DRY
58.00	60.00	.08	P4	C3	S0	DRY
60.00	62.00	.10	P4	C3	S1	DRY
62.00	64.00	.43	P4	C3	S1	DRY
64.00	66.00	.07	-1	C0	S0	DRY
66.00	68.00	.06	-1	C0	S0	DRY
68.00	70.00	.08	-1	C0	S0	DRY

0.0	6.0	LAQM	C3 Monzonite; strong, even, pervasive limonitic staining of feldspar-rich, quartz-poor matrix ranges from orange to pink to brown; k-spar phenocrysts ≤ 4 mm are waxy and clay-altered and lack staining so they stand out in strong contrast to groundmass; opaque but retains pearly luster (most strongly resembles 22.0-28.0 m); strongly sericitized and sericite-carbonate powdery wisps coat many surfaces; very strong reaction to HCl, especially from unwashed sample; most biotite altered to unrecognizable shreds; minor manganese oxide after former biotite; not silicified or stockworked; very rare, trace disseminated oxidized pyrite.
6.0	11.0	LAQM	C3 S1 P4 Grainy-looking, sericitized monzonite, as above, but with bright orange to dark red limonitic staining; ≥ 30% chips with pervasive hematitic staining; intensely calcareous, but best reaction from unwashed sample; increased manganese oxide – coats former biotite (ragged sericitic masses) and forms dendritic tracings on white clay-altered k-spar crystals; < 10% manganese oxide – also lines fractures; hematitic chips appear silicified and are strongly sericitized – may be associated with fracturing – possible gold mineralization. Trace to 1% dark red disseminated limonite flecks ≤ 1/5 m after pyrite – also coated with manganese oxide.
11.0	16.0	LAQM	C3 Monzonite, as 22.0-28.0 m but pervasive limonitic staining is dark orange to red-orange instead of brown; numerous white, clay-altered k-spar crystals and crystal fragments; calcareous; not silicified; very rare sulfides; ≥ 25% chips with strong, pervasive hematitic staining; patchy argillic alteration associated with yellowish, bleached rock; < 10% manganese oxide – decreased from interval above. Transitional 'contacts';
16.0	19.8	LAQM	C3 S1 Sk Bright yellowish-orange and red-orange monzonite; strong, pervasive limonitic staining except for some white, waxy to sub-earthy clay altered k-spar phenocrysts; k-spar is usually adorned with fine tracings and spots of black manganese oxide (pyrolucite); feldspar-rich, quartz-poor matrix is strongly sericitized, but original textures are only slightly blurred; all former biotite altered beyond recognition and is partially replaced by manganese oxide; moderate argillic alteration locally to create bleached, waxy-looking textureless fragments, weak quartz stockwork and associated flooding of adjacent ground mass – sub-cm yellow-orange stained quartz – sharp-sided veinlets are barren of sulfides; rare trace disseminated oxidized pyrite; silicified fragments have brighter yellowish orange colouration; Possibly represents an alteration halo adjacent to fault – described below. (Could possibly run.)
19.8	22.0	FT	=> LAQM C2 Probable fault/shear; pale yellow to creamy monzonite; bleached; very strong argillic alteration and sericitization; unwashed sample is very clay rich; fine grained feldspar-rich matrix has opaque, homogeneous, slightly earthy appearance – original textures are discernible but very blurred; microsucrosic texture; soft and easily scratched; modal quartz is very, very rare; biotite as irregular blue-grey sericitized pseudomorphs and as dark brown limonitic pseudomorphs; minor manganese oxide as fine spotty tracings on and around the occasional clay altered k-spar crystals ≤ 4 mm that are not frequently viewed in situ; no silification or stockwork; trace (and very rare) fine (≤ ¼ mm) dark orange limonite flecks and very rare unstained sub-cubic boxworks represent former pyrite; moderately calcareous – slow starting reaction to HCl is best observed in unwashed powder.

22.0 28.0 LAQM C2

Medium to dark brown monzonite; feldspar phyric texture is well represented – white, waxy, clay-altered k-spar phenocrysts (and crystal fragments) ≤ 4 mm lack limonitic staining and stand out in strong contrast to stained matrix – this texture diminished to end of interval; k-spar crystals (and fragments) are occasionally adorned with fine manganese oxide tracings; rare void space after altered out feldspar; fine-grained feldspar-rich, quartz-poor groundmass shows very strong, even, pervasive limonitic staining; rock is opaque but retains pearly luster; all modal biotite has altered beyond recognition and typically remains as sericitized masses and remnants on chip surfaces that blend with the moderate sericitization of groundmass; former biotite is also occasionally partially replaced with fine specks of manganese oxide; weakly to increasingly calcareous matrix – reaction from HCl is slow to start and is best observed in unwashed sample; not silicified or stockworked, very, very rare disseminated oxidized pyrite.

28.0 34.0 LAQM C3 S2 Sk 5P4 Sb

Dark orange and red-orange monzonite; very strong, pervasive limonitic staining; all original textures are discernible; good pearly to sub-vitreous luster; sub-translucent to opaque; slight increase in modal quartz when compared to rock up-hole; biotite altered to silver and/or orange limonitic, sericitic pseudomorphs and masses that are very commonly coated with spotty manganese oxide – 25-30% of surface area of fragments is coated with manganese oxide; moderately to strongly sericitized and locally argillically altered feldspar-rich matrix looks wispy to sugary, depending on intensity of alterations; intensely calcareous matrix.

Moderately to strongly silicified; numerous barren, clear quartz veinlets <1 mm; from 32.0m: strong pervasive alteration associated with stibnite-bearing clear and smoky quartz veinlet (estimated width = 20-30 cm).

>5% disseminated pyrite ≤ ¼ mm are almost always coated with manganese oxide; pyrite occurs in higher concentrations on fractures; some pyrite appears secondary after biotite as it has the same occurrences and is often viewed in the cores of former biotite crystals; > 10% stibnite as massive chunks and ultrafine disseminations within quartz; some bleaching, clay and very rare slickensides suggest that the stibnite-quartz veining is associated with movement.

34.0 38.0 LAQM C3 4P4

Dark orange monzonite; very strong, even, pervasive limonitic staining; weakly feldspar phyric; no quartz eyes; quartz-poor, feldspar rich matrix retains textures but is very strongly sericitized locally – develops microgranular recrystallized appearance; tends to retain pearly luster regardless of sericitization; < 2% chips are intensely sericite and clay altered – incompetent and crumbly; biotite altered to orange-stained, unrecognizable sericitic masses that are very commonly coated with manganese oxide; weak quartz stockwork with clear veinlets <1mm; ≥4% disseminated pyrite ≤ ¼ mm as dark red-purple limonite flecks and occasionally coated with manganese oxide; some very fine (< 1/10 mm) appears secondary after biotite and then coated with manganese oxide.

Poor recovery of washed sample due to incompetence of rock 36.0-38.0m.

Note: very visually distinct from 28.0-34.0 m.

38.0 41.0 LAQM C3

Dark orange to pink orange monzonite that is very similar to 34.0-38.0 m; original textures are well preserved; feldspar-rich, quartz-poor matrix is strongly sericitized and has developed a slightly sugary, opaque, recrystallized appearance and all surfaces are coated with orange to yellow wispy sericite carbonate; cloudy, waxy-looking, easily scratched k-spar crystals ≤ 4 mm are commonly viewed in situ, are patterned with fern frond-like tracings of manganese oxide and lack the strong pervasive limonitic staining that is seen in the groundmass; former biotite is altered beyond recognition – blends with

			sericitized matrix – occasionally coated with spotty manganese oxide; < 2% manganese oxide (much, much less than in 34.0-38.0 m) also lines fractures; intensely calcareous; very rare quartz veinlets; trace disseminated oxidized pyrite (red-purple limonite).
41.0	48.5	LAQM	C3 P4 As 34.0-38.0 m; dark orange strongly sericitized, strongly calcareous monzonite; 15-50% of surface area is coated with manganese oxide – decreasing to end of interval; > 25% chips with deep red hematitic staining are very strongly sericitized and weakly to moderately silicified – increasingly abundant to lower contact; associated with fractures! Preservation of biotite increases as quantity of manganese oxide decreases; strong sericitization throughout; original textures are obvious; no quartz stockwork, but hematitic chips are silicified. All sulfides are completely oxidized; difficult to estimate quantity of former sulfides due to strong alterations – I see trace disseminated, dark red to black (with manganese oxide) sub-cubic limonite flecks ≤ ¼ mm, but original amount was likely much higher. (Best-looking stuff so far, but…)
48.5	52.4	LAQM	C3 Light to medium orange monzonite; similar to 38.0-41.0 m; good igneous textures; biotite as orange-stained sericite – ragged masses to good pseudomorphs; are fresh black, biotite crystals at lower contact; < 5% manganese oxide as partial replacement of some biotite; fine-grained feldspar-rich matrix has very, very weak pervasive limonitic staining – most dominant orange colour is due to former biotite flecks that adhere to chips; weak to moderate sericitization of groundmass; no quartz eyes and rare clay-altered feldspar; not silicified; very strongly calcareous; trace dark red disseminated limonite after pyrite ≤ 1/6 mm. (Ho hum).
52.4	54.1	ARGG	+Lm Dark grey and black graphitic argillite; siliceous; weak mm-scale milky quartz stockwork; limonite-stained sericite coated fractures and bedding.
54.1	63.0	LAQM	C3 Dark orange to pink monzonite; original textures are increasingly well preserved to lower contact; feldspar-rich matrix is strongly sericitized throughout – opaque, grainy and recrystallized-looking near upper contact but becoming more translucent and pearly to sub-vitreous; slight increase in modal quartz but no phyric quartz eyes; former biotite as sericitized orange-stained masses and pseudomorphs partially replaced with black manganese oxide; intensely calcareous matrix. No quartz veining but rock is locally pervasively silicified from 60.0 m, especially near lower contact. Trace disseminated pyrite << ¼ mm – always oxidized to reddish limonite; trace ultra fine clusters of oxidized and manganese oxide-coated pyrite is secondary as partial replacement of former biotite. 56.0-58.0m: >5% unoxidized chips with mm-scale limonitic staining envelopes adjacent to fractures.
63.0	69.0	ARGG	Black argillite; strongly graphitic – excellent oily luster, especially 66.0-68.0 m; not calcareous; rare quartz veinlets < 1 mm; hard, argillite fragments; tends toward siltstone; soft, bleached and shale-like near upper contact; no visible sulfides; rare limonitic fractures at upper contact only.
69.0	70.0	SST	Medium grey Steel Formation Siltstone with ultrafine, hairline (<<< 1 mm) clear quartz, wispy stringers; greenish to yellowish sericitic coating on many

planar surfaces; minor quantity with moderate pervasive limonitic staining; not silicified; no visible sulfides; not calcareous.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2223

NORTHING : 19394.7 EASTING : 23377.5 ELEVATION : 830.5

MAXDEPTH : 78 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	.50	OB	C3 5P4
.50	4.00	LAQM	C3
4.00	8.00	LAQM	C3
8.00	13.90	LQM	C3
13.90	15.00	QM	C3
15.00	27.00	LQM	C3
27.00	29.00	QM	C3
29.00	42.00	LAQM	C3 S1 +Sb
42.00	44.00	SLTG	
44.00	49.00	ARGG	
49.00	55.90	LAQM	C3 S2 Sk P4 Sb
55.90	64.10	ARGG	
64.10	66.70	LAQM	C2
66.70	69.30	ARGG	S2 Sk Bx
69.30	72.40	LAQM	C2 S2 2P3
72.40	78.00	ARGG	90:10 SST+LSST +Lm S2 C2 Sk

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2223

NORTHING : 19394.7 EASTING : 23377.5 ELEVATION : 830.5

MAXDEPTH : 78 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.18	P4	C3	S0	DAMP
2.00	4.00	.29	P4	C3	S0	DAMP
4.00	6.00	.39	P4	C3	S0	DAMP
6.00	8.00	.60	P4	C3	S1	DRY
8.00	10.00	.13	-1	C3	S0	DRY
10.00	12.00	.08	-1	C3	S0	DRY
12.00	14.00	.04	-1	C3	S0	DRY
14.00	16.00	.05	-1	C3	S0	DRY
16.00	18.00	.03	-1	C3	S0	DRY
18.00	20.00	.03	-1	C3	S0	DRY
20.00	22.00	.04	P4	C3	S0	DRY
22.00	24.00	.26	P4	C3	S1	DRY
24.00	26.00	.03	P4	C3	S0	DRY
26.00	28.00	.45	P4	C3	S0	DRY
28.00	30.00	.07	P4	C3	S0	DRY
30.00	32.00	.65	P4	C3	S1	DRY
32.00	34.00	.35	P4	C3	S1	DRY
34.00	36.00	.83	P4	C3	S1	DRY
36.00	38.00	.11	P4	C3	S1	DRY
38.00	40.00	.11	P4	C3	S1	DRY
40.00	42.00	.11	P4	C0	S1	DRY
42.00	44.00	.10	-1	C0	S0	DRY
44.00	46.00	.10	-1	C0	S1	DRY
46.00	48.00	.12	-1	C1	S1	DRY
48.00	50.00	2.59	P4	C2	S1	DRY
50.00	52.00	3.22	P4	C3	S2	DRY
52.00	54.00	8.97	P4	C2	S1	DRY
54.00	56.00	.90	P4	C3	S1	DRY
56.00	58.00	.18	-1	C0	S1	DRY
58.00	60.00	.14	-1	C0	S2	DRY
60.00	62.00	.10	-1	C0	S1	DRY
62.00	64.00	.14	-1	C0	S1	DRY
64.00	66.00	.05	-1	C2	S1	DRY
66.00	68.00	.25	-1	C2	S1	DRY
68.00	70.00	.35	-1	C2	S1	DRY
70.00	72.00	.58	P3	C2	S2	DRY
72.00	74.00	.25	-1	C1	S1	DRY
74.00	76.00	.10	-1	C2	S1	DRY
76.00	78.00	.04	-1	C2	S2	DRY

0.0	0.5	OB	=> LQM + LAQM C3 Fill, as determined by drill site technician; soil-like damp sample; minor organics. Dominantly limonitic quartz monzonite with abundant fresh black and altered biotite; intensely calcareous; see descriptions below.
0.5	4.0	LAQM	=>OB C3 1P4 Limonitic altered quartz monzonite, excellent textures and luster; fine-grained feldspar-rich matrix is weakly but pervasively stained; former biotite altered to silvery micaceous pseudomorphs, to wispy orange and brown sericitic masses and pseudomorphs, and is partially replaced locally with minor quantities of manganese oxide; minor sericitization of modal minerals (other than biotite; very strongly calcareous; no secondary quartz. Trace to 1% dark red-purple subhedral disseminated limonite flecks ≤ 1/3 mm and finer (< ¼ mm) cubes that occur in the cores of some former biotite. Unwashed sample is damp and soil-like, this material might be pad fill or weathered overburden.
4.0	8.0	LAQM	C3 5P4 Monzonite, as described in 0.5-4.0 m; pervasive limonitic staining of pearly to vitreous, sub-translucent feldspar-rich matrix is weak, but intensifies to end of interval; overall bright orange to red orange colouration with a greyish underhue; original textures are discernible; clay and sericite altered, very slightly limonitic k-spar crystals and crystal fragments ≤ 3 mm are not common; all biotite altered to bright orange limonitic, sericitic shreds and rare good pseudomorphs – provide strongest colouration of unit – very, very rarely partially coated with manganese oxide; one smoky quartz eye; not silicified or stockworked, although rare quartz veinlets exist; intensely calcareous. 4-6% dark red-purple cubic to rectangular limonite pseudomorphs after disseminated pyrite ≤ 3/4mm; former pyrite also as dark orange to red ultrafine disseminations ≤ 1/10mm, and as cubic oxidized flecks ≤ 1/6 mm that occur in cores of former biotite, suggesting replacement; rare stibnite quartz fragments. Transitional into:
8.0	13.9	LQM	C3 Rich orange limonitic quartz monzonite; original textures are excellently preserved; very, very rare clear quartz eyes ≤ 3 mm; ≤ 10% black biotite – completely fresh or with altered rims; some completely altered biotite is also seen, sericitization of feldspar-rich matrix is variable, but weakens with depth; intensely calcareous – instantaneous, rolling reaction to HCl; no secondary quartz; no visible sulfides.
13.9	15.0	QM	C3 Gorgeous fresh dark blue-grey quartz monzonite with 10-20% fresh black mm-scale biotite; excellent textures and luster; intensely calcareous, but not as strongly calcareous as QM with limonitic staining; no secondary quartz; no visible sulfides.
15.0	27.0	LQM	C3 Limonitic quartz monzonite, as 8.0-13.9 m; weakly to moderately sericitized; intensely calcareous; abundant (10-20%) biotite is fresh and black but occurs with biotite that is partially to completely sericitized and limonitic; from 22.0 m k-spar phenocrysts ≤ 3 mm are soft, white and clay-altered; other k-spar crystals have waxy, cloudy appearance where alteration is less strong; textures are always well preserved; < 5% chips lack staining; very, very, very rare oxidized pyrite – usually occurs as partial replacement of cores of altered biotite; rare clear quartz eyes. 22.0-24.0 m: < 10% chips are pervasively silicified and have strong, pervasive red hematitic staining; slight increase in oxidized pyrite.

27.0	29.0	QM	C3 Blue-grey fresh monzonite, as 13.9-15.0 m.
29.0	42.0	LAQM	C3 S1 +Sb Orange monzonite; < 5% chips with strong pervasive hematitic staining that is associated with silicification and is likely related to fracturing; original textures are easily discerned even though feldspar-rich groundmass is strongly sericitized and has developed a wispy to sugary recrystallized appearance; all biotite altered to sericitic, limonitic masses that are often partially replaced with spotty, ubiquitous manganese oxide; trace disseminated pyrite. 30.0-32.0 m: > 5% massive stibnite in quartz; associated with hematitic, silicified rock. 36.0-38.0 m: trace stibnite in quartz. Note: hematitic silicified rock occurs at fairly regular intervals; each sample contains roughly the same quantity. (This interval may surprise us!) 38.0-40.0m: 40% unoxidized monzonite with borderline fresh biotite – tending toward LQM/QM.
42.0	44.0	SLTG	Graphitic siltstone; fine bedding laminations; excellent greasy luster; very, very rare limonitic fractures; no secondary quartz; no visible sulfides; quickly grades into:
44.0	49.0	ARGG	Black graphitic argillite; weak to moderate pervasive silicification (clear swirls and blobs) with weak stockwork; grain size variations from aphanitic (chert-like) through siltstone to minor sandstone; excellent oily luster.
49.0	55.9	LAQM	C3 S2 Sk P4 Sb Rich, deep red-orange monzonite; very, very strong, even, pervasive limonitic staining, good textures are preserved even though rock is variably intensely sericitized, clay-altered and silicified locally; where rock is intensely sericitized and clay-altered rock has microgranular, incompetent-looking, opaque homogeneous appearance – often accompanied by abundant manganese oxide (>50% locally) – exceptionally altered near upper contact; silicified rock has vitreous luster, sub-translucence and usually strong hematitic staining; discrete orange-stained sharp side quartz veinlets ≤ 1mm; biotite altered to orange-stained sericite – pseudomorphs are not common but occurrence is indicated by plentiful manganese oxide; strong manganese oxide coating on numerous fractures – covers ≤ 50% surface area of all chips. Disseminated pyrite cubes ≤ ¼ mm – due to intensity of alterations it is difficult to accurately determine quantity of former sulfides; from 54.0 m, pseudomorphs of limonite after pyrite (> 5%) are more easily seen – it is assumed that the entire interval contained this much; some quartz veinlets contain minor ultrafine disseminated stibnite. (Yum! I wonder if this'll kick!)
55.9	64.1	ARGG	Black graphitic argillite; excellent luster; hard, angular fragments; weak to locally moderate milky quartz mm-scale veinlets; minor limonitic fractures and faces near contacts only; sharp contacts; not calcareous; no visible sulfides.
64.1	66.7	LAQM	C2 Medium greyish orange monzonite; strong, even, pervasively limonitic staining; non-phyric; rare modal quartz; biotite altered to orange sericite masses and occasional good pseudomorphs that remain in situ – rarely partially replaced with manganese oxide (< 2% throughout); weak argillic and sericitic alteration of modal minerals; no secondary quartz; rare pyrite after biotite – oxidized; calcareous reaction to HCl is positive but quite slow to start; sub-vitreous to pearly luster. (Blech).

66.7	69.3	ARGG	S2 SK Bx Graphitic argillite; silicified and weakly stockworked; minor quartz-healed micro-brecciation; clear to orange-stained veinlets frequently contain clasts of angular argillite and some Steel Formation siltstone; indicates probable faulting within unit or at contacts; not calcareous; no visible sulfides.
69.3	72.4	LAQM	C2 S2 2P3 Rich orange, siliceous-looking monzonite, much as 49.0-55.9 m; excellent vitreous luster; most strongly silicified fragments with hematitic staining; translucent; good textures; biotite altered to orange sericite; > 2% ultrafine disseminated pyrite ≤ ¼ mm and clusters that appear secondary after biotite – partially to nearly completely oxidized (P2-P3) – definitely transitional; sericitic and calcareous; looks kinda yummy. < 10% argillite, as 66.7-69.3 m; some fragments are breccia healed with quartz and intrusive; minor light grey Steel Formation siltstone.
72.4	78.0	ARGG	90:10 SST + LSST +Lm S2 C2 Sk Graphitic argillite; locally silty; ≤ 10% grey and orange-stained Steel Formation siltstone; strong quartz stockwork – numerous orange stained quartz and quartz-carbonate veinlets, swirls, blobs and stringers; weakly to moderately calcareous – matrix and in quartz-carbonate veinlets; good bedding laminations where silty; soft and platy shale-like fragments; some brecciation; no visible sulfides.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2224

NORTHING : 19387.7 EASTING : 23305 ELEVATION : 813.9

MAXDEPTH : 56 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.00	OB	LAQM+ARG C1 1P4
6.00	11.00	LAQM	C2 TrP4 Ft*
11.00	13.00	LQM	C3 S1
13.00	13.50	QM	C3
13.50	20.00	LQM	C3 S1 TrP4 Ft*
20.00	22.00	LAQM	C2 TrP4
22.00	24.20	LQM	C3 S1
24.20	30.00	LAQM	C2 TrP4
30.00	33.90	LAQM	C3 S1 2P3
33.90	34.20	ARGG	S1 Sk 1P3
34.20	36.00	LAQM	C3 S2 Sk 3P4
36.00	43.50	LAQM	C3 S2 Sk 2P3
43.50	44.10	ARGG	S2 Sk TrP4
44.10	45.90	LAQM	C2 S1 Sk 1P3
45.90	49.00	ARGG	
49.00	56.00	SST	80:20 ARGG S1 Sk

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2224

NORTHING : 19387.7 EASTING : 23305 ELEVATION : 813.9

MAXDEPTH : 56 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.60	P4	C1	S0	WET
2.00	4.00	.30	P4	C1	S0	WET
4.00	6.00	.23	P4	C1	S1	WET
6.00	8.00	.24	P4	C1	S0	WET
8.00	10.00	.18	P4	C2	S0	WET
10.00	12.00	.06	P4	C2	S1	DRY
12.00	14.00	.04	-1	C3	S1	DRY
14.00	16.00	.04	-1	C3	S1	DRY
16.00	18.00	.03	P4	C3	S1	DRY
18.00	20.00	.02	P4	C3	S0	DRY
20.00	22.00	.05	P4	C2	S0	DRY
22.00	24.00	.03	-1	C3	S1	DRY
24.00	26.00	.02	P4	C2	S0	DRY
26.00	28.00	.05	P4	C2	S0	DRY
28.00	30.00	.04	P4	C2	S1	DRY
30.00	32.00	.09	P4	C3	S0	DRY
32.00	34.00	.10	P3	C3	S1	DRY
34.00	36.00	.32	P4	C3	S2	DRY
36.00	38.00	.04	P4	C3	S1	DRY
38.00	40.00	.05	P3	C3	S2	DRY
40.00	42.00	.17	P2	C2	S2	DRY
42.00	44.00	.10	P3	C1	S1	DRY
44.00	46.00	.09	P3	C2	S1	DRY
46.00	48.00	.21	-1	C0	S0	DRY
48.00	50.00	.09	P1	C1	S1	DRY
50.00	52.00	.04	P2	C1	S1	DRY
52.00	54.00	.06	-1	C1	S3	DRY
54.00	56.00	.04	P2	C2	S1	DRY

0.0	6.0	OB	=>LAQM+ARG C1 1P4 1.0 m of OVB?Fill noted by drill tech, but actually 6.0 m of Fill then OVB; 0.0-6.0 m samples are wet and muddy; weak to moderate amount of organics in both washed and unwashed samples; very poor recovery, especially 0-2 and 4-6 m; change of colour in unwashed sample to orange LAQM at 6.0 m; large fragments typical of OVB up to 1.5 cm in size; mostly LAQM and ARG with trace LQM. LAQM: predominant brown, earthy, moderate to strong limonite altered monzonite; a few pieces, but not very many more orangy-brown; most texture destroyed, everything appears to have gone to limonite; trace remnants and faint outlines of sericitic biotite pseudomorphs, sub to anhedral shape; more orangy pieces can see milky, limonite stained sericite/clay altered k-spar phenocrysts; biotite and k-spar completely altering to sericite to limonite; very weakly calcareous, C1; no secondary quartz or stockwork; ~1% fine (< ¼ mm) disseminated sub-anhedral cubes and blebs of oxidized pyrite, P4, altered to limonite and manganese oxide. ARG: very black, hard, angular fragments of graphitic argillite; weak graphitic lustre; orange patchy and even limonite fracture coatings; very weak S1 quartz veinlets/micro-veinlets; no sulfide; trace LQM – tanny-brown with black fresh biotite flakes.
6.0	11.0	LAQM	C2 TrP4 Ft* Brown, earthy, strongly pervasive limonite altered monzonite; fairly poor preservation of texture so altered; brown, opaque feldspar-rich groundmass; very few creamy-beige sericitic altered sub-anhedral biotite pseudomorphs, most to limonite and very few milky-white sub-anhedral fairly well-defined opaline-like, relatively unaltered k-spars; no quartz eye; almost everything has altered to limonite; no secondary quartz or stockwork; moderately calcareous, C2; very little sulfide, very trace to trace, very fine to fine (1/8 – ¼ mm) disseminated specks of oxidized pyrite, P4, to manganese oxide and some limonite; extremely poor recovery, less than ¼ of tray full, most likely a fault.
11.0	13.0	LQM	C3 S1 Greeny-brown (weak) to orangy-brown (moderate) pervasive limonite altered monzonite; excellent texture with at least ~5% fairly equigranular flakes and books of brown/black biotite, many with thin sericitic rims; not too many k-spars, trace as strong clay altered creamy phenocrysts; no quartz eye; fairly quartz-rich groundmass?, weakly translucent looking; moderate S1 quartz veinlet/micro-veinlets, as fine, clear-cloudy micro-veinlets; not really any sulfide.
13.0	13.5	QM	C3 Medium-dark grey, "fresh" monzonite; no pervasive limonite, very little alteration of good texture, very trace sericite alteration around rims of 5% equigranular flakes and books of some biotite; quartz-sericite rich matrix, translucent-looking; no secondary quartz or stockwork; strongly calcareous, C3; no sulfide.
13.5	20.0	C3	S1 TrP4 Ft? Greeny-brown to orangy-brown, weak to moderate pervasive limonite altered monzonite, same as 11.0-13.0, see description; moderate S1 quartz veinlets/micro-veinlets (not stockwork), as both clear and milky free fragments and thin micro-veinlets; trace pyrite, as very fine to fine (1/8 – ¼ mm) anhedral disseminated, oxidized to manganese oxide; poor recovery from 16-20m, fault?, unwashed sample doesn't appear gougy at all, but 16-18 m large fragments, up to 2.0 cm, typical of highly fractured rock; 18-20 m, an increase in pervasive limonite alteration, many fragments moderate to strongly pervasive limonite

20.0	22.0	LAQM	C2 TrP4 Orange-brown, earthy, moderate to strong pervasive limonite altered monzonite; no fresh brown/black biotite; weak-moderate preservation of texture; some fragments mostly destroyed, others less defined silvery-beige sericitic biotite pseudomorphs altering to limonite +/- manganese oxide, very trace fragments where can barely see a black biotite core; soft, milky-beige free and in situ clay altered k-spar phenocrysts; manganese oxide coating on sericitic biotite pseudomorphs; no secondary quartz or stockwork; moderately calcareous, C2, just slightly less than LAQM units, a bit slower to react; ~trace pyrite, (could be underestimated due to manganese oxide on biotite) as very fine < ¼ mm: disseminated specks of manganese oxide.
22.0	24.2	LQM	C3 S1 Greeny-brown to orange-brown weak to strong pervasive limonite altered monzonite, same as 11.0-13.0 and 13.5-20.0 m, see previous descriptions.
24.2	30.0	LAQM	C2 TrP4 Orange-tan, moderate to strongly pervasive limonite altered monzonite; same opaque, sugary-looking (recrystallized) feldspar-sericite rich matrix throughout, but alteration intensifies downhole with more destruction of texture; 24-26 m have well-defined, anhedral, milky white, soft clay altered k-spar phenocrysts, 26-28, less defined, 28-30, almost completely altered till sugary-siltstone looking; faint silica-white sericitic biotite pseudomorphs throughout, less defined towards 30.0 m; unit stands out in unwashed tray, with lighter pale orange colour, amongst darker average units; moderately calcareous, C2; a few fragments < 1% of light-grey-white AQM fragments; no secondary quartz or stockwork, 28-30 very trace clear quartz micro-veinlet; trace very fine (1/8 mm) – fine (< ¼ mm) disseminated anhedral specks and blebs of pyrite, P4, altered to manganese oxide and some limonite,.
30.0	33.9	LAQM	C3 S1 2P3 Dark orange, strong to intense pervasive limonite altered monzonite; "limonite-rich"; moderate preservation of texture, with orange limonite altered shreds; sub to anhedral hexagonal of sericitic altered biotite, and faint outlines of orange limonite altered k-spar; intense limonite altered; stand out in brown orange opaque-translucent-looking matrix; strongly calcareous, C3; no quartz eye; trace S1 quartz micro-veinlet, milky in nature, stained with limonite; a few fragments 32-34 m, look very weakly silica flooded; 1-3% pyrite, occurring as fine (< ¼ mm) disseminated anhedral blebs, oxidized ranges from P2-P4, so ~P3 overall.
33.9	34.2	ARGG	S1 Sk 1P3 Thin unit < 30 cm of black, hard, angular graphitic argillite; strong cloudy S1 quartz veinlet/micro-veinlet stockwork; patchy orange and dark red limonite; ~1% pyrite, P3, altering to limonite, as fine (< 1/4 mm) sub to anhedral blebs and cubes of pyrite (a lot as inclusions) in or near quartz veins; non-calcareous.
34.2	36.0	LAQM	C3 S2 Sk 3P4 Dark orange strong to intense limonite altered monzonite, same as 30.0-33.9 m; weak S2 quartz veinlets as in situ fragments and free fragments of light grey cloudy quartz, can see some stockwork of micro-veinlets; ~3% pyrite as fine (< ¼ mm) to coarse (< ½ mm) disseminated sub to anhedral blebs and cubes of pyrite, mostly P4, some P3-P2, altering to manganese oxide and limonite.
36.0	43.5	LAQM	C3 S2 Sk 2P3 Pale orange-tan, moderate pervasive limonite altered monzonite; groundmass appears to have been bleached; fairly opaque, sugary-looking matrix (kinda siltstone looking); weak preservation of texture with sub to anhedral beige hexagonal and shreds of sericitic altered biotite pseudomorphs and phenocrysts, stained with orange limonite; strong S2 cloudy-grey (sulfide-rich?) quartz veinlet and micro-veinlet stockwork, free fragments of quartz as well as in situ pieces and micro-veinlets, some silica flooding, more S1, but could be S2 flooding from 40-42 m; stockwork could be borderline S3 from 40-42; 1-3%

			pyrite occurring as fine (< ¼ mm) to coarse (< ½ mm) disseminated anhedral blebs and more granular-massive blobs, oxidized variable from P2-P3, most P3, some P4, oxidized to limonite and manganese oxide increasing to pyrite towards lower contact.
43.5	44.1	ARGG	S2 Sk TrP4 Black, hard, angular fragments of graphitic argillite; S2-S3 cloudy quartz veinlet/micro-veinlet stockwork, weak silica flooding; non-calcareous; trace patchy orange limonite in and around veins and on surfaces, pyrite? – trace pyrite, P4.
44.1	45.9	LAQM	C2 S1 Sk 1P3 Orange-tan, moderate-strong pervasive limonite altered monzonite, same texture as 36.0-43.5, see previous description; a bit less calcareous, C2, than before; less quartz veinlet stockwork and pyrite, S1; ~1% pyrite, as very fine (< 1/8 mm) to fine (< ¼ mm) disseminated anhedral blebs and specks; variable oxidized from P2-P4, to limonite and manganese oxide, therefore, average P3.
45.9	49.0	ARGG	Black, hard, angular fragments of graphitic argillite; very weak S1 quartz veinlets, some segmented; non-calcareous; good graphitic lustre; < 1% fragments of LAQM, continued from above; non-calcareous; very few fragments with patchy limonite, alteration close to pyrite?, very trace fine disseminated pyrite, P4.
49.0	56.0	SST	80:20 ARGG S1 Sk Predominantly medium-dark grey, fine, uniform, calcareous siltstone, Steel Formation; moderate S1 milky-cloudy quartz veinlet/micro-veinlet stockwork; weak to moderately calcareous, C1-C2; trace fine (< ¼ mm) disseminated cubes and blebs of pyrite, P1-P2, some P3; ~20% fragments of ARGG (especially 52-54) where ARG interbed has S3 quartz stockwork and silica flooding; lesser ARG in other intervals; overall weak limonite, as patchy soft orange clay? On some surfaces, as staining of micro-veinlets, as in and staining of ARGG stockwork, and trace even fracture coatings.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2225

NORTHING : 19336.5 EASTING : 23352.7 ELEVATION : 841.8

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.20	OB	=> LAQM+ARGG C2 S1 TrP4
4.20	20.00	LAQM	C3 S1 1P4
20.00	22.10	LAQM	C3 S1 2P4
22.10	29.00	LAQM	C3 2P3
29.00	40.00	LAQM	C3 1P4
40.00	42.10	LAQM	C2 S2 Sk 4P4
42.10	47.00	LAQM	C3 S1 Sk 3P4
47.00	55.50	LAQM	C2 S1 1P3
55.50	61.00	ARGG	S2 Sk Ft*
61.00	62.10	LAQM	C1 S1 1P3
62.10	63.90	SST	70:30 ARGG S1 Sk
63.90	64.20	LAQM	C1 5P3
64.20	70.00	SST	70:30 ARGG S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2225

NORTHING : 19336.5 EASTING : 23352.7 ELEVATION : 841.8

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.21	P4	C1	S1	DRY
2.00	4.00	.18	P4	C2	S0	DRY
4.00	6.00	3.54	P4	C2	S0	DRY
6.00	8.00	.53	P4	C3	S0	DRY
8.00	10.00	.19	P4	C2	S0	DRY
10.00	12.00	.85	P4	C3	S1	DRY
12.00	14.00	.39	P4	C3	S1	DRY
14.00	16.00	1.79	P4	C3	S1	DRY
16.00	18.00	.66	P4	C3	S1	DRY
18.00	20.00	.49	P4	C3	S1	DRY
20.00	22.00	2.22	P4	C3	S1	DRY
22.00	24.00	2.33	P4	C3	S1	DRY
24.00	26.00	1.25	P3	C2	S1	DRY
26.00	28.00	.73	P3	C3	S0	DRY
28.00	30.00	.25	P3	C3	S0	DRY
30.00	32.00	.11	P4	C3	S1	DRY
32.00	34.00	.74	P4	C3	S0	DRY
34.00	36.00	.17	P4	C3	S0	DRY
36.00	38.00	.44	P4	C3	S0	DRY
38.00	40.00	.19	P4	C3	S0	DRY
40.00	42.00	.95	P4	C2	S2	DRY
42.00	44.00	.14	P4	C3	S1	DRY
44.00	46.00	.34	P3	C3	S1	DRY
46.00	48.00	.29	P3	C3	S1	DRY
48.00	50.00	.89	P3	C3	S1	DRY
50.00	52.00	.81	P3	C2	S1	DRY
52.00	54.00	1.27	P3	C2	S1	DRY
54.00	56.00	.22	P3	C2	S1	DRY
56.00	58.00	.07	-1	C0	S2	DRY
58.00	60.00	.08	-1	C0	S2	DRY
60.00	62.00	1.34	P3	C1	S1	DRY
62.00	64.00	.35	-1	C1	S1	DRY
64.00	66.00	.37	P3	C1	S1	DRY
66.00	68.00	.07	-1	C0	S1	DRY
68.00	70.00	.08	-1	C0	S1	DRY

0.0	4.2	OB	=>LAQM +ARGG C2 S1 TrP4 Fill/OVB, not noted by drill tech; 0-4m, large fragments up to 1.5 cm, typical of fractured overburden; 0-2 m, slightly soil-rich; no organics; mixed lithologies, mostly LAQM, with some ARGG, but many different varieties of LAQM; LAQM: orange-brown to orange-tan to brick red, moderate to strongly pervasive limonite altered monzonite; weak to moderate preservation of textures; biotite completely altering to sericite to +/- limonite, k-spars alteration to sericite/clay altering to +/- limonite; pseudomorphs and phenocrysts are mostly altered to limonite and seen as patchy orange anhedral shreds, but occasional silica-white sericitic biotite pseudomorphs (sub-to anhedral shape) and milky white, moderately defined, anhedral blob of k-spar; opaque sericite-feldspar matrix; weak clear veinlets/micro-veinlets and fragments of quartz; trace very fine to fine (< ¼ mm) disseminated anhedral blebs and specks of pyrite, P4, altered to manganese oxide and limonite moderately calcareous, C2. ARGG: black hard angular fragments of graphitic argillite; weak S1 quartz veinlet/micro-veinlets; patchy limonite on a few surfaces.
4.2	20.0	LAQM	C3 S1 1P4 Orange-brown strong pervasive limonite altered monzonite; strong, even, pervasive limonite staining; dull, earthy, sugary-looking, opaque, feldspar-rich groundmass; mostly biotite altered to limonite (biotite altering to sericite, altering to limonite) mixing in with groundmass, but can see faint anhedral hexagons and shreds occasionally; most fine texture destroyed but a moderate amount of creamy-milky, weakly +/- clay altered anhedral k-spar phenocrysts, fairly well-defined contrasting with dark matrix; no quartz eyes; strongly calcareous, C3; weak clear S1 quartz veinlets/micro-veinlets, some stained with limonite, no stockwork; trace ~1% pyrite, occurring as fine << ¼ mm) disseminated anhedral blebs, mostly P4, some P3-P4 from 14-20 m, oxidized to limonite and manganese oxide; minor disseminated blebs of manganese oxide, on quite a few fracture surfaces, was no pyrite?, (dendritic and stuff); a few fragments of light grey AQM, on altered cores, <1%; a very thin unit of clay altered, milky groundmass, patches of manganese oxide <0.1m? to large clay altered k-spar phenocrysts?
20.0	22.1	LAQM	C3 S1 2P4 Dark orange-red, intensely pervasive limonite altered monzonite; strong, even staining, similar to LAQM above, but more limonite alteration ; earthy, opaque, sugary-looking matrix; texture largely destroyed, trace limonitic and silvery shreds of biotite and k-spar, less milky k-spars, than LAQM unit above; strongly calcareous, C3; weak S1 quartz veinlets/micro-veinlets, not stockwork, as clear and cloudy-grey (sulfide-rich) fragments and insitu veinlets; ~2% pyrite?, occurring as fine to coarse (< ½ mm) anhedral blebs and blebs, oxidized to manganese oxide and limonite; minor amount of manganese oxide as disseminated fracture coatings, not associated with pyrite.
22.1	29.0	LAQM	C3 2P3 Bright orange-tan, moderately pervasive limonite altered monzonite; opaque, slightly sugary-looking matrix, appears to have been bleached before limonite staining; staining is less even and a bit more patchy; moderate preservation of textures; with silvery-white +/- limonite stained (most) sericitic biotite pseudomorphs and faintly defined limonite altered k-spars; no quartz eye; strongly calcareous, C3; very trace secondary quartz as trace clear quartz micro-veinlets, no stockwork, no silica flooding; over ~2% pyrite, oxidized to limonite with some manganese oxide, P3-P4 borderline occurring as fine (< ¼ mm) to coarse (< ½ mm) disseminated sub to anhedral blebs of pyrite.

29.0	40.0	LAQM	C3 1P4 Orange and orange-brown, strongly pervasive limonitic altered monzonite; strong, even, dull, earthy, limonite staining of groundmass (can get quite strong); fairly poor preservation of texture with rare insitu milky-creamy, anhedral, clay altered k-spar phenocrysts and faint outlines of limonite shreds and silica-white altering to limonite sericitic anhedral biotite pseudomorphs; strongly calcareous, C3; a few fragments slightly bleached from 34-36m; feldspar-sericite rich matrix; 1-2% fine (< ¼ mm) to coarser (< ½ mm) disseminated sub-anhedral blebs, some of oxidized pyrite, P4, mostly to limonite, some to manganese oxidized pyrite, P4, mostly to limonite, some to manganese oxide; no secondary quartz or silica flooding, very trace clear, jagged insitu quartz from 30-32m, but that is it.
40.0	42.1	LAQM	C2 S2 Sk 4P4 Orange to orange –tan, moderately pervasive limonite altered monzonite; less even limonite staining than LAQM above, some fragments appear to have been bleached before staining; weak to moderate preservation of texture; faint to moderately defined +/- limonite stained, sericitic altered biotite and k-spar (biotite and k-spar completely altering to sericite, altering to limonite) pseudomorphs and phenocrysts; weak to moderate S2 quartz veinlet/micro-veinlet stockwork as cloudy-grey (sulfide-rich) quartz, as insitu veinlets and free fragments; weak silica flooding; weak silica flooding, more S1; moderately calcareous, C2; ~4% fine (< ¼ mm) disseminated anhedral to subhedral blebs and cubes; oxidized, P4, to both limonite and manganese oxide.
42.1	47.0	LAQM	C3 S1 Sk 3P4 Creamy-beige to tan-orange weak to moderate pervasive limonite altered monzonite; creamy-milky "bleached" opaque feldspar-rich groundmass with weak to moderate pervasive limonite staining; intensity of limonite stained groundmass increases downhole from very weak to moderate; almost all biotite is altered to orange limonite shreds or sub to anhedral silvery-white sericitic pseudomorphs with limonite cores; a few outlines of sericitic altered anhedral k-spar phenocrysts; very trace (< ½ mm) quartz eye; 3-4% pyrite, P3-P4, altering to manganese oxide and limonite; weak S1 quartz veinlet/micro-veinlets, as fragments of grey-cloudy (sulfide-rich quartz) stockwork?
47.0	55.5	LAQM	C2 S1 1P3 Orange to dark orange/red, moderate to strong pervasive limonite altered monzonite; fairly even, limonite staining; especially strong from 50-53 m; fairly moderate preservation of texture with patch orange and silica sub-anhedral blebs and shreds of limonite altered biotite and k-spar; biotite completely altered to sericite, altering to limonite, k-spar completely altering to sericite to limonite; no quartz eye; both opaque-sugary-looking groundmass, to weakly translucent-looking; weak to moderate S1 clear and cloudy-grey quartz veinlet/micro-veinlets, as insitu micro-veinlets and fragments; weak silica flooding of a few patches; ~1% fine (< ¼ mm) disseminated sub-anhedral blebs/cubes of pyrite, P3, some P2 and P4, alteration to limonite and manganese oxide; moderately calcareous, C2-C3.
55.5	61.0	ARGG	S2 Sk Ft* Black, hard, angular fragments of graphitic argillite; more equant shaped fragments, not platy; relatively good graphitic lustre; moderate S2 quartz veinlet/micro-veinlet stockwork of clear to cloudy quartz, as insitu micro-veinlets and free fragments of quartz; non-calcareous; trace limonite blebs in or around quartz veins, very, very trace pyrite altering to limonite; 58-60 very poor recovery (~ ¼ of tray full), most likely a fault; appears to be a brecciated contact with lower LAQM, angular clasts of ARG in LAQM.

61.0	62.1	LAQM	C1 S1 1P3 Orange to dark orange, moderate to strongly pervasive limonite altered monzonite; fairly poor preservation of texture, biotite and k-spar altering to sericite, altering to limonite; S1 quartz veinlet/micro-veinlets (stockwork?) as grey-cloudy (sulfide-rich?) fragments and trace clear insitu jaggedy quartz; weakly calcareous, C1; 1% pyrite occur as very fine to fine (1/8 – ¼ mm) disseminated specks and anhedral blebs of pyrite P2-P3, altering to limonite.
62.1	63.9	SST	70:30 ARGG S1 Sk Dark grey to tan (weak pervasive limonite) fine, uniform, calcareous Steel Formation Siltstone; weakly calcareous, C1; relatively platy; can see trace fine bedding laminations; no quartz stockwork, but dark grey to black, very fine, thin micro-veinlets; some stockwork, pyrite veins? Interbedded with ~30% fragments of black, hard, angular graphitic argillite, S1, Sk; very trace fine disseminated pyrite, P4.
639.	64.2	LAQM	C1 5P3 Creamy-tan to pale orange, weakly pervasive limonite altered monzonite; moderately texture as biotite and k-spar altered to red and orange patchy limonite blebs, stand out in less altered feldspar-rich groundmass; ~5% pyrite as very fine to fine (1/8 – ¼ mm) disseminated sub to anhedral blebs and cubes of relatively oxidized pyrite, P3 alteration to limonite.
64.2	70.0	SST	70:30 ARGG S1 Tan to grey, fine, uniform, calcareous siltstone interbedded with ~30% fragments of hard, black, angular graphitic argillite, same as 63.9-64.2 m; quartz veinlets/micro-veinlets, mostly in ARGG; trace dark grey sulfide micro-veinlets?

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2226

NORTHING : 19329.4 EASTING : 23302 ELEVATION : 832.8

MAXDEPTH : 62 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	5.50	OB	=>90 LAQM:10 ARGG C1 P4
5.50	13.50	LAQM	S1 Sk P4
13.50	14.00	FT	=>LAQM
14.00	16.20	LAQM	C2
16.20	20.00	LSST	60:40 SST C2
20.00	21.50	ARG	:SST +Lm S2 Sk Bx
21.50	29.00	LAQM	C3
29.00	40.00	LAQM	C3 S1 Sk P4
40.00	47.90	LAQM	S2 P4 Sb
47.90	49.00	ARG	+Lm
49.00	49.50	BX	=>SST:ARG C1
49.50	50.60	LAQM	C1 S3 Sk 5P1 Sb
50.60	52.10	SSTS	:ARG S3
52.10	56.10	LAQM	C2 S3 Sk 5P1 Sb
56.10	62.00	ARGG	80:20 SST C2 S1 Sk

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2226

NORTHING : 19329.4 EASTING : 23302 ELEVATION : 832.8

MAXDEPTH : 62 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.24	P4	C1	S0	DRY
2.00	4.00	.13	P4	C1	S1	DRY
4.00	6.00	.18	P4	C1	S1	DRY
6.00	8.00	.54	P4	C0	S1	DRY
8.00	10.00	.76	P4	C0	S2	DRY
10.00	12.00	.47	P4	C0	S1	DRY
12.00	14.00	.53	P4	C0	S1	DRY
14.00	16.00	.08	P4	C2	S0	DRY
16.00	18.00	.03	P4	C2	S1	DRY
18.00	20.00	.12	P4	C2	S1	DRY
20.00	22.00	.07	P4	C3	S3	DRY
22.00	24.00	.32	P4	C3	S1	DRY
24.00	26.00	2.04	P4	C3	S1	DRY
26.00	28.00	.30	P4	C3	S1	DRY
28.00	30.00	.78	P4	C3	S1	DRY
30.00	32.00	.69	P4	C3	S1	DRY
32.00	34.00	.86	P4	C3	S2	DRY
34.00	36.00	.67	P4	C3	S1	DRY
36.00	38.00	.85	P4	C3	S1	DRY
38.00	40.00	1.40	P4	C3	S1	DRY
40.00	42.00	.50	P4	C0	S1	DRY
42.00	44.00	1.46	P4	C0	S2	DRY
44.00	46.00	.53	P4	C0	S2	DRY
46.00	48.00	.78	P4	C1	S2	DRY
48.00	50.00	.24	P4	C1	S2	DRY
50.00	52.00	1.93	-1	C1	S3	DRY
52.00	54.00	.50	P1	C2	S2	DRY
54.00	56.00	.38	P1	C2	S2	DRY
56.00	58.00	.14	-1	C1	S1	DRY
58.00	60.00	.08	-1	C1	S1	DRY
60.00	62.00	.12	-1	C1	S3	DRY

0.0	5.5	OB	=>90 LAQM:10 ARGG C1 P4 Overburden, as determined by drill site technician; note: dry, normal-looking, crushed rock samples are not typical of OB; could be pad fill or colluvium. Mixed lithologies; mostly monzonite with ≥ 10% sediments (argillite, shale and siltstone). LAQM: orange to pink-red; excellent original textures; biotite altered to silver and orange sericitic masses and pseudomorphs; variable sericitization of feldspar-rich matrix; weakly calcareous; minor manganese oxide lines fractures, partially coats some former biotite and creates fine tracings on white, clay altered k-spar crystals; trace to > 5% pyrite – as manganese oxide coated fine grained flecks (occasionally after biotite) and dark red to orange, rounded, disseminated limonite flecks. ARGG: mostly hard, black carbonaceous argillite and siltstone; minor bleached-looking, soft, platy shale-like fragments; forms approximately 35% of 2.0-4.0m interval; weak milky, quartz veining.
5.5	13.5	LAQM	S1 SK P4 Rich dark orange and red-orange limonitic altered quartz monzonite; rock breaks along grain boundaries into small (1-3mm) chips that grossly reflect original textures; phyric k-spar crystals ≤ 4mm, clay altered and partially coated with manganese oxide, lack strong pervasive limonitic staining and are decreasingly common to end of interval, feldspar-rich matrix retains sub-vitreous to pearly luster and sub-translucence; weak sericitization locally; former biotite altered to red-orange and orange sericitic masses and pseudomorphs that are very commonly partially coated with spotty manganese oxide that typically remain in situ; non-calcareous. Weak to locally stronger, pervasive silification – closely associated with those chips in which limonitic staining is strongest; completely silicified fragments lose original textures and behave as quartz; weak quartz stockwork – most veinlets are clear to cloudy, are very rarely limonite-stained and ≤ 1mm; quartz flooding and veinlets aren't strongly associated with sulfidation. Trace to >5% pyrite, most commonly as sub-cubic manganese oxide-coated flecks ≤ 1/6mm that appear secondary after former biotite – occur in cores of and along rims of sericitized biotite; black to dark purple limonite cubes and flecks ≤ 1/4mm are also disseminated throughout. Very rare cloudy quartz eyes ≤ 3mm appear secondary – rare, but more common near lower contact. Very transitional contact.
13.5	14.0	FT	=> LAQM Pale orange to yellowish orange monzonite; bleached, weakly to moderately argillically altered intrusive remains in good textural shape; not calcareous, high clay content in unwashed sample and bleached nature of washed rock suggest that this might represent a fault; not silicified; not calcareous; minor oxidized sulfides.
14.0	16.2	LAQM	C2 Monzonite; mottled colour – cream, grey-orange, orange-brown etc; original textures very well preserved; feldspar-rich matrix ranges from creamy and opaque (sericitized) to greyish and translucent; strong orange and black speckling due to abundance of limonite-stained sericitic pseudomorphs of biotite and abundant black manganese oxide as partial to complete replacement, manganese oxide also occurs as fine tracings on larger, whitish clay altered k-spar crystals; appearance resembles leopard spots; moderately calcareous; not silicified; very rare oxidized sulfides at cores of altered biotite.
16.2	20.0	LSST	60:40 SST C2 Steel Formation siltstone; deep orange to light grey; fragments that lack pervasive limonitic staining always have limonitic surfaces; small platy

fragments; not silicified; rare cloudy quartz veinlet fragments ≤ 2mm; most dominant alteration is the abundance of flowery to dendritic; mm-scale splotches of manganese oxide on all surfaces (bedding/cleavage, fractures), giving rock a strong leopard spot-like appearance – easily viewed without microscope; rare oxidized pyrite cubes ≤ 1/5mm on the rare planar surface; rock gets very weird-looking near 'contacts'.

20.0 21.5 ARG :SST +Lm S3 SK Bx

Dark grey and black argillite, chert-like argillite and variable and difficult to estimate Steel formation SST; intense pervasive silification and multiphase clear, mm-scale quartz stockwork; quartz healed microbrecciation is common; most surfaces with significant, earthy limonite coating; leopard spotty manganese oxide is very common, especially on SST; moderately calcareous; rare visible sulfides.

Note: wild-looking brecciated, jumbly rock – totally screwed up due to contact effects.

21.5 29.0 LAQM C3

Dark orange limonitic altered quartz monzonite; weakly feldspar-phyric – white, clay altered, manganese oxide patterned k-spar crystals ≤ 3mm are only occasionally viewed in situ; fine grained feldspar-rich matrix is very strongly sericitized – opaque, micro-granular recrystallized appearance accompanied by yellow-orange, shiny micaceous coating on many fragments; all biotite altered to orange, sericitic shreds that blend with other sericite but occasionally grossly retain original crystal form; manganese oxide is very common – forms coating on rough and planar fractures, partially to nearly completely coats former biotite, forms fern frond-like and dendritic tracings on k-spar and coats some former sulfides; manganese oxide is decreasingly abundant; minor modal quartz, but slightly higher content than is typical for this zone – rare non-phyric clear quartz eyes 1-2mm; very rare quartz veinlets; trace pyrite–oxidized to coated – as rare disseminated cubes ≤ 1/6mm and as mm-scale clots of ultrafine pyrite that replaces some former biotite; strongly calcareous – rolling reaction to HCl from unwashed sample.

Transitional into:

29.0 40.0 LAQM C3 S1 SK P4

Dark orange to red-orange monzonite; ≤ 25% chips with very strong pervasive hematitic staining – scattered throughout.

Quartz-poor, feldspar-rich, fine-grained equigranular matrix – increasingly sericitized so original textures become blurred and chips develop a homogeneous appearance; chips that are intensely sericitized and argillically altered are opaque, crumbly, lack original textures, sucrosic and associated with manganese oxide – incompetent; all chips have powdery, felted sericite (and/or carbonate) coating; ubiquitous fine manganese oxide throughout (<5 to 10%); deep red hematitic chips are silicified, sericitized and manganese oxide-rich – slightly more vitreous luster; these chips contain trace to >7% manganese oxide-coated and dark red-purple oxidized cubes ≤ 1/4mm – former sulfides are best viewed in these chips as quantities are more difficult to estimate elsewhere; rare quartz veinlet fragments (sub-mm) contain minor quantities of ultrafine disseminated fresh stibnite; strongly calcareous.

36.0-38.0m: sub-cm argillite fragments caught up within locally silicified intrusive.

Note: this rock is very juicy-looking locally; the gold grade is likely to be represented as broad areas of low-grade with occasional spikes.

40.0 47.9 LAQM S2 P4 Sb

Rich, very dark red to orange-red monzonite; similar to 29.0-40.0m but matrix is not calcareous; strong pervasive silification throughout – discrete quartz veinlets and veinlet fragments are rare and are more commonly viewed toward

			the lower contact; sub-cm quartz veinlet fragments contain fresh massive to fine-grained disseminated stibnite; excellent vitreous luster; original textures are usually preserved; all biotite altered to unrecognizable sericite that blends with abundant modal sericite after feldspar; all chips have discon? to complete wispy orange sericite coating; ≤ 50% of surface area coated with fine speckles of manganese oxide; all pyrite altered to dark red-purple limonitic specks – unable to estimate quantity as only few chips show evidence of former sulfides – due to intensity of staining the quantity might have been quite high. (Delicious-looking rock. I hope it kicks butt!)
47.9	49.0	ARG	+Lm Black silty argillite; siliceous; rough surfaces completely coated with orange-stained sericitic material.
49.0	49.5	Bx	=> SST:ARG C1 Breccia; weird-looking Steel Formation siltstone and argillite breccia as is commonly seen throughout Bohemian zone, especially near the east. Angular to sub-angular, calcareous, mm-scale Steel Formation siltstone fragments within a black argillite and/or silica matrix; resemble gumdrop nougat; variably matrix and clast supported; limonitic fractures, rare SST clast with weak pervasive limonitic staining.
49.5	50.6	LAQM	C1 S3 SK 5P1 Sb Rich bright orange monzonite; intensely silicified and sericitized; original textures muted due to pervasive silification; one chip resembles breccia; excellent vitreous luster; discrete quartz veinlets and veinlet fragments are rare; ≥ 3% ultrafine (<<1/4mm) sub-cubic red limonite flecks after disseminated pyrite; trace fresh disseminated stibnite in quartz blob; rare manganese oxide. (Yum.)
50.6	52.1	SSTS	: ARG S3 Intensely, pervasively silicified Steel Formation siltstone and non-graphitic, silty, siliceous argillite; minor brecciation; weak pervasive limonitic staining locally; very weakly calcareous; no sulfides; pervasive limonitic staining in SST at lower contact.
52.1	56.1	LAQM	C2 S3 SK 5P1 Sb Rich, bright orange monzonite as 49.5-50.6m; strong, even pervasive limonitic staining of feldspar-rich but very strongly to intensely pervasively silicified matrix; textures are destroyed where silification is strongest but improve to lower contact; excellent vitreous to pearly luster; strongly calcareous, but best reaction to HCl comes from unwashed sample; biotite altered to soft orange sericitic pseudomorphs and masses; matrix is only weakly sericitized locally; ubiquitous but minor manganese oxide – usually discontinuous coating on fractures. Transitional rock; contains >5% disseminated pyrite ≤ 1/4mm and finer pyrite as replacement of biotite – only very weakly tarnished and very, very rarely completely altered to limonite; disseminated acicular and micromassive stibnite within quartz and quartz veinlet fragments ≤ 3mm. This rock is great-looking except for nature and oxidation state of sulfides; strong structure?
56.1	62.0	ARGG	80:20 SST C2 S1 SK Graphitic argillite (to siltstone) with ≤ 20% grey to dark grey Steel Formation siltstone; gradational transition into quartz flooded and stockworked graphitic argillite with only minor SST; occasional limonitic patches; SST is calcareous; no significant sulfides; 58.0-60.0m is soft and bleached-looking.

EOH = 62.0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2227

NORTHING : 19357.8 EASTING : 23305.1 ELEVATION : 826

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.50	OB	=>LAQM+ARG C1 S1 TRP4
8.50	11.50	LAQM	C1 TRP4
11.50	18.00	LAQM	C1 S3 Sk 2P4
18.00	24.00	LAQM	C3 S1 Sk 1P4
24.00	32.00	LAQM	S2 Sk 3P4
32.00	35.80	LAQM	C2 S2 Sk 1P4 Qe
35.80	40.00	AQM	80:20 LAQM C3 S1 Sk 2P3
40.00	45.20	LAQM	C1 S2 Sk 1P4
45.20	46.00	ARGG	
46.00	49.50	SST	+Lm C1 2P1
49.50	53.00	LAQM	C1 S1 Sk TRP3
53.00	54.00	SST	C1
54.00	56.00	ARGG	Ft*
56.00	58.50	SST	+Lm C1 S1 Sk
58.50	60.00	LAQM	C1 3P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2227

NORTHING : 19357.8 EASTING : 23305.1 ELEVATION : 826

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.33	P4	C1	S1	WET
2.00	4.00	.27	P4	C1	S0	WET
4.00	6.00	.21	P4	C1	S1	DRY
6.00	8.00	.13	P4	C0	S1	DRY
8.00	10.00	.10	P4	C1	S0	WET
10.00	12.00	.38	P4	C1	S1	WET
12.00	14.00	3.34	P4	C1	S3	WET
14.00	16.00	8.30	P4	C1	S3	DRY
16.00	18.00	8.19	P4	C2	S3	DRY
18.00	20.00	1.84	P4	C3	S1	DRY
20.00	22.00	1.28	P4	C3	S1	DRY
22.00	24.00	.94	P4	C2	S1	DRY
24.00	26.00	4.41	P4	C0	S2	DRY
26.00	28.00	6.95	P4	C0	S3	DRY
28.00	30.00	1.01	P4	C0	S2	DRY
30.00	32.00	.82	P3	C2	S2	DRY
32.00	34.00	.57	P4	C2	S2	DRY
34.00	36.00	.69	P4	C2	S2	DRY
36.00	38.00	.66	P3	C3	S1	DRY
38.00	40.00	.35	P3	C3	S1	DRY
40.00	42.00	.15	P4	C1	S2	DRY
42.00	44.00	.12	P3	C1	S2	DRY
44.00	46.00	.08	P3	C0	S1	DRY
46.00	48.00	.05	-1	C1	S0	DRY
48.00	50.00	.06	P1	C2	S0	DRY
50.00	52.00	.27	P3	C1	S1	DRY
52.00	54.00	.07	P3	C1	S1	DRY
54.00	56.00	.09	-1	C0	S0	DRY
56.00	58.00	.03	-1	C1	S1	DRY
58.00	60.00	.13	P2	C1	S1	DRY

0.0	8.5	OB	=>LAQM +ARG C1 S1 TrP4 6.0 m of overburden determined by drill technician, actually 8.5 m of OVB/Fill; 0-4.0 m of unwashed tray wet and muddy, 6-8 m dry and silty; all minor organics, 0-4 m weak to moderate soil-rich; large fragments up to 1.5 cm;, typical of fractured OVB and Fill; 8-10 m trace fragments of ARG; consists mostly of LAQM and ARG. LAQM: Predominant, weak to moderate pervasive limonite altered monzonite, a few fragments with stronger pervasive limonite; mostly tan-orange to tan-brown in colour; opaque, feldspar-rich matrix; biotite 100 to sericite to limonite and manganese oxide; k-spar to clay and sericite to limonite; matrix, usually less altered than phenocrysts and pseudomorphs; very weakly calcareous, C1; trace clear-cloudy quartz micro-veinlets; trace –1% (on a few fragments) fine (< ¼ mm) disseminated sub-anhedral blebs of pyrite, P4, altered to manganese oxide and limonite; minor manganese oxide alteration of sericitic biotite pseudomorphs; ARG: hard, black angular fragments of non-graphitic, non-calcareous, fine argillite; weak-moderate milky S1 quartz veinlet/micro-veinlet stockwork; not much limonite alteration.
8.5	11.5	LAQM	C1 TrP4 Light brown, weak to moderate pervasive limonite altered monzonite; very good preservation of texture with abundant orange-dark orange 1) limonitic altered biotite laths 2) and limonite altered silvery – sericitic biotite pseudomorphs, standing out in a weak limonitic, grey translucent-looking sericite-quartz rich groundmass; strong limonite alteration of phenocrysts gives fragments weak-moderate limonitic hue; faint to lesser defined, cream, shimmery, soft sericitic altered k-spar phenocrysts; no quartz eyes; looks like even staining, but not really up close; very weakly calcareous, C1; no secondary quartz or stockwork; very trace fine < ¼ mm disseminated anhedral blebs of pyrite, P4; alteration to dark red limonite.
11.5	18.0	LAQM	C1 S3 Sk 2P4 Dark brown, dark orange and mostly dark red intense limonite altered monzonite; very strong, even, limonitic staining; almost all texture is completely destroyed; very rare k-spars, mostly form 16-18 m, as moderate , white-cream, milky, soft, sericite altered phenocrysts; not really any sense of biotite texture, all altered limonite to blends in with groundmass; matrix variable from in opaque, sugary-looking to cloudy weakly-translucent-looking; no quartz eyes; strongly silicified unit, with ~30-40% cloudy quartz veinlet/micro-veinlet stockwork and silica flooding; seen as 1) cloudy grey quartz (sulfide-rich?) "loose" fragments; 2) cloudy grey quartz in situ stockwork of micro-units 3) cloudy and translucent looking silica flooding, distinguishable fragments cause very weak preservation of previous biotite and/or k-spar; 1-3% pyrite, largely underestimated, I'm sure, but hard to find pyrite with dark-red limonite-rich groundmass; can see occasional faint dark red very fine to fine (1/8 –1/4 mm) disseminated speck anhedral bleb; P4, oxidized to limonite; pyrite tending to increase downhole of the unit; weakly calcareous, C1; more C2 from 16-18m. – gold!!
18.0	24.0	LAQM	C3 S1 Sk 1P4 Limonite alteration of unit quite variable, but picked out as a veinlet for a few consistent and similarities 1) light tan brown color of unwashed samples 2) moderate-strong calcareous, reaction, C2, C3; 3) abundant, white, milky, opaline-like, sub-anhedral, well detected, weakly clay altered k-spar phenocrysts 4) patchy variable limonite alteration and color – ranges from tan to brown to dark brown to orangy-red brown 5) less, but not absent, silicification compared to surrounding units 6) opaque, sugary looking groundmass; limonite alteration ranges from weak to moderate strong; very little to no preservation of altered bitotite texture; no quartz eyes; weak-moderate S1 quartz veinlet/micro-veinlet

			stockwork, seen mostly as cloudy and clear loose fragments, not many in situ veinlets at all; weak silica flooding in dark brown fragments?; pyrite variable depends on extent of limonite alteration of fragments – brown and tan fragments very trace pyrite as fine < ¼ mm blebs oxidized to limonite and manganese oxide, but orange-red fragments up to 3-5% fine sub-anhedral limonite altered blebs (~20% of fragments in each tray).
24.0	32.0	LAQM	S2 Sk 3P4 Orange, red, and grey fragments of very strong pervasive limonite altered monzonite; limonite staining strong and fairly even; very little preservation of texture, most destroyed by strong limonite and silica alteration; quite similar to 11.5-18.0 m, with very rare milky-creamy, soft sericitic altered k-spar phenocrysts, lack of biotite texture (soft orange, anhedral blebs in some fragments – more 24-26 and 28-30 m) and opaque to weakly translucent-looking, sugary groundmass; no quartz eyes; non-calcareous; S2-S3 cloudy (sulfide-rich) quartz veinlet/micro-veinlets (26-28 m S3 cloudy stockwork and flooding*); 2-3% oxidized pyrite, to dark red limonite as 1) fine sub-anhedral < ¼ mm disseminated pyrite blebs 2) some pyrite veinlet stockwork? (in 26-28m) grey in color, or pyrite veinlet cloudy stockwork with abundant sulfide in quartz?
32.0	35.8	LAQM	C2 S2 Sk 1P4 Qe Orangy-brown, strong pervasive limonite altered monzonite; fairly even limonite staining with barely any preservation of texture; soft orange, anhedral blebs throughout fragments indication of biotite, but completely altered to limonite; k-spars no at all common; < 1% small ½ - ¾ mm sub-rounded , lumpy, clear quartz eyes; opaque, sugary looking groundmass; moderate calcareous, C2; moderate S2 quartz veinlet/micro-veinlet stockwork seen as 1) loose cloudy quartz fragments (sulfide-rich) some quite dark grey – almost looks like argillite but (saw one or two with Qe and limonite patchy anhedral remnants of biotite and k-spar?; these fragments very silica flooded (note: just looks so much like argillite, but consistent throughout unit and looks exactly the same as in situ dark veinlets – but might not be quartz); trace –2% pyrite, P3-P4, oxidized to limonite and manganese oxide as very fine to fine (< ¼ mm) disseminated sub-anhedral blebs and cubes.
35.8	40.0	AQM	80:20 LAQM C3 S1 Sk 2P3 Predominantly medium grey altered monzonite with ~20% fragments of orange, moderate to strongly pervasive limonite altered monzonite rims – closer to fracture; fairly weak preservation of texture with biotite altered to silica and beige, faint, sericitic altered pseudomorphs; k-spar not common, very trace cream coloured, altered to sericite subhedral phenocrysts; no Qe eyes; (biotite altered to sericite and limonite in LAQM); cloudy translucent looking matrix, sericite-quartz rich; weak S1 quartz veinlet/micro-veinlet (stockwork?); probably since above and below stockwork; seen as cloudy veinlets and thin micro-veinlets; minor replacement of sericitic biotite pseudomorphs with pyrite; 2% pyrite, P3, oxidized to manganese oxide (limonite in LAQM) as fine < ¼ mm disseminated anhedral blebs and replaced blebs.
40.0	45.2	LAQM	C1 S2 Sk 1P4 Orange, strong pervasive limonite altered monzonite; very strong, very even limonite staining; not much texture, abundant orange, soft, anhedral limonite blebs dispersed throughout, most likely was biotite; rare k-spars, faint, limonite stained, altered to sericite anhedral phenocrysts; no quartz eyes; opaque, sugary-looking, feldspar-sericite-quartz rich groundmass; weakly calcareous, C1; weak S2 quartz veinlet/micro-veinlet stockwork ~15% cloudy grey fragments of loose quartz and in situ fragments/veinlets, more S1 towards lower contact; 1-2% pyrite as fine disseminated anhedral blebs < ¼ mm, P3, with oxidation to both limonite and manganese oxide.

45.2	46.0	ARGG	Black, hard, angular, fragments of graphitic argillite; weak patchy limonite on surfaces gives it a brown/grey hue; weak graphitic lustre; no quartz stockwork; no sulfide.
46.0	49.5	SST	+Lm C1 2P1 Multi-coloured, fine, uniform, weakly calcareous Steel Formation Siltstone; ranges in colour from medium dark grey, green-grey, blue-grey and orange-tan towards lower contact, becomes more LSST; orange and yellow limonitic fracture coatings; very weakly calcareous; no quartz stockwork; very weak crude bedding laminations; in very few fragments; variable pyrite form trace – 5% disseminated fresh to slightly tarnished pyrite P0-P1, P3-P4 in LSST fragments and along limonitic fracture, overall ~2% P1?
49.5	53.0	LAQM	C1 S1 Sk TrP3 Creamy-yellowy-orange weak to moderate pervasive "bleached" limonite altered monzonite; opaque, sugary-milky, cream feldspar-rich groundmass; weak preservation of texture with strong orange limonite alteration of biotite shreds, giving matrix a weak orange hue; occasional silver sericitic biotite pseudomorphs to limonite; no quartz eyes; k-spar? difficult to see, sericite altered and blending with groundmass?; a few darker orange limonitic coated fracture; moderate S1quartz veinlet stockwork, with loose fragments of grey-cloudy (sulfide-rich?) quartz, very few in situ fine veinlet stockwork?, will assume it is; weakly calcareous c1; < 1% fragments of argillite? Contamination from above? pod/sliver? are dark smoky quartz?; < 1% pyrite as < ¼ mm disseminated anhedral specks and blebs of pyrite, P3, alteration to both limonite and manganese oxide.
53.0	54.0	SST	C1 Medium-dark grey fine, uniform, weakly calcareous siltstone; weak milky-cloudy S1 quartz veinlet stockwork; trace fresh euhedral pyrite.
54.0	56.0	ARGG	Ft* Dark grey to black, fine to medium, grainy argillite, could be Steel Formation Siltstone, but doesn't have the fine uniform look? but non-calcareous; very poor recovery, < 1/8 of tray full; good graphitic lustre; steel isn't usually graphitic; trace LAQM contamination; poor fault?
56.0	58.5	SST	C1 +Lm S1 Sk Medium-dark grey to tan, fine, uniform, calcareous siltstone; weakly calcareous, C1; moderate to strong S1 quartz micro-veinlet stockwork, milky quartz, many stibnite with orange limonite; patchy limonite fracture surfaces; a few weak crude bedding laminations; no sulfide.
58.5	60.0	LAQM	C1 3P2 Tan-beige to orange weak pervasive limonite altered monzonite; cloudy translucent-looking groundmass with limonite altered biotite shreds and silica sericitic altered biotite pseudomorphs and limonite alteration; rare white, milky euhedral soft, k-spars; no quartz eyes; quartz-sericite rich matrix; no secondary quartz or stockwork; 2-3% fine disseminated sub-anhedral fine < ¼ mm pyrite blebs, P2-P3; alteration to manganese oxide?; weakly calcareous C1.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2228

NORTHING : 19332.8 EASTING : 23255.5 ELEVATION : 827.6

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.80	OB	=>ARGG+LAQM S1 TrP4
8.80	14.10	LAQM	S1 TrP4
14.10	25.80	ARGG	S1 Sk +Lm
25.80	27.80	ARGG	S3 Sk Bx
27.80	29.90	AQM	S4 Sk TrP4
29.90	34.00	LAQM	1P4
34.00	40.00	LAQM	85:15 AQM TrP3
40.00	47.00	LAQM	80:20 AQM C1 1P3
47.00	55.00	QM	80:20 AQM C3 TrP2
55.00	60.50	LAQM	C1 S1 Sk TrP2
60.50	62.20	AQM	C2 S2 Sk 2P2
62.20	65.00	LAQM	C1 S2 Sk 2P2
65.00	68.50	ARGG	S2 Sk
68.50	68.80	AQM	C1 S2 Sk 5P1
68.80	70.00	SST	90:10 ARGG C1 3P1 Sk S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2228

NORTHING : 19332.8 EASTING : 23255.5 ELEVATION : 827.6

MAXDEPTH : 70 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.38	P4	C0	S1	WET
2.00	4.00	.29	P4	C0	S1	WET
4.00	6.00	.17	-1	C0	S1	WET
6.00	8.00	.17	P4	C0	S1	WET
8.00	10.00	.07	P4	C0	S1	DRY
10.00	12.00	.12	P4	C0	S1	DRY
12.00	14.00	.13	P4	C0	S0	DRY
14.00	16.00	.09	P4	C0	S1	DRY
16.00	18.00	.06	-1	C0	S1	DRY
18.00	20.00	.08	-1	C0	S1	DRY
20.00	22.00	.08	-1	C0	S2	DRY
22.00	24.00	.20	-1	C0	S2	DRY
24.00	26.00	.22	-1	C0	S1	DRY
26.00	28.00	.12	-1	C0	S3	DRY
28.00	30.00	.12	P4	C0	S4	DRY
30.00	32.00	.05	P4	C0	S0	DRY
32.00	34.00	.06	P3	C0	S0	DRY
34.00	36.00	.06	P3	C0	S0	DRY
36.00	38.00	.19	P3	C0	S0	DRY
38.00	40.00	.07	P3	C0	S0	DRY
40.00	42.00	.16	P3	C1	S0	DRY
42.00	44.00	.56	P3	C1	S0	DRY
44.00	46.00	.49	P3	C1	S1	DRY
46.00	48.00	.21	P3	C2	S0	DRY
48.00	50.00	.11	P3	C2	S0	DRY
50.00	52.00	.11	P2	C3	S0	DRY
52.00	54.00	.06	P2	C3	S0	DRY
54.00	56.00	.11	P2	C3	S1	DRY
56.00	58.00	1.04	P2	C1	S1	DRY
58.00	60.00	.49	P2	C1	S1	DRY
60.00	62.00	1.69	P2	C2	S2	DRY
62.00	64.00	1.20	P2	C2	S2	DRY
64.00	66.00	.49	P1	C1	S2	DRY
66.00	68.00	.59	P1	C1	S2	DRY
68.00	70.00	.20	P1	C1	S1	DRY

0.0	8.8	OB	=>ARGG +LAQM S1 TrP4 1.0 m of OVB/Fill determined by drill technician; actual 0-8.8 m of OVB/Fill? (pad noted as excavated?); 0-8.8 m of unwashed samples are wet or moist, fragments are coated with dark brown-grey mud/clay; very little organics; large fragments up to 2 cm typical of fractured overburden; mixed lithologies, mostly ARG and LAQM with minor QM/LQM and very minor SH, SLT and SST. ARGG: black, hard, angular fragments of graphitic argillite; both equigranular and platy in shape; fairly well-defined bedding laminations, moderate limonitic fracture coatings; weak moderate graphitic lustre; weak S1 milky – cloudy quartz veinlets/micro-veinlets LAQM: mostly orange to dark orange/brown, moderate to strongly pervasive limonite altered monzonite; a few fragments with weak pervasive limonite; limonite alteration appears strong and even; very little preservation of textures; biotite to sericitized to limonite; k-spar to clay/sericite to limonite; rare remnants of phenocrysts and pseudomorphs; non-calcareous; can't see any quartz eyes; opaque feldspar-rich matrix; ranges from 0-3% pyrite, as fine (< ¼ mm) disseminated sub-anhedral blebs and cubes, P4, alteration to limonite and trace manganese oxide; trace clear quartz veinlets. QM/LQM: medium grey and grey/brown - brown/orange (weak pervasive limonite) monzonite; fresh black biotite, with sericitic alteration around rims; OTHERS: dark grey soft fissile shale, dark grey harder, platy SLT and very trace beige fine uniform SST; overall, saw only 1-2% sub-rounded quartz eyes.
8.8	14.1	LAQM	S1 TrP4 Pale orange to bright orange, weak to strong pervasive limonite altered monzonite; variable LAQM, most likely limonite-rich altered rims, and less altered cores in fractured rock; in more limonite-rich fragments, limonite alteration is strong and even (more in 12-14 m), not much texture is preserved with rare faint shreds and patones of orange limonite altered sericitic biotite pseudomorphs and k-spar 100 to sericite to limonite; no quartz eyes; in less altered weak – moderate pervasive limonite fragments, texture is more preserved with sub-anhedral, hexagonal, silvery-white sericitic biotite pseudomorphs to limonite and rare faintly defined milky anhedral phenocrysts of k-spar to limonite; weakly cloudy-translucent-looking groundmass, quartz-sericite rich; very trace cloudy-grey quartz micro-veinlets and silica flooding of a few fragments, no stockwork; very trace pyrite P4, altered to limonite and manganese oxide as fine, < ¼ mm, disseminated sub-anhedral blebs; very trace pyrite of biotite and k-spar; a few dark orange/dark red fracture coatings; non-calcareous, C0.
14.1	25.8	ARGG	S1 Sk +Lm Dark grey to black, hard, angular fragments of graphitic silty argillite; fine to medium grained, quite a few bumpy-grainy surfaces; weak graphitic lustre; non-calcareous; dark orange to dark red fracture coatings (especially 14-16 m, intense limonite fracture and 22-24 m moderate patchy limonite); overall, moderate S1 milky-cloudy quartz veinlet/micro-veinlet stockwork, and associated silica flooding; 20-24 m more S2 stockwork an flooding (medium-dark grey in colour); a few fragments throughout with beige – light grey clay coatings in crevasses prey much no sulfide, rare very trace pyrite, P4, altered to limonite, seen as disseminated or fracture coating.
25.8	27.8	ARGG	S3 Sk Bx Dark grey, argillite with strong milky-cloudy quartz veinlet/micro-unit stockwork and silica flooding, probably 40-50% brecciated, can see angular clasts of argillite in quartz stockwork or whatever its in contact with below (I think AQM, but not sure, see lower description); not really any pyrite, but very trace orange limonite blebs in or around veinlets, could have been pyrite, very trace; non-calcareous; probably intrusive breccia contact.

27.8	29.9	AQM	S4 Sk TrP4 Intensely silicified fragments with >50% quartz, both as silica flooding and quartz veinlet/micro-veinlet stockwork; so silicified, its hard to tell what was, texture completely destroyed; AQM-altered monzonite (I think); consists of light medium grey silica flooded chips, a few with small angular clasts of argillite (zenoliths) and more whitish-beige, fine, uniform, opaque, sugary-looking fragments (almost looks like Steel Formation Siltstone) with moderate thin, clear-cloudy, quartz micro-veinlets, stockwork; non-calcareous; < 1% very small (< ¼ mm) quartz eyes?); and I think I see a trace remnant of k-spar (with yellowy clay); very trace, very fine pyrite (1/8 – ¼ mm) as disseminated specks altered to orange limonite flecks.
29.9	34.0	LAQM	1P4 Orangy-brown to orangy-tan, weak to strong pervasive limonite altered monzonite; limonite-rich fragments, staining is strong and even, less altered fragments, have weak pervasive and patchy limonite (less altered "cores", of fractured rock); non-calcareous; fairly good preservation of texture; moderate defined shreds an sub-anhedral hexagonal of sericitic biotite pseudomorphs, altered/altering to dark red/brown limonite and pyrite and manganese oxide; fairly defined sub-anhedral, milky-white clay altered k-spar phenocrysts and limonite staining; no quartz eyes; quartz-feldspar-rich groundmass; no secondary quartz or stockwork; ~1% pyrite as fine (< ¼ mm) disseminated anhedral blebs, P3-P4, altering to limonite and manganese oxide; < 2% fragments; no pervasive limonite, white-light grey AQM; less altered pyrite P2-P3.
34.0	40.0	LAQM	85:15 AQM TrP3 Predominant creamy-pale orange/beige/tan "bleached" very weak to weakly pervasive limonite altered monzonite; pretty good preservation of texture with milky-white; soft, clay altered, sub-euhedral k-spar phenocrysts and dark orange/brown shreds of limonite altered biotite (lesser, rare faint sub-anhedral hexagonal of sericitic biotite pseudomorphs) in an opaque sugary-looking, feldspar-sericite rich groundmass; k-spar to clay and sericite, biotite to sericite to limonite; no quartz eyes; minor, more moderate pervasive limonite altered monzonite, orangy-brown in color, some with dark red limonite fracture coatings; ~15% of fragments (mostly between 36-38 m) whitish – altered monzonite with dark red/brown specks of limonite altered biotite and faint milky k-spars in a white, opaque, sugary-looking matrix; non-calcareous; no secondary quartz or stockwork; trace pyrite as very fine (< 1/8 mm) and fine < ¼ mm disseminated anhedral specks and blebs of pyrite, mostly P3 some P4, alteration to manganese oxide and limonite; very trace fine pyrite micro-veinlets.
40.0	47.0	LAQM	80:20AQM C1 1P3 Variable limonite alteration throughout, but consistent textures; 1) bright orange to orange-brown to brown, moderate to strong pervasive limonite alteration 2) pale orange/tan bleached very weak to weak pervasive limonite monzonite and 3) light grey-white, no pervasive limonite, (just stained fracture surfaces) altered monzonite; weakly calcareous, C1; well-defined anhedral-euhedral, milky-white, clay altered k-spar phenocrysts; faint to moderate defined biotite seen as sub-anhedral silicified white hexagonal to limonite and limonite shreds to manganese oxide; no quartz eyes; opaque to weakly translucent-looking quartz-feldspar-sericite rich matrix; some k-spar looks opaline-like; minor pyrite of biotite and k-spar; overall ~1% pyrite occurring as fine < ¼ mm to courser < ½ mm disseminated anhedral blebs of fine pyrite; overall P3, 40-44 m more P3-P4, alteration to manganese oxide, and 44-47m more P2-P3, minor more granular-massive blebs; 44-46 m very trace red kermesite, alteration mineral of stibnite; very trace quartz micro-unit 44-46 m.
47.0	55.0	QM	80:20 AQM C3 TrP2

			Medium dark grey, monzonite; excellent texture with ~3-5% brown/black euhedral biotite altering to silvery sericite mostly around biotite rims, but some fragments with most biotite almost al altered to strongly defined sericitic biotite pseudomorphs (~10% of fragments more AQM; rare k-spars seen as faint, white, anhedral outlines, and weakly altered to sericite and clay; cloudy-translucent looking quartz-sericite rich groundmass; no quartz eyes; strongly calcareous, C3, intense rich with HCl; moderate orange limonite fracture coatings, some forming weakly pervasive limonite envelopes near rims of fragments; trace –1% fine (< ¼ mm) to coarser (< ½ mm) disseminated anhedral blebs of pyrite, only seen in AQM fragments, or almost AQM fragments; overall P2, many P2-P3, alteration to manganese oxide; very trace clear, jaggedy fragments of in situ quartz, very trace micro-veinlets, not worth a modifier.
55.0	60.5	LAQM	C1 S1 Sk TrP2 Pale orange/tan to bright orange-brown weak to strong pervasive limonite altered monzonite; texture fairly destroyed; opaque, orange sugary-looking feldspar-rich groundmass; poor preserved of biotite pseudomorphs, very rarely seen as faint orange limonite or silica-sericitic shred; good preservation of k-spars, seen as well-defined, sub-anhedral, milky-white and weakly clay altered phenocrysts; weakly calcareous, C1; slow to start but then quite possible bubbling reaction with HCl C1-C2; no quartz eyes; minor pyrite of biotite shreds; moderate s1 quartz veinlet/micro-veinlet stockwork see as clear to milky (stained limonite quartz; overall trace – 1% pyrite, seen as very fine anhedral disseminated and coarser (< ½ mm) disseminated anhedral blebs; very fine to fine pyrite P2-P3 alteration to manganese oxide, coarser more P2 alteration; trace fine blebs of stibnite, one bleb with b
60.5	62.2	AQM	C2 S2 Sk 2P2 (P1) Light grey-white altered monzonite; pretty much same texture as above with opaque, white, sugary feldspar-rich matrix with well-defined milky k-spars and lesser remnants of beige sub-anhedral sericitic biotite pseudomorphs; weak S2 quartz veinlet/micro-veinlet stockwork, good stockwork seen as very thin clear-milky micro-veinlets; moderately calcareous, C2; orange fracture coatings, weakly pervasive into a thin limonite envelope into AQM fragments; ~2% pyrite occurring as 1) fine (< ¼ mm) disseminated anhedral blebs of pyrite, more P2, alteration to manganese oxide and 2) fine sub-euhedral cubes and massive granular blebs of pyrite, more P0-P1, slightly tarnished 3) fine of sericitic biotite pseudomorphs and k-spar phenocrysts 4) thin pyrite micro-veinlets.
62.2	65.0	LAQM	C1 S2 Sk 2P2 Orange to tan weak to st4rongly pervasive limonite altered monzonite, same as 55.0-60.5 m for description of texture; more, S2 of quartz veinlet/micro-veinlet stockwork, seen as clear-milky-cloudy (sulphide-rich) veinlets and micro-veinlets and clear free fragments of and/or limonite, quartz, no trace silica flooding; ~2% pyrite occurring as 1) fine disseminated anhedral blebs P1-P2m some P3 2) sub-euhedral cubes and disseminated P0-P1m 3) anhedral inclusions in quartz P1-P2 3) pyrite of biotite and k-spar P2; trace fine massive stibnite with very trace bladed (borderline P1-P2).
65.0	68.5	ARGG	S2 Sk Black hard angular fragments of fine graphitic argillite; S2-S3 quartz micro-veinlet stockwork, many stained with yellow-orange limonite; weak graphitic lustre; non-calcareous.
68.5	68.8	AQM	C1 S2 Sk 5P1 Light grey to white altered monzonite, thin inter-finger within ARGG or between ARG and SST contact (plane of weakness); a few limonite fracture coatings; moderate S2 clear-cloudy quartz veinlet/micro-veinlet stockwork; ~5% very fine to fine (1/8 ¼ mm) disseminated anhedral-euhedral pyrite (cubes and blebs); fresh to weakly tarnished

68.8	70.0	SST	90:10 ARGG C1 3P1 Sk S1? Predominantly medium-dark grey, fine to medium, uniform, sugary-looking calcareous siltstone with ~10% black hard angular fragments of graphitic argillite; trace LAQM contamination; ~3% pyrite occurring as 1) very fine (< 1/8 mm) disseminated sub-euhedral cubes, some fragments completely packed locally up to 10% and 2) as thin pyrite micro-veinlet stockwork, I think pyrite, not quartz-pyrite, veinlets are dark grey to black, oxidized to manganese oxide, P3 with a bit recognizable as pyrite; 66-68, SST weak orange pervasive limonite along contact with ARG to AQM.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2229

NORTHING : 19334.4 EASTING : 23276 ELEVATION : 827.9

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>80 LAQM:20 ARG C2
4.00	5.00	LAQM	C2
5.00	7.80	LAQM	C2
7.80	8.70	LAQM	S3 Ft
8.70	10.10	LAQM	C1
10.10	11.00	LAQM	
11.00	16.00	LAQM	
16.00	18.00	LAQM	C2 S2 1P4 Ft*
18.00	23.00	LAQM	C2
23.00	26.50	LAQM	C2
26.50	34.00	LAQM	C2 S2 Sk 1P4
34.00	41.00	LAQM	C3 S3 Sk 1P4 Sb
41.00	45.80	LAQM	C2 S1 Sk Sb
45.80	48.20	LAQM	C2
48.20	51.50	SLTG	C2 P0
51.50	55.00	SST	70:30 SLTG C2 P0
55.00	60.00	SLTG	90:10 SST C2 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2229

NORTHING : 19334.4 EASTING : 23276 ELEVATION : 827.9

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.23	P4	C2	S1	DRY
2.00	4.00	.10	P4	C2	S1	DRY
4.00	6.00	.08	P4	C2	S0	DRY
6.00	8.00	.04	P4	C2	S1	DRY
8.00	10.00	.03	P4	C1	S2	DRY
10.00	12.00	.16	-1	C0	S0	DRY
12.00	14.00	.31	-1	C0	S0	DRY
14.00	16.00	.04	-1	C0	S0	DRY
16.00	18.00	.06	P4	C2	S2	DRY
18.00	20.00	.07	P4	C2	S0	DAMP
20.00	22.00	.08	P4	C2	S0	DRY
22.00	24.00	.03	P4	C2	S0	DRY
24.00	26.00	.04	P4	C2	S0	DRY
26.00	28.00	.41	P4	C2	S1	DRY
28.00	30.00	1.72	P4	C2	S2	DRY
30.00	32.00	1.22	P4	C2	S2	DRY
32.00	34.00	2.16	P4	C3	S2	DRY
34.00	36.00	1.17	P4	C3	S3	DRY
36.00	38.00	1.79	P4	C3	S3	DRY
38.00	40.00	2.23	P4	C2	S1	DRY
40.00	42.00	1.78	P4	C1	S3	DRY
42.00	44.00	.83	P4	C2	S1	DRY
44.00	46.00	.21	P4	C3	S1	DRY
46.00	48.00	.40	P2	C2	S1	DRY
48.00	50.00	.48	-1	C2	S0	DRY
50.00	52.00	.04	P0	C2	S1	DRY
52.00	54.00	.04	P0	C2	S0	DRY
54.00	56.00	.06	P0	C2	S0	DRY
56.00	58.00	.07	P0	C2	S0	DAMP
58.00	60.00	.04	P0	C1	S0	DRY

0.0	4.0	OB	=>80 LAQM :20 ARG C2 Overburden, as determined by drill site technician; larger chips (< ¾ cm), slight soil-like consistency and mixed lithologies are indicative of pad fill/overburden/displaced material; 80% intrusive with 20% sediments, as described below. LAQM: altered monzonite with variable limonitic staining; mottled cream, tan, orange, orange-brown and pink; strong variability in all chips; most fragments are strongly sericitized and moderately calcareous; otherwise, textures, alteration and oxidation states, quantity of sulfide, etc are very different; rocks do resemble those seen in road cuts – namely, the pink and orange staining; trace oxidized disseminations sulfide. ARG: hard, black siliceous argillite, most surfaces coated with wispy green and orange sericite; rare quartz veinlets; not calcareous; no visible sulfide. Note: Tech log indicated lower contact at 5.0 m.
4.0	5.0	LAQM	C2 Cream to tan monzonite; limonitic staining is weak or absent, having been leached; this rock is not AQM; good igneous textures; sericite altered k-spar crystals < 2-3 mm; rare modal quartz; biotite altered to powdery and shimmery cream to pale orange laths and pseudomorphs – occasionally with fine (< 1/10 mm) dark orange dots of limonite; some void space after altered feldspar; weak localized sericitization of feldspar-rich groundmass, but rock usually retains original luster/translucence; very rare disseminated pyrite cubes < 1/6 mm, completely oxidized with sub-mm aureole of limonitic staining; weakly to moderately calcareous; no secondary quartz. Transitional into:
5.0	7.8	LAQM	C2 Dark orange to orange-brown monzonite; strong, even pervasive limonite staining; original textures are discernible but blurred; phyric textures are not preserved; all biotite altered to dark brown, earthy pseudomorphs (and void space) and to orange, silvery-orange pseudomorphs and to brighter orange, soft sericitic masses; altered biotite blends into alterations exhibited by groundmass; strong to locally intense sericitization – all surfaces coated (at least partially) with dark orange-stained sericite, giving rock a felted to shimmery appearance; recrystallized, sugary texture develops where sericitization is strongest; retains pearly to sub-vitreous luster; moderately calcareous, but reaction is best observed in unwashed sample. No quartz veinlets; rock has glassy-look locally that resembles weak quartz flooding, but is just less altered feldspar. Trace disseminated, oxidized pyrite cubes (and very rare boxworks) < 1/3 mm. Note: Rock is very screwed-up and adjacent to zones of leaching/bleaching – could be near fault/shear?
7.8	8.7	ARG	S3 Ft Dark grey, non-graphitic argillite; strong pervasive silicification; some chert-like fragments; rock has powdery coating locally (sericite) and overall bleached-look (usually associated with argillic alterations) in spite of silicification; chips at upper contact are completely silicified, quartz-healed, clast-supported micro breccia that displays a very subtle planar fabric; discrete veinlets are present but not abundant; rare fragments throughout also show very, very subtle fabric. This sheared-looking and silicified interval very likely represents a fault/shear. Not calcareous; trace oxidized pyrite in quartz; some limonitic patches on surfaces.

8.7	10.1	LAQM	C1 Mottled cream, tan and orange, leached monzonite, very much as 4.0-5.0 m; weak, very localized quartz flooding in fragments with stronger pervasive limonitic staining; rare disseminated oxide pyrite; no quartz veinlets; very, very weakly calcareous – reaction is better from unwashed sample.
10.1	11.0	LAQM	Dark orange, textureless monzonite, as 5.0-7.8 m; non-calcareous; very localized silicification; very rare sulfide.
11.0	16.0	LAQM	Limonitic altered quartz monzonite; strong, even pervasive limonitic staining; dull orange-brown, dark tan and orange; original textures are excellently preserved; weakly stained, variably clay-altered k-spar phenocrysts < 5 mm are very commonly viewed in situ – earthy to waxy, opaque to sub-translucent; k-spar is also sericitized and is commonly adorned with manganese oxide tracings; all biotite altered to silver and orange pseudomorphs and to ragged orange sericitic masses – very commonly partially replaced by spotty manganese oxide; not calcareous; < 5% ubiquitous manganese oxide. Increasingly sericitized; feldspar-rich matrix starts out pearly with wispy sericite patches, but becomes opaque and develops micro-granular recrystallized appearance. No secondary quartz; no sulfide.
16.0	18.0	LAQM	C2 S2 1P4 Ft* Dark orange, strongly sericitized monzonite, as 11.0-16.0 m, but with moderate to strong quartz flooding that overprints original textures; rock breaks into sub-glassy angular, smooth-surfaces, sharp sides fragments (like quartz veinlets) instead of along grain boundaries as is more typical; the most strongly silicified fragments have pale yellow colour; one chip shows slickensides – fault zone?; < 10% manganese oxide; < 1% dark orange disseminated limonite cubes < ¼ mm after pyrite – doesn't appear more strongly related to quartz; note: dominant alterations are sericitization and silicification (good phyllic); moderately calcareous, although better reaction to HCl from unwashed sample; contacts are not clearly defined.
18.0	23.0	LAQM	C2 Homogeneous dark orange to locally red-orange monzonite, as 5.0-7.9 m; original textures are recognizable and improve marginally to end of interval; slightly phyric k-spar phenocrysts < 3 mm are clear to white with waxy luster and are partially coated along grain boundaries with black manganese oxide; quartz-poor; all biotite altered to orange-stained sericite that is indistinguishable from all other sericite – very minor patchy replacement by manganese oxide; manganese oxide; manganese oxide is ubiquitous but not abundant (< 2%). Sericitization of modal feldspar as strongest alteration; 'thick' shiny orange-stained sericite coats all chips; where strongest sericitization has given groundmass a granular, distinctly recrystallized texture; rock remains hard and competent and original luster is grossly retained. 18.0-20.0 m: larger than average fragments (< 1.5 cm) – often indicative of fractured ground. Moderately calcareous – reaction to HCl from sub-cm spots within matrix; not silicified or stockworked, even though luster of rock tends toward, vitreous locally. Trace disseminated pyrite as dark red flecks << ¼ mm. Transitional into:
23.0	26.5	LAQM	C2 Dark tan to yellowish orange monzonite; strongly feldspar phyric – white to pale orange, waxy, sub-translucent to opaque, clay and/or sericite altered k-spar phenocrysts < 4 mm are common and abundant – stand out in strong contrast to even pervasive limonitic staining of groundmass; some crystals are partially

replaced by splotchy black manganese oxide, < 1% manganese oxide throughout; trace fresh biotite at 'lower contact'.

Quartz-poor, feldspar-rich matrix is intensely sericitized and clay altered; bleached-looking rock has distinct, sugary recrystallized texture and rock has become less competent; clay clots are common; opaque.

Altered biotite is often not recognizable as the sericitized masses blend into the intensely altered groundmass; rare brown, very strongly altered biotite books/pseudomorphs remain.

Moderately to strongly calcareous matrix – reaction to HCl is slow to start, but intensifies with time.

Not silicified or veined.

Sulfide are very, very rare.

(Distinctly cruddy-looking rock).

26.5	34.0	LAQM	C2 S2 Sk 1P4

Rich dark orange to red-orange monzonite, much as 18.0-23.0 m; original textures are preserved even though quartz-poor, feldspar-rich matrix is intensely sericitized and recrystallized (sugary); phyric k-spar crystals (< 3 mm) are also strongly sericitized but are less strongly limonite-stained as groundmass; local argillic alteration creates clay and bleaching.

Strong mm-scale quartz stockwork with weak associated flooding of adjacent groundmass; hematitic staining is often associated with pervasive silicification; numerous quartz veinlets are usually < 1mm wide and have sharp, parallel selvages; clear quartz often with weak pervasive limonitic staining; these veinlets may contain ultra-fine sulfide, but none are identifiable.

< 1% oxidized pyrite; pyrite most commonly occurs as manganese oxide coated cubes < ¼ mm that occur in concentrations of >5% on fracture surfaces; other pyrite as dark red rounded flecks < 1/10 mm along rare quartz veinlet selvages and as dark red disseminated cubes < ¼ mm; very, very rare disseminated pyrite is not completely altered.

< 2% manganese oxide, usually coats fractures; all biotite altered beyond recognition.

34.0	41.0	LAQM	C3 S3 Sk 1P4 Sb

Rich dark orange to orange-red monzonite as 26.5-34.0 m but with stronger and less localized pervasive silicification – obscures original textures slightly and phyric textures are not as well preserved; discrete quartz veinlets are less common.

2 - >10% stibnite as massive clots and disseminations within quartz – often associated with minor quantities of kermesite; quartz-stibnite veinlets are likely cm to dm-scale – probable 30 m veinlet at 36.0; 3.6-38.0 m and 40.0-42.0 m each contain >10% stibnite in quartz; gorgeous stibnite needles locally.

Trace to 4% disseminated pyrite as described 26.5-34.0 m.

40.0-42.0 m: stibnite as sub-cm massive clots, in quartz with kermesite; adjacent rock is bleached and one fragment looks brecciated; increase in quantity of good clear and milky mm-scale quartz veinlets.

Strongly calcareous, rare manganese oxide.

(Yum).

41.0	45.8	LAQM	C2 S1 Sk Sb

Tan to medium-orange feldspar-phyric, strongly sericitized and bleached, strongly calcareous monzonite as 23.0-26.5 m; rare, but significant, quartz-stibnite veinlets < ½ cm with minor associated quartz flooding; generally blah-looking rock with some good-looking portions; very rare quartz eyes.

45.8	48.2	LAQM	C2 Dark orange monzonite, as 41.0-45.8 m intermixed with > 40% chips with strong, even, pink hematitic staining; these hematitic chips are often, but not always associated with weak to moderate pervasive silicification; very, very rare quartz veinlets; moderately calcareous; original textures are typically very well preserved; k-spar crystals < 3 mm are clear to waxy and are only very weakly altered; biotite has altered to white to silvery mica and clay-like mineral – stands out in contrast to very strongly stained matrix; feldspar-rich matrix shows surface sericitization; sub-vitreous to waxy luster with earthy to shimmery orange-stained sericitic coating; very, very rare partially oxidized pyrite.
48.2	51.5	SLTG	C2 P0 Dark grey to black, earthy graphitic siltstone; borderline Steel Formation Siltstone, platy fragments; slightly bleached with pale yellow to orange staining near upper contact; calcareous; pyritic – some fragments contain < 50% ultra-fine (<< 1/10 mm) disseminated fresh pyrite, while others are barren; rare mm-scale quartz veinlets.
51.5	55.0	SST	70:30 SLTG C2 P0 Dove grey, variably silicified Steel Formation Siltstone interbedded with >30% graphitic siltstone and argillite; siliceous; pyritic – up to 10% (locally >50%) as ultra-fine disseminations and less commonly as mm-scale clusters – all fresh and very pretty.
55.0	60.0	SLTG	90:10 SST C2 P0 Graphitic siltstone (as 48.2-51.5 m) with >10% Steel Formation Siltstone (as 51.5-55.0 m); pyritic – as ultra-fine disseminations, cm-scale saturated horizons, mm-scale stringers and disseminations < ½ mm; very rare quartz veinlets; moderately calcareous; SST decreases.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2230

NORTHING : 19368 EASTING : 23257.1 ELEVATION : 822.8

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.80	OB	=>70 LAQM:30 ARG C2 S1
3.80	10.00	LAQM	C2 S2 Sk Sb
10.00	21.00	LAQM	C2 S1
21.00	28.00	CPC	
28.00	32.10	LAQM	C1
32.10	37.50	LAQM	Qe
37.50	42.00	LAQM	S3 Sk P1 Sb
42.00	47.70	LAQM	C2 S1 Sk 5P2 Qe
47.70	49.00	SLT	
49.00	57.40	SST	70:30 SLT +Lm C1 P0
57.40	60.00	ARGG	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2230

NORTHING : 19368 EASTING : 23257.1 ELEVATION : 822.8

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.22	P4	C2	S1	DRY
2.00	4.00	.10	P4	C2	S2	DRY
4.00	6.00	.09	P4	C2	S2	DRY
6.00	8.00	.10	P4	C2	S2	DRY
8.00	10.00	.05	P0	C3	S2	DRY
10.00	12.00	.06	P4	C3	S2	DRY
12.00	14.00	.15	P4	C2	S1	DRY
14.00	16.00	.13	P4	C2	S1	DRY
16.00	18.00	.04	P4	C2	S1	DRY
18.00	20.00	.07	P4	C2	S1	DRY
20.00	22.00	.10	P4	C1	S0	DRY
22.00	24.00	.07	P4	C0	S0	DRY
24.00	26.00	.08	P4	C0	S0	DRY
26.00	28.00	.15	P4	C0	S0	DRY
28.00	30.00	.59	P4	C1	S0	DRY
30.00	32.00	.60	P4	C1	S1	DRY
32.00	34.00	.93	P2	C0	S1	DRY
34.00	36.00	.88	P1	C0	S1	DRY
36.00	38.00	1.86	P1	C0	S1	DRY
38.00	40.00	.86	P1	C0	S2	DRY
40.00	42.00	4.52	P1	C1	S3	DRY
42.00	44.00	1.57	P2	C2	S2	DRY
44.00	46.00	.38	P2	C2	S1	DRY
46.00	48.00	.28	P1	C2	S1	DRY
48.00	50.00	.20	P4	C1	S1	DRY
50.00	52.00	.09	P4	C0	S1	DRY
52.00	54.00	.06	P0	C1	S1	DRY
54.00	56.00	.08	P0	C1	S1	DRY
56.00	58.00	.15	P0	C1	S1	DRY
58.00	60.00	.14	-1	C1	S0	DRY

0.0	3.8	OB	=>70 LAQM: 30 ARG C2 S1 Overburden, as determined at drill site; large soil-coated chips with minor organics; some clumps look as though they might once have been wet; tech log takes lower contact to 4.0 m. 70% quartz monzonite, calcareous, with quartz eyes, very strongly sericitized and very rarely with fresh black biotite; 30% grey and black, siliceous or clay altered argillite – more abundant near top; note: on surface in ARG has coating with non-calcareous crystals (< 2 mm long) that radiate – cool!
3.8	10.0	LAQM	C2 S2 Sk Sb Mottled light and dark orange monzonite; original textures of feldspar-rich matrix are very well preserved although there is abundant void space after altered out k-spar crystals (usually to clay and washed out) and oxidized and/or sericitized biotite; feldspar-rich matrix is grainy and sericitized (weathering?) but sericitization decreases and matrix re-establishes original luster; strongest orange colouration of unit is due to abundance (>25%) of orange, sericite masses and pseudomorphs after biotite that sit in place and in contrast to weakly stained groundmass; occasionally the cores of biotite are partially replaced by minor pyrite and the rims partially replaced with manganese oxide; moderately calcareous – reaction to HCl is slow to start and is significantly stronger from unwashed sample. < 15% quartz-stibnite veinlet fragments; stibnite is typically fine and gives quartz a dark smoky colour; kermesitic staining is rare; some smoke quartz 'eyes' < 4 mm; non-stibnitic veinlets are rare – seen as opaque, planar veinlet fragments contain angular argillite fragments, minor chert. Trace pyrite after biotite and a very rare oxidized disseminated cubes < ¼ mm. Also contains minor clast of Steel Formation Siltstone; hmmmmm – very interesting .....
10.0	21.0	LAQM	C2 S1 Limonitic altered quartz monzonite; clear, glassy feldspar-rich matrix is increasingly pervasively limonite stained to end of interval; strongest most consistent orange colour due to orange biotite pseudomorphs that litter chip surfaces; original textures are reasonably well preserved; alteration of all mineral increasing to end of interval – matrix becomes sericitic and opaque and k-spar phenocrysts are increasingly clay and/or sericite altered; entire unit appears to have been affected by weak pervasive silicification – or the feldspar is just so fresh that it looks weird; abundant manganese oxide near upper and lower contact; but decreases significantly but remains ubiquitous; oxidized disseminated pyrite is rare and is usually secondary after biotite; contains rare clasts of Steel Formation Siltstone. 14.0-18.0 m: < 5% unoxidized monzonite. 18.0-20.0 m: < 5% fresh black biotite.
21.0	28.0	CPC	Chert Pebble Conglomerate; mottled light grey, dark grey, tan, orange and black; composed of angular fragments of chert, chert breccia and intensely silicified argillite; aside from being chert-like, the entire interval appears intensely pervasively silicified; rare quartz veinlets, coarse (to >1 mm) and white associated with argillite clasts and clear, sub-mm stockwork within some chips; fragments with quartz healed brecciation; very rare oxidized sulfides; some chips with strong to weak pervasive limonitic stained and rare fractures with limonitic patina. Note: this rock type is not typical in the Bohemian Zone; minor limonitic Steel Formation Siltstone near contacts; the Table of Formations states "in this area the conglomerate seems to be emplaced within Steel Formation Siltstone, suggesting that HCl regional unconformity between the Earn and Road River Groups was confined to local, confined riff zones (Channels) at Brewery Creek".

28.0	32.1	LAQM	C1 Dark orange limonitic altered quartz monzonite; clay altered and patchily sericite altered k-spar phenocrysts (opaque, white, soft) < 3 mm, commonly viewed in situ, are patterned with black manganese oxide and lack the strong pervasive limonitic staining that affects feldspar-rich groundmass; sub-vitreous luster is obscured by abundance of strong (but not intense) sericitization – thicker, more orange-stained, sericitic coating on fractures; all biotite altered to 1) orange-stained, sericitic masses, laths and pseudomorphs that commonly blend with sericitized groundmass, 2) silvery pseudomorphs with patches of limonite, 3) completely to partially replaced by trace quantities of silverish, weakly oxidized ultra fine (< 1/10 mm) pyrite; < 10% ubiquitous manganese oxide that mostly occurs as sub-continuous coatings on fractures but also coats former biotite, pyrite and feldspar; very, very weakly calcareous – reaction to HCl is faintly audible from unwashed sample; very weak localized silicification as pinkish, vitreous fragments. Trace disseminated oxidized pyrite cubes < ¼ mm are much less common that the pyrite that replaced biotite. Lower contact assigned where quantity of manganese oxide significantly decreases, but still transitional into:
32.1	37.5	LAQM	Qe Dark orange limonitic altered quartz monzonite; k-spar phyric textures are better represented nearer upper contact and crystals are decreasingly altered; more modal quartz than is typical, and rare quartz eyes < 2 mm; homogenous, fine-grained texture to groundmass; hard fragments with sub-vitreous to pearly luster, usually sub-translucent, but commonly obscured by shimmery sericite coating (after abundant modal feldspar and former biotite); developed weak to moderate micro-sucrosic texture where sericitization is strongest; clay development near 'upper contact' only; not calcareous; all biotite altered beyond recognition; no minor oxide. Weak very localized silicification – associated with hematitic staining; < 5% throughout, is likely due to fracturing. >1% secondary pyrite as tarnished, ultra-fine grained masses that replace the cores of limonitic, sericitic biotite pseudomorphs.
37.5	42.0	LAQM	S3 Sk P1 Sb Dark orange, non-phyric, homogenous sericitized monzonite, very much as 32.1-37.5 m except 50-70% infused with silica; secondary quartz has grey to dark red staining due to saturation with silvery, ultra-fine stibnite with minor associated kermesite but locally strong kermesitic staining these fragments are also often dusted with yellowish powder/sericite; < 2% argillite clasts caught within secondary quartz; these quartz-stibnite invasions/irregular veinlets are likely on sub-m scale; other quartz as clear to milky, possibly multiphase, randomly oriented stockwork – these veinlets may also contain fine, fresh sulfides (pyrite, shale?) Trace nearly fresh, subtle ultra-fine disseminated pyrite, unable to estimate quantity of stibnite, but could be >15%. Original textures blurred. (Yummy, even though oxidized pyrite isn't present).
42.0	47.7	LAQM	C2 S1 Sk 5P2 Qe Dark orange, homogeneous quartz monzonite with strong, even, pervasive limonitic staining; rare k-spar phenocrysts; increasingly abundant clear quartz eyes < 3 mm; groundmass has translucent, vitreous luster that is marred by extensive surface sericitization after modal feldspar, but mostly of former sub-mm biotite crystals; calcareous matrix; very rare manganese oxide.

			Moderate to weak milky and clear quartz stockwork – barren veinlet fragments to 2 mm; are quartz eyes secondary?; greyish, irregular wisps < ½ mm are also seen. >5% pyrite as 1) ultra-fine (1/10 mm) weakly oxidized pyrite that occurs at cores of and appears to be replacing limonitic, sericitic biotite, 2) as moderately oxidized disseminated cubes < ¼ mm to << 1/10 mm that also occur in higher concentrations on some fracture surfaces and 3) as partially oxidized, striated cubes (and veinlets of same – rare) < ½ mm.
47.7	49.0	SLT	Dark grey siliceous siltstone; minor chert fragments; some sericitic and limonitic surfaces and fractures; hard angular fragments; transitional into:
49.0	57.4	SST	70:30 ALR +Lm C1 P0 Dove grey Steel Formation Siltstone, variably silicified and weakly to moderately calcareous with common limonitic fractures (and stained envelopes adjacent to fractures) and some chips weak variable pervasive limonitic staining; weak sub-mm, weakly orange-stained quartz and quartz-carbonate veining; ubiquitous fresh to weakly oxidized pyrite – saturates some horizons, is disseminated in some and absent in others; interbedded with >30% siliceous siltstone that is increasingly carbonaceous. 56.0-57.4 m: < 10% breccia fragments as mm-scale, sub-angular SST clast within an argillitic matrix.
57.4	60.0	ARGG	C1 Oily looking, strongly graphitic argillite and silty argillite; hard angular fragments; no quartz veining; no sulfide; weakly calcareous matrix and one sub-cm white quartz-calcite veinlet; rare sericitic planes; no limonite; reaction to HCl intensifies with time.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2231

NORTHING : 19403.8 EASTING : 23255.4 ELEVATION : 812.7

MAXDEPTH : 50 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>60 LAQM:40 ARGG S1 Sk
4.00	6.00	NS	=>LAQM S2 P4
6.00	9.50	LAQM	C1 S2 Sk 1P4
9.50	19.00	LAQM	C3 S1
19.00	21.50	LAQM	C1 S1
21.50	23.90	LAQM	C1 S3 Sk 5P3 Sb
23.90	24.20	ARG	S2
24.20	29.00	LAQM	S2 Sk P4
29.00	35.90	SLTG	
35.90	42.10	LAQM	C1 2P3
42.10	48.20	SLTG	C1
48.20	50.00	SST	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2231

NORTHING : 19403.8 EASTING : 23255.4 ELEVATION : 812.7

MAXDEPTH : 50 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.34	P4	C0	S1	DRY
2.00	4.00	.29	P4	C0	S1	DRY
4.00	6.00	.31	-1	-1	-1	DRY
6.00	8.00	1.01	P4	C0	S2	DRY
8.00	10.00	.94	P4	C2	S2	DRY
10.00	12.00	.23	P4	C3	S0	DRY
12.00	14.00	.15	P4	C3	S1	DRY
14.00	16.00	.16	P4	C3	S1	DRY
16.00	18.00	.24	P4	C3	S0	DRY
18.00	20.00	.12	P4	C3	S1	DRY
20.00	22.00	.08	P4	C1	S1	DRY
22.00	24.00	.96	P3	C1	S3	DRY
24.00	26.00	.44	P4	C1	S2	DRY
26.00	28.00	.25	P3	C0	S2	DRY
28.00	30.00	.33	P4	C0	S1	DRY
30.00	32.00	.06	-1	C0	S0	DRY
32.00	34.00	.01	-1	C0	S0	DRY
34.00	36.00	.01	-1	C0	S0	DRY
36.00	38.00	.02	P4	C1	S0	DRY
38.00	40.00	.03	P3	C1	S0	DRY
40.00	42.00	.06	P3	C3	S0	DRY
42.00	44.00	.04	-1	C1	S0	DRY
44.00	46.00	.03	-1	C1	S0	DRY
46.00	48.00	.08	-1	C1	S0	DRY
48.00	50.00	.16	P4	C1	S0	DRY

0.0	4.0	OB	=>60 LAQM : 40 ARGG S1 Sk

Overburden, 0.0-1.0m = Fill, as determined by drill site technician; remaining rock is dirty, soil-like locally, and contains organic material and is therefore, classified as OB.

Mixed lithologies; dominantly LAQM with > 40% ARGG.

LAQM: pervasive limonitic staining is always very strong and even; original igneous textures are usually very well preserved; variably sericitized – as orange patches after biotite and as more extensive, often intense replacement of feldspar-rich groundmass; from 2.0m, intrusive is stockworked and pervasively silicified – vitreous rock behaves as quartz veinlets, breaking into argillite fragments with smooth surfaces and sharp edges; moderate modal quartz content – slightly higher than typical in Bohemian zone – non-phyric, although clear, rounded quartz eyes ≤ 2mm are seen; partial manganese oxide coating on some surfaces; trace dark red limonite flecks ≤ 1/4mm after former pyrite – empty, non-limonitic boxworks are more common but still rare; not calcareous.

ARGG: Siliceous, carbonaceous argillite with siliceous matrix and moderate quartz stockwork; silty – tends toward siltstone; bedding laminations are strongly evident in some fragments; greenish to orange-stained sericite as wispy occurrences on most surfaces; limonitic fractures are increasingly common.

4.0	6.0	NS	=> LAQM S2 P4

Sample consists of < 1/10 teaspoon small chips of dark orange, strongly silicified and sericitized, usually hard, textureless limonitic altered quartz monzonite; reaction to HCl cannot be observed, although rock is likely not calcareous; dark red limonite after pyrite; quick log says 'sticky at 4-6'; poor ground or fault??

6.0	9.5	LAQM	C1 S2 Sk 1P4

Monzonite; very strong, variable to even, pervasive limonitic staining; strong dark orange and orange-brown colouration – slightly mottled; grains of feldspar-rich matrix are easily discerned, but phyric textures are generally not preserved; all biotite altered to orange-stained sericite – most crystals are not recognizable, although former occurrence may be marked by patchy manganese oxide and the very rare silvery, partially manganese oxide coated pseudomorphs.

Feldspar-rich matrix is very strongly sericitized – all surfaces are coated with orange, greenish and yellowish, shimmery and wispy to powdery sericite that blends with sericitized biotite; where sericitization is strong, rock develops a slightly sugary, recrystallized appearance; sericite, combined with ubiquitous fine splotches of manganese oxide, creates a dirty-looking, darker appearance.

Weakly, but increasingly calcareous; reaction to HCl is slow to start, but intensifies with time.

Strong pervasive silicification and moderate stockwork; silicified rocks have vitreous luster, are often associated with very strong sericitization and stronger limonitic to hematitic staining and lose original textures where silicification is strongest; strong manganese oxide on occasional fractures is also common; clear to cloudy quartz veinlets 2mm to << 1mm – usually with orange limonitic selvages; on quartz veinlet fragment contains > 10% oxidized, disseminated pyrite-limonite ≤ 1/20mm.

> 1% pyrite throughout in various occurrences; pyrite < 1/4mm to ultrafine usually retains cubic form although oxidation is generally complete; dark red limonite flecks are disseminated; oxidized and/or manganese oxide replaced flecks occur in higher concentrations of fracture surfaces; minor ultrafine oxidized pyrite within quartz veinlets.

This is yummy-looking rock!; transitional into:

9.5 19.0 LAQM C3 S1

Orange-brown to yellowish orange-brown monzonite; limonitic staining is strong and even; good feldspar-phyric textures with earthy, palest orange, argillically altered k-spar crystals ≤ 5mm often viewed in situ; less altered k-spar as white, waxy sub-opaque crystals – especially toward lower contact; all other original textures are also preserved; groundmass becomes more quartz-rich (but still only minor quantities) with depth; all biotite altered to unrecognizable sericitic masses and the occurrence marked by patchy manganese oxide.

Vigorously calcareous matrix – rolling reaction to HCl from unwashed sample.

Feldspar-rich matrix is very strongly sericitized throughout – wispy to granular appearance – rock is increasingly opaque and altered; increasing argillic alteration – unit is softer, increasingly bleached to lower contact; from 14.0m, unit has distinct micro-succors, recrystallized and incompetent-looking appearance; before 14.0m rock has wispy sericitic coating and several fragments were granular and intensely altered; moderate silicification is very localized.

Ubiquitous manganese oxide - < 10-25% locally; as sub-mm clots that form partial to complete, continuous to discontinuous replacement/coating of former biotite, as thicker, more continuous coatings on some fractures, as coating on rare sulfides and as tracings on and adjacent to altered k-spar; where alterations are strongest, manganese oxide spots on orange groundmass creates a definite 'leopard spot' appearance; manganese oxide splotches are often flowery.

Trace oxidized disseminated pyrite throughout – possibly in higher concentrations locally, but difficult to identify.

Rare slickensides and the intense localized argillic alteration (yellowish bleached featureless chips) suggest localized shearing.

19.0 21.5 LAQM C1 S1

Dark orange-brown limonitic altered quartz monzonite; very much as 9.5-19.0m, but matrix is much more siliceous/silicified; excellent texture; harder and more competent than above; very strong sericitization – some chips have microgranular texture, and all surfaces coated with yellow to orange, wispy to felted sericite; weakly calcareous; biotite altered to sericite, but very rare partial silvery pseudomorphs remain; manganese oxide coats 10 - > 50% of chip surfaces and is a common fracture filler; ultrafine disseminated pyrite is very rare; minor slicks near lower contact.

Transitional into:

21.5 23.9 LAQM C1 S3 Sk SP3 Sb

Deep orange to red-orange monzonite; original textures are recognizable but overprinted by very strong to intense pervasive silt and hairline quartz stockwork; strong vitreous luster; chips are harder and more angular; weakly calcareous where not silicified.

Strong sericitization – all surfaces coated with dark orange wispy to felted sericite (and/or carbonate) after modal feldspar and biotite.

> 5% pyrite as clusters and disseminations – only identifiable on those rare chips where oxidation was not complete – pyrite remains metallic looking and crystal form is reasonably well preserved; all other pyrite has altered completely to limonite.

> 5% massive stibnite (chips < 1cm) associated with quartz and likely occurring right at lower contact; quartz-stibnite also appear related to sediments (see below).

23.9 24.2 ARG S2

Non-graphitic (?), very strongly silicified and weakly stockworked argillite; minor quartz-healed micro-brecciation – some argillite clasts caught within

quartz at upper contact, and within silicified intrusive near lower contact; possible **raft** caught up in shear?

24.2 29.0 LAQM S2 Sk P4

Rich orange, very strongly to intensely silicified (flooding and weaker discrete stockwork) monzonite, as 21.5-23.9m; good clear to cloudy discrete sub-mm (occasionally wider) quartz veinlets; quartz veinlet fragments are occasionally orange-stained and contain rare oxidized sulfides; textures are overprinted with silica, yet remain discernible.

Abundant wispy orange sericite coats most surfaces; sericite-altered biotite laths are increasingly more recognizable; not calcareous.

Rare disseminated pyrite – completely to nearly completely (P4-P3) oxidized; rare fractures with > 10% oxidized surface coated with ultrafine (< 1/10mm) dark red, oxidized limonite-pyrite cubes; note: sulfide content might have been higher, but evidence is not preserved.

Great looking rock!

28.0-29.0m: bleached, homogeneous, very weakly silicified rock in which original textures are very well preserved; not calcareous; no sulfides.

29.0 35.9 SLTG

Very black, strongly graphitic siltstone to silty argillite; excellent greasy, graphitic crystals; platy to angular fragments; uniform appearance; weakly siliceous matrix; no quartz veining; not calcareous; no sulfides.

Near lower contact only: < 5% chips with sub-mm quart breccia veinlets – contain ultrafine argillite clasts in quartz matrix; several fragments with yellowish sericite-like wispy coating/alteration.

Sharp contacts.

35.9 42.1 LAQM C1 2P3

Medium orange to yellowish-orange monzonite; excellent igneous textures; sub-translucent feldspar-rich matrix; pearly to sub-vitreous luster; k-spar phenocrysts ≤ 4mm are only weakly sericitized and/or clay-altered; no quartz eyes, but does contain some modal quartz; biotite altered to soft orange and silver sericitic laths, masses and good pseudomorphs – minor patchy manganese oxide, more common to end; weakly calcareous; not silicified; no quartz or carbonate veinlets.

2-3% pyrite as moderately to almost completely oxidized clusters to 2mm composed of very fine pyrite; sulfides are most abundant and least oxidized 38.0-40.0m; rare sub-cubic spots < 1/4mm are coated with manganese oxide.

Sharp contacts.

42.1 48.2 SLTG C1

Very strongly graphitic siltstone to silty argillite; excellent greasy graphitic luster; not siliceous or silicified; poor recovery of competent washed rock 44.0-48.0m; weakly calcareous – faint reaction to HCl from unwashed powder; no sulfides.

48.2 50.0 SST C1

Steel Formation siltstone; mottled colouration – from dark grey through greenish grey to pale orange; not silicified; most surfaces with sericite; pale orange-stained sericite-like powder on some surfaces; weak pervasive limonitic staining in few chips; very, very, very rare dark brown limonite cubes on fractures < 1/6mm.

EOH = 50.0m.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2232

NORTHING : 19349.5 EASTING : 23378.1 ELEVATION : 844.5

MAXDEPTH : 70 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>LAQM C3
4.00	6.00	LAQM	C3
6.00	10.00	LAQM	C3
10.00	26.00	LAQM	C3
26.00	39.00	LAQM	C3
39.00	41.50	LQM	C3
41.50	48.50	LAQM	C3 S3 Sk P4 Sb
48.50	52.70	LAQM	C3
52.70	55.50	ARGG	
55.50	58.00	LAQM	C3 P3
58.00	65.00	LAQM	C3 P2 Qe
65.00	70.00	AQM	60:40 LAQM C3 6P1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2232

NORTHING : 19349.5 EASTING : 23378.1 ELEVATION : 844.5

MAXDEPTH : 70 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.16	-1	C2	S0	DRY
2.00	4.00	.05	-1	C3	S0	DRY
4.00	6.00	.13	-1	C3	S0	DRY
6.00	8.00	.06	-1	C3	S0	DRY
8.00	10.00	.03	-1	C3	S0	DRY
10.00	12.00	.04	P4	C3	S0	DRY
12.00	14.00	.03	P4	C3	S0	DRY
14.00	16.00	.16	P4	C3	S0	DRY
16.00	18.00	.50	P4	C3	S0	DRY
18.00	20.00	.14	P4	C3	S0	DRY
20.00	22.00	.06	P4	C3	S0	DRY
22.00	24.00	1.11	P4	C3	S0	DRY
24.00	26.00	.18	P4	C3	S0	DRY
26.00	28.00	.08	P4	C3	S0	DRY
28.00	30.00	.07	P4	C3	S0	DRY
30.00	32.00	.12	P4	C3	S0	DRY
32.00	34.00	.14	P4	C3	S0	DRY
34.00	36.00	.13	P4	C3	S0	DRY
36.00	38.00	.36	P4	C3	S0	DRY
38.00	40.00	.15	P4	C3	S0	DRY
40.00	42.00	3.15	P4	C3	S0	DRY
42.00	44.00	3.82	P4	C3	S1	DRY
44.00	46.00	7.79	P4	C3	S2	DRY
46.00	48.00	2.57	P4	C3	S4	DRY
48.00	50.00	1.82	P4	C3	S3	DRY
50.00	52.00	.13	-1	C3	S2	DRY
52.00	54.00	.11	-1	C3	S1	DRY
54.00	56.00	.08	P3	C2	S0	DRY
56.00	58.00	.15	P2	C3	S1	DRY
58.00	60.00	.05	P2	C3	S1	DRY
60.00	62.00	.13	P2	C3	S1	DRY
62.00	64.00	.05	P2	C2	S1	DRY
64.00	66.00	.05	P2	C3	S0	DRY
66.00	68.00	.05	P2	C3	S0	DRY
68.00	70.00	.06	P0	C3	S0	DRY

0.0	4.0	OB	=>LAQM C3 Fill and surface material; large weathered looking chips resemble rocks that are fractured or not in place; tech log indicates 0.5m of fill; strongly resembles most rock that is seen on surface in Bohemian Zone. Dark orange and pink monzonite; equigranular, fine-grained feldspar-rich matrix has strong even-staining and is coated with a sericitic ____ (siltskins on weathered rock); white, waxy, clay and/or sericite-altered k-spar phenocrysts ≤ 4mm are patterned with dots and tracings of manganese oxide – stand out in strong contrast to stained matrix; very strongly calcareous matrix; no secondary quartz; no visible sulfides; all biotite altered beyond recognition and as poorly preserved pseudomorphs that blend into strongly sericitic surfaces.
4.0	6.0	LAQM	C3 Bright yellowish-orange limonitic altered quartz monzonite; weakly and patchily sericitized feldspar-rich groundmass has excellent original luster; very rare clay-altered and stained sericite-altered white k-spar crystals – not phyric, but in contrast; biotite altered to ragged sericitic shreds that are very rarely associated with very minor manganese oxide; very strongly calcareous; no secondary quartz; no visible sulfides. Transitional into:
6.0	10.0	LQM	C3 Medium greyish orange monzonite; all original textures are preserved although feldspar-rich groundmass has strongly altered to sugary, wispy sericite; abundant fresh black and variably altered biotite; intensely calcareous – reaction to HCl creates unpleasant odour (more like cat spray than typical sulfur smell) – rolling reaction from unwashed sample. No secondary quartz; no sulfides.
10.0	26.0	LAQM	C3 Dark orange-brown monzonite as described 0.0-4.0m; numerous soft, white clay-altered and sericitized k-spar crystals ≤ 3mm are commonly associated with manganese oxide tracings and stand out in contrast to strongly stained, intensely sericitized matrix; very little change throughout, except that sericitization of groundmass and biotite (that is completely altered and blends into sericitized groundmass) intensify and k-spar contrast decreased; no secondary quartz; intensely calcareous; very rare sulfides; ≤ 10% manganese oxide throughout – higher concentrations locally, cause rock to have darker overall colouration.
26.0	39.0	LAQM	C3 Monzonite, as 10.0-26.0m, but with brighter orange colour – often due to decreased intensity of staining and due to lesser manganese oxide; variable, but generally strong pervasive sericitization – rocks have granular, bleached recrystallized appearance where alterations are strongest; intensely calcareous – yucky smelly, rolling reaction to HCl; trace disseminated oxidized pyrite, no secondary quartz; no veinlets; increase in manganese oxide from 36.0m.
39.0	41.5	LQM	C3 Greenish orange monzonite with fresh biotite, as 6.0-10.0m; sugary; intensely calcareous; no secondary quartz; no sulfides. Then whammo!
41.5	48.5	LAQM	C3 S3 Sk P4 Sb Rich, dark red and red-orange monzonite; original textures are discernible, but rock has been completely pervaded with silica; gorgeous vitreous luster; after silica, abundant sericitization and manganese oxide are most dominant

alterations; former biotite barely recognizable as sericitized and manganese oxide coated laths, pseudomorphs and shreds; discrete quartz veinlet fragments and sub-mm veinlets are rare and invariably host fine disseminated stibnite (especially 42.0-46.0m); otherwise, quartz is EVERYWHERE!!; only rare oxidized, dark red flecks of pyrite indicate presence of former pyrite – likely overprinted or destroyed by silicification; unaccountably calcareous – rolling reaction to HCl from unwashed sample.

Super-delicious, yummy rock!

48.5 52.7 LAQM C3

Dark orange, sericitized, calcareous monzonite as 55.0-58.0m; intensely calcareous; < 10% manganese oxide; homogenous appearance, no sulfides: See description for 55.0-58.0m.

52.7 55.5 ARGG

Black, strongly graphitic argillite; slightly silty locally to aphanitic and chert-like elsewhere; occasional sub-mm clear and milky quartz veinlets; minor interstitial quartz flooding; excellent graphitic luster; minor orange sericite-like dusting on some surfaces; not calcareous; no sulfides.

55.5 58.0 LAQM C3 P3

Dark orange monzonite with very strong, uniform pervasive limonitic staining; homogeneous appearance due to regularity of feldspar-rich, quartz-poor groundmass that shows strong, even alteration to sericite; all biotite has altered to orange-stained sericite that blends with all other sericite – very, very rarely with partial replacement by manganese oxide; no phyric textures preserved; very strongly calcareous matrix; rare quartz veinlet fragments.

> 5% pyrite decreasing to < 1% from top down; at upper contact, pyrite as dark brown and red-brown disseminated, almost completely oxidized, corroded limonite cubes ≤ 1/4mm; toward end of interval pyrite is only weakly oxidized and is significantly less common, often appearing as imperfect partial replacement of former biotite.

58.0 65.0 LAQM C3 P2 Qe

Dark, uniform-looking monzonite with very strong, even, pervasive limonitic staining, as 55.5-58.0m; overall sericitization is weaker, so rock has a shinier, more pearly to vitreous luster; intensely calcareous.

This interval contains > 10% secondary quartz as angular and rounded quartz eye-like greyish sub-cm quartz fragments and as clear quartz eyes ≤ 3mm that contain fine disseminated silvery sulfides (slight acicular habit more resembles stibnite than pyrite); included within 10% is dark grey, sub-cm, chert-like fragments or intensely silicified Steel Formation siltstone fragments; these dark grey fragments are also seen as angular, mm-scale clasts within intrusive.

1-3% moderately oxidized pyrite as described 58.0-65.0m – most seems secondary after biotite.

Sericitization (and weak argillic alteration) increases to end of interval; smoky quartz and cherty fragments are rare from 60.0m; clear quartz eyes, usually lacking sulfides, persist but never become abundant.

Transitional into:

65.0 70.0 AQM 60:40 LAQM C3 6P1

Monzonite; white, soft k-spar crystals ≤ 4mm are common; excellent textures – different than directly above; minor modal quartz and no quartz eyes; strongly mottled - > 60% chips lack pervasive limonitic staining while remaining chips are variably affected; all biotite altered to sericitic ghosts, variably preserved and

orange-stained, very, very strongly calcareous matrix; smelly sericitization is widely variable – from chip to chip – intense to absent; not silicified
> 6% disseminated pyrite – fresh to strongly oxidized (rare) – usually < 1/4mm, but mm-scale clusters of ultrafine sulfides are also seen; some pyrite replaces biotite; but usually not.

EOH = 70.0m.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2233

NORTHING : 19328.5 EASTING : 23450.1 ELEVATION : 855

MAXDEPTH : 68 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>80 LAQM:20 ARGG S1 3P4
4.00	14.00	LQM	C3
14.00	16.50	LAQM	C3
16.50	19.00	LAQM	C3
19.00	21.50	ARGG	
21.50	24.00	LAQM	C3 Ft*
24.00	29.00	LAQM	C3 2P3
29.00	34.00	ARG	S1
34.00	41.00	LAQM	C3 3P3
41.00	42.50	FT	=>LAQM C3
42.50	50.00	LAQM	C3
50.00	54.00	LAQM	C3 Qe
54.00	56.00	ARG	+Lm S1
56.00	58.60	LAQM	C2 2P4
58.60	60.00	ARGG	S1
60.00	68.00	ARGG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2233

NORTHING : 19328.5 EASTING : 23450.1 ELEVATION : 855

MAXDEPTH : 68 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.15	P4	C1	S1	DRY
2.00	4.00	.11	P4	C0	S1	DRY
4.00	6.00	.03	-1	C3	S0	DRY
6.00	8.00	.06	-1	C3	S0	DRY
8.00	10.00	.10	-1	C3	S0	DRY
10.00	12.00	.07	-1	C3	S0	DRY
12.00	14.00	.05	-1	C3	S0	DRY
14.00	16.00	.12	-1	C3	S0	DRY
16.00	18.00	.08	-1	C3	S0	DRY
18.00	20.00	.08	-1	C3	S0	DRY
20.00	22.00	.10	-1	C1	S1	DRY
22.00	24.00	.05	P4	C3	S0	DRY
24.00	26.00	.10	P3	C3	S0	DRY
26.00	28.00	.06	P4	C3	S0	DRY
28.00	30.00	.07	P3	C3	S0	DRY
30.00	32.00	.07	-1	C0	S1	DRY
32.00	34.00	.08	-1	C0	S1	DRY
34.00	36.00	.11	P3	C2	S0	DRY
36.00	38.00	.08	P2	C3	S0	DRY
38.00	40.00	.09	P4	C3	S0	DRY
40.00	42.00	.15	P3	C3	S0	DRY
42.00	44.00	.05	P4	C3	S0	DRY
44.00	46.00	.05	P4	C3	S0	DRY
46.00	48.00	.04	P3	C3	S0	DRY
48.00	50.00	.04	P3	C3	S0	DRY
50.00	52.00	.04	P3	C3	S0	DRY
52.00	54.00	.11	P3	C3	S0	DRY
54.00	56.00	.12	P4	C1	S0	DRY
56.00	58.00	.54	P4	C2	S0	DRY
58.00	60.00	.11	P4	C2	S0	DRY
60.00	68.00					
60.00	62.00	.09	-1	C1	S1	DRY
62.00	64.00	.06	-1	C1	S1	DRY
64.00	66.00	.03	-1	C1	S1	DRY
66.00	68.00	.08	-1	C1	S1	DRY

0.0 4.0 OB => 80 LAQM : 20 ARGG S1 3P4

Overburden? – no tech log for top of hole; possible fill for pad, soil coated, fragments, minor organics; mixed lithologies – mostly monzonite with ≥ 20% sediments – see descriptions below.

LAQM: Rich dark orange to pink monzonite; very strong, pervasive limonitic and hematitic staining; good igneous textures; rare clay altered k-spar crystals ≤ 3mm viewed in place; biotite altered to orange-stained sericitic masses and laths and partially replaced with manganese oxide; sericite after biotite blends with abundant sericite (after feldspar) that coats all surfaces, creating a felted to micro-sucrosic texture; minor, very localized argillic alteration; mottled pink and orange rocks strongly resemble those that are seen on surface.

5-2% disseminated pyrite (decreased to end of interval) as dark red to black, cubic to rectangular to rounded limonite flecks ≤ 1/4mm, occasionally coated with manganese oxide; oxidized sulfides stand out in strong contrast to the very strongly stained matrix; note: some oxidized pyrite occurs at cores of altered biotite and appears to have partially replaced it.

ARGG: Dark grey to black argillite; weakly carbonaceous; matrix is usually silicified, but is not locally; weak milky to cloudy mm-scale quartz stockwork; one quartz veinlet contains one oxidized pyrite fleck ≤ 1/2mm along centerline; most surfaces with very fine, wispy greenish to orange-stained sericite.

Lower contact seems quite visually distinct.

4.0 14.0 LQM C3

Greyish orange to bright orange monzonite with 10-15% biotite, much of which is fresh and black; majority of biotite shows partial (eg. rims only) to complete alteration to silvery pseudomorphs; silvery pseudomorphs may retain fresh cores and show patchy to complete oxidation; remaining biotite has altered completely to orange-stained, soft, wispy sericitic laths; limonitic staining is pervasive, but varies in intensity; < 5% chips at 6.0-8.0m are fresh, blue and unstained; increasingly sericitized – from patchy wispy sericitic surface coating to pervasive and very strong, creating micro-granular, recrystallized-looking rock from 12.0m (associated with strongest groundmass staining); intensely calcareous matrix; no visible sulfides, no stockwork; ubiquitous (but < 5%) spotty manganese oxide;

Fairly sudden change into:

14.0 16.5 LAQM C3

Medium yellowish orange monzonite; strong feldspar phyric texture; numerous soft, opaque, very strongly clay-altered subhedral k-spar phenocrysts ≤ 4mm are commonly viewed in situ; altered k-spar crystals are also commonly patterned with flowery to stringy manganese oxide, especially along crystal margins; sugary to wispy, sub-opaque, very strongly sericitized and locally argillically altered feldspar-rich matrix shows strong, even pervasive limonitic staining and is very strongly calcareous; not silicified; biotite very strongly to completely altered – good pseudomorphs are rare – minor replacement by manganese oxide.

Strong alteration (especially clay) might be associated with shear ?

No sulfides.

Subtle transformation into:

16.5 19.0 LAQM C3

Greenish orange monzonite; sub-translucent pearly feldspar-rich, very strongly calcareous rock most strongly resembles 4.0-14.0m, except all biotite is strongly to completely altered; matrix shows very weak pervasive limonitic staining; most orange colouration of rock due to numerous (10-25% locally) orange

sericitic (orange, orange-silver) pseudomorphs and laths; not silicified, no sulfides.

19.0 21.5 ARGG

Dark grey to black argillite; carbonaceous – graphite crystals are rarely seen, but carbon is strongly evident in unwashed sample; very siliceous matrix – chert-like locally; aphanitic to silty; hard, angular fragments; weak quartz veining; no sulfides; most surfaces coated with fine greenish to orange-stained wispy sericite; not calcareous; rough to smooth surfaces; slicks near lower contact – possible fault.

21.5 24.0 LAQM C3 Ft*

Medium yellowish orange monzonite; small fragments (2-5mm) chips have uniform appearance; original igneous textures discernible; very strongly calcareous; very strongly sericitized feldspar-rich groundmass – sugary, recrystallized fragments are dominant although less altered fragments are also common; biotite altered to orange-stained sericitic masses that are partially to completely coated with manganese oxide (10-15% throughout); possible manganese oxide replaced disseminated sulfides – no firm evidence.

Very poor recovery of competent material and strong alterations imply that this may be sheared or adjacent to shear contact.

24.0 29.0 LAQM C3 2P3

Orange monzonite, very much as 21.5-24.0m, except groundmass is less sericitized, although sericitization does intensify toward lower contact; some intensely sericitized, bright orange k-spar crystals ≤ 3mm; biotite as soft, orange sericitic masses with manganese oxide replaced cores; biotite also as good silver and silver-orange pseudomorphs; intensely calcareous; no quartz or carbonate veining.

> 2% yellowish to orange, still metallic-looking with surfaces tarnished or rusted pyrite as mm-size clusters of ultrafine pyrite that usually appears to be secondary after biotite; disseminated, tarnished, corroded cubes ≤ 1/2mm are also seen.

All alterations intensify to lower contact; increase in manganese oxide
24.0-26.0m: 7% chips lack limonitic staining
26.0-28.0m: 5% argillite

29.0 34.0 ARG S1

Dark grey to black argillite; very siliceous to chert-like locally; hard, argillite fragments with (usually) smooth surfaces and sharp edges; weak milky quartz veining as sub-mm veinlets, swirls and blobs; sericitic, often limonite-stained surfaces from 32.0m; no sulfides, not calcareous.

34.0 41.0 LAQM 3P3

Limonitic altered quartz monzonite; dull yellow-orange to stronger orange – limonitic staining intensifies and becomes more pervasive to end of interval; original textures are very well preserved; k-spar phenocrysts are more commonly sericitized and partially coated with manganese oxide than argillically altered; modal quartz content very slightly higher than is typical in Bohemian Zone; biotite altered to silver and orange pseudomorphs and laths – cores and rims partially replaced with irregular manganese oxide splotches and by clusters of partially to completely oxidized pyrite that may also be coated with manganese oxide; biotite alterations increase to end of interval.

2-5% pyrite – variably oxidized (P2-P4); occurs as disseminations of sub-cubic, corroded, lone crystals ≤ 1/2mm, as mm-scale clusters of ultrafine pyrite (after biotite) and as massive, partially oxidized clots ≤ 1cm (rare); oxidation

ranges from surface oxidation to complete alteration to orange or red limonite; different oxidation states are seen within same chip; dark orange sub-cubic disseminated limonite flecks < 1/4mm from 38.0m.

38.0-40.0m: < 5% rock without staining.

40.0-41.0m: > 5% ugly clots of very strongly to completely oxidized pyrite; significant increase (to > 50% of surface area) in manganese oxide – ugly orange and black speckled rock.

41.0 42.5 FT => LAQM C3

Dark orange monzonite has altered completely to shimmery orange-stained sericite; opaque, micro-micaceous rock in which original textures are preserved; soft and incompetent.

Probable fault(?)

42.5 50.0 LAQM C3

Medium orange monzonite; subtle variations in colour from yellowish-orange, through orange to greyish orange; limonitic staining is always strong and pervasive; original textures preserved; much as 34.0-41.0m; intensely calcareous; moderate to increasingly very strong sericitization of feldspar-rich matrix – increasingly opaque, granular and recrystallized-looking; biotite altered to rare good silvery pseudomorphs and masses that are often partially to completely replaced with manganese oxide and less often with pyrite that has been coated with manganese-oxide and less often with pyrite that has been coated with manganese oxide; k-spar phenocrysts ≤ 3mm are more commonly sericitized than clay-altered.

Trace pyrite, except 46.0-48.0m, that contains > 2% clusters of dark red limonite after biotite or pyrite that has replaced biotite; some corroded, partially oxidized cubes ≤ 1mm.

Intensely calcareous; not silicified.

Subtle transformation into:

50.0 54.0 LAQM C3 Qe

Dark orange-yellow monzonite, as 42.5m; very strong to intense pervasive sericitization but modal quartz has increased; clear quartz eyes ≤ 2mm; some feldspar crystals are not as strongly altered; opaque, sugary texture; most minerals are sericitized; < 5% manganese oxide.

From 52.1m: matrix is only weakly pervasively stained; manganese oxide after biotite and pyrite after biotite is common; > 5% oxidized pyrite clots > 1mm (rare clots to 5mm).

(Blech)

54.0 56.0 ARG +Lm S1

Dark grey argillite; siliceous matrix; weak sub-mm quartz veining; distinctly silty locally; all surfaces coated with wispy, greenish sericite that is often limonitic; some strongly limonitic fractures; < 1% disseminated pyrite as cubes ≤ 1mm – oxidized margins; rare, localized microbrecciation; not graphitic; ugly rock.

56.0 58.6 LAQM C2 2P4

Limonitic altered quartz monzonite; overall orange colouration created by orange limonitic, sericitized biotite splotches on an otherwise very weakly stained feldspar-rich matrix; very strong black speckling by ≤ 50% sub-mm flecks of manganese oxide (usually partially replacing sericitized biotite); minor sericitization of groundmass and pearly, sub-translucent luster is retained.

3-1% (2% average) completely oxidized (P4) to very strongly oxidized (P3) pyrite as ultrafine, dark red limonite disseminations ≤ 1/4mm and as clusters that are secondary after biotite.

Weak localized silicification associated with chips with hematitic staining (< 5%) and very dark red limonite flecks after cubic pyrite ≤ 1/2mm.

58.6 60.0 ARGG S1

Silicified, sericitic, weakly graphitic argillite; much as 54.0-56.0m, but with more siliceous matrix; rare quartz veinlets.

60.0 68.0 ARGG

Very black, strongly graphitic argillite; excellent oily luster due to graphite crystals; very, very weakly milky and clear sub-mm quartz veining/swirls; hard, angular fragments – not very strongly silicified; very little diversity throughout; unwashed sample provides very, very faintly audible reaction to HCl; no visible sulfides; rare limonitic surfaces 64.0-66.0m.

EOH = 68.0m.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2234

NORTHING : 19295.3 EASTING : 23450.4 ELEVATION : 856.9

MAXDEPTH : 80 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.00	OB	=>LAQM P4
1.00	5.60	LAQM	S1 Sk 1P4
5.60	6.10	ARG	
6.10	10.10	LAQM	C1 S1 Sk 5P4 Qe
10.10	12.50	ARGG	
12.50	20.00	LAQM	C1 2P3
20.00	26.00	LAQM	C3
26.00	28.50	LQM	C3
28.50	34.50	LAQM	C3
34.50	37.50	SST	70:30 SLT +Lm C1
37.50	41.90	LAQM	C1 1P2
41.90	45.80	LAQM	C1 S3 Sk Sb
45.80	50.00	SST	->LSST 90:10 SLT C1 P1
50.00	55.50	LAQM	C2 3P2
55.50	60.00	LAQM	C3
60.00	64.00	LAQM	->LQM C3
64.00	66.00	LAQM	C3
66.00	69.00	LAQM	C3
69.00	70.00	QM	C3
70.00	80.00	LAQM	90:10 AQM C3

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2234

NORTHING : 19295.3 EASTING : 23450.4 ELEVATION : 856.9

MAXDEPTH : 80 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.16	P4	C0	S0	DRY
2.00	4.00	.22	P4	C0	S1	DRY
4.00	6.00	.12	P4	C0	S1	DRY
6.00	8.00	.07	P4	C1	S1	DRY
8.00	10.00	.13	P4	C2	S1	DRY
10.00	12.00	.05	P4	C1	S0	DRY
12.00	14.00	.07	P4	C0	S1	DRY
14.00	16.00	.10	P3	C1	S0	DRY
16.00	18.00	.12	P4	C1	S0	DRY
18.00	20.00	.15	P3	C2	S0	DRY
20.00	22.00	.12	P4	C3	S0	DRY
22.00	24.00	.06	P4	C3	S0	DRY
24.00	26.00	.27	P4	C3	S0	DRY
26.00	28.00	.09	-1	C3	S0	DRY
28.00	30.00	.10	-1	C3	S0	DRY
30.00	32.00	.08	-1	C3	S0	DRY
32.00	34.00	.29	-1	C3	S0	DRY
34.00	36.00	.04	-1	C3	S0	DRY
36.00	38.00	.04	-1	C1	S0	DRY
38.00	40.00	.36	P1	C1	S1	DRY
40.00	42.00	.13	P2	C1	S1	DRY
42.00	44.00	2.16	P2	C1	S3	DRY
44.00	46.00	.07	P4	C1	S1	DRY
46.00	48.00	.13	P0	C1	S0	DRY
48.00	50.00	.11	P1	C1	S1	DRY
50.00	52.00	.19	P2	C2	S1	DRY
52.00	54.00	.74	P1	C2	S0	DRY
54.00	56.00	.33	P2	C2	S0	DRY
56.00	58.00	.05	P2	C3	S0	DRY
58.00	60.00	.06	P4	C3	S0	DRY
60.00	62.00	.07	-1	C3	S0	DRY
62.00	64.00	.14	-1	C3	S0	DRY
64.00	66.00	.05	-1	C3	S0	DRY
66.00	68.00	.48	-1	C3	S0	DRY
68.00	70.00	.06	-1	C3	S0	DRY
70.00	80.00					
70.00	72.00	.05	P0	C3	S0	DRY
72.00	74.00	.06	-1	C3	S0	DRY
74.00	76.00	.82	P0	C3	S0	DRY
76.00	78.00	.26	P0	C3	S0	DRY
78.00	80.00	.07	-1	C3	S0	DRY

0.0	1.0	OB	=> LAQM P4 Overburden, as determined by drill site technician; pad fill; mostly monzonite, as described below, with minor sediments; not calcareous, not silicified; oxidized pyrite.
1.0	5.6	LAQM	S1 Sk 1P4 Dark orange monzonite; strong, even, pervasive limonitic staining; original textures are well represented; waxy, white sericitized k-spar phenocrysts ≤ 3mm stand out in contrast to strongly stained matrix – minor patchy manganese oxide; one clear quartz eye at lower contact; feldspar-rich, equigranular groundmass steadily altering to orange-stained sericite that appears as a wispy coating where not as strong, but has sugary, recrystallized, opaque appearance where stronger; all biotite is strongly sericitized and is very commonly coated/replaced with manganese oxide; ≤ 50% of surface area coated with manganese oxide locally; not calcareous. Weak quartz veining; clear and orange-stained veinlet fragments ≤ 1/4cm are less common from 4.0m; trace oxidized pyrite ≤ 1/10mm within some veinlets; one veinlet fragment at lower contact contains fine, fresh, disseminated stibnite. 1-2% dark red to red-black disseminated limonite (after pyrite) cubes ≤ 1/4mm; trace oxidized pyrite after biotite; localized concentrations to > 5%.
5.6	6.1	ARG	Black, siliceous silty argillite; possibly carbonaceous, but is bound by silica; rare milky quartz veinlets ≤ 1mm with minor oxidized pyrite; weak sericitization and rare limonite. Interval seems insignificant, but rock below is calcareous while the overlying monzonite is not.
6.1	10.1	LAQM	C1 S1 Sk 5P4 Qe Medium orange monzonite, much as 1.0-5.6m; good textures; most k-spar crystals ≤ 3mm are soft, white and clay or sericite altered; all biotite altered to soft, orange sericitic shreds that are ≤ 40% replaced by/coated with fine speckles of manganese oxide; manganese oxide is also seen on k-spar; strongly sericitized groundmass locally; variable translucent to sub-opaque and grainy-looking; calcareous groundmass – reaction to HCl is slow to start; occasional clear quartz eyes. Weak quartz veining, as described 1.0-5.6m. > 5% dark red disseminated limonite flecks after pyrite; quantity of pyrite remains constant, but occurrence differs; near top of interval, most oxidized pyrite occurs within sericitized biotite patches and seems secondary after biotite; at center of interval, pyrite occurs more as completely oxidized cubic disseminations < 1/4mm to << 1/10mm; near lower contact pyrite is often seen, in addition to the occurrences just described, as variably oxidized, corroded, disseminated cubes ≤ 1mm – usually smaller.
10.1	12.5	ARGG	Black, siliceous, slightly silty argillite; good greasy luster on most surfaces; rare milky sub-mm quartz veinlets; faint dark red sericitic/limonitic dusting on rare surfaces.
12.5	20.0	LAQM	C1 2P3 Monzonite, as above, but groundmass is less strongly stained and much less sericitized; black and orange speckling over a greyish pale orange matrix caused by orange-stained sericitized biotite and manganese oxide; 25 - > 50%

manganese oxide throughout, very weakly calcareous matrix; very, very rare localized silicification.

Trace to 2% pyrite in same occurrences as described 6.1-10.1m, but oxidation is typically reduced – that is, pyrite as dark brown, almost completely oxidized cubes; rare chips with > 5% dark red, completely oxidized flecks.

Big clay clot at lower contact suggests some shearing.

20.0	26.0	LAQM	C3

Medium orange monzonite, as repeatedly described, but unit has a more homogenous appearance due to fewer textural variations, strong sericitization throughout and the significant decrease in manganese oxide; intensely calcareous – instantaneous rolling reaction to HCl; not silicified; trace disseminated oxidized pyrite – quantity decreases from upper contact.

26.0	28.5	LQM	C3

As above, but with fresh black and variably altered biotite; transitional into:

28.5	34.5	LAQM	C3

Monzonite as 20.0-26.0m; intensely calcareous; very, very rare fresh biotite flecks; not silicified; no sulfides; good textures although strongly sericitized; k-spar crystals have waxy luster and minor speckling with manganese oxide.

34.5	37.5	SST	70:30 SLT +Lm C1

Dove Grey Steel Formation siltstone interbedded with ≥ 30% dark grey, siliceous, weakly carbonaceous siltstone; excellent sub-mm bedding laminations in SLT; most bedding/cleavage planes of SST are coated with orange-stained sericite; sericitization is common through both intervals; weakly calcareous; rare fragments with intense argillic alteration equals bleached clay; no quartz veinlets; no sulfides.

37.5	41.9	LAQM	C1 1P2

Sericitized, weakly calcareous monzonite, as 28.5-34.5m; < 5% unoxidized rock near upper contact; rare quartz veinlets; no manganese oxide; glassy matrix; near upper contact, trace ugly pyrite after some biotite; nearer end of interval, pyrite is moderately oxidized (P2-P3) occurring as mm-clusters that appear to be replacing something.

41.9	45.8	LAQM	C1 S3 Sk Sb

Dark orange and red-orange monzonite, as above, but completely pervaded by Sb-bearing clear quartz; warm vitreous luster; silica overprint but preserves textures; discrete quartz veinlets are not really common; trace to 2% moderately oxidized pyrite in mm-scale clots; trace dark red limonite flecks ≤ 1/6mm after former disseminated pyrite – percentage might be under-represented due to intense silicification; > 10% pyrite as sub-cm massive clots, but most commonly as ultra, ultrafine disseminated crystals with a siliceous matrix; some kermesitic staining; most interesting-looking stuff in this hole so far!

45.8	50.0	SST	→LSST 90:10 SLT C1 P1

Dove grey to pale orange Steel Formation siltstone with < 10% siliceous, possible weakly carbonaceous siltstone; if limonitic staining is not pervasive, than all fractures have orange staining with pervasively stained envelopes; very mottled colouration; 1-2% fresh to weakly oxidized (P0-P1) pyrite as cubic disseminations in groundmass, and as stringers and quartz-pyrite stringers; weakly calcareous; otherwise, much as 34.5-37.5m.

50.0	55.5	LAQM	C2 3P2 Light greyish orange quartz monzonite; variably weak pervasive limonite staining; good textures; slightly more modal quartz than is typical; rare quartz eyes; feldspar-rich matrix is sericitized locally; abundant wispy, soft orange sericite pseudomorphs provide dominant colour; no minor oxide; moderately calcareous reaction to HCl is slow to start. ≤ 3% sub-cm clots of weakly oxidized (rusty margins, etc) fine-grained pyrite occurs with altered biotite and is likely secondary after it.
55.5	60.0	LAQM	C3 Dark orange to pinkish orange monzonite, as 20.0-26.0m; intensely calcareous; mot silicified; rare sulfides; strongly sericitized homogeneous appearance although original textures are still preserved.
60.0	64.0	LAQM	→ LQM C3 Dull greenish-greyish orange monzonite; good textures; biotite as silvery pseudomorphs; rock is typical of rock that has just altered from fresh biotite; rolling, vigorous reaction to HCl; rare fresh biotite crystals; not silicified; no sulfides.
64.0	66.0	LAQM	C3 Dark tan, opaque, softer and granular looking, sericitized and clay altered monzonite in which original textures are preserved; dull and bleached looking; slightly less calcareous than adjacent rock; no quartz; no sulfides.
66.0	69.0	LAQM	C3 Monzonite, as 55.0-60.0m; vitreous luster and some fragments appear silicified; homogeneous appearance; strong sericitization; no sulfides; < 5% unoxidized rock.
69.0	70.0	Qm	C3 Blue, intensely calcareous, fresh monzonite with fresh black biotite and variably altered biotite; no quartz; no sulfides; hard fragments; peripheral oxidation/staining.
70.0	80.0	LAQM	90:10 AQM C3 Dark orange-brown, homogeneous-looking, sericitized, intensely calcareous monzonite as 55.0-60.0m; < 10% unoxidized rock with < 1% fresh pyrite that is secondary after biotite – not evenly distributed; blech.

EOH = 80.0m.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2235

NORTHING : 19288.3 EASTING : 23400.6 ELEVATION : 865

MAXDEPTH : 60 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.00	OB	=>LAQM:ARG
8.00	10.00	SLTG	+Lm
10.00	14.00	ARG	+Lm
14.00	28.00	SLTG	
28.00	34.00	SLTG	10P0
34.00	35.00	AQM	S3 Sk 7P0 Sb
35.00	36.00	ARG	S3 15P0
36.00	39.80	ARGG	S2 Sk
39.80	49.00	AQM	C2 S1 5P0 Sb
49.00	50.20	ARGG	90:10 SST 5P0
50.20	58.00	AQM	85:15 LAQM C2 5P0
58.00	60.00	AQM	C2 6P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2235

NORTHING : 19288.3 EASTING : 23400.6 ELEVATION : 865

MAXDEPTH : 60 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.06	P4	C2	S0	DRY
2.00	4.00	.04	P4	C1	S0	DRY
4.00	6.00	.04	P4	C0	S0	DRY
6.00	8.00	.10	-1	C0	S0	DRY
8.00	10.00	.09	-1	C0	S0	DRY
10.00	12.00	.12	-1	C0	S0	DRY
12.00	14.00	.07	-1	C0	S0	DAMP
14.00	16.00	.03	-1	C0	S0	DRY
16.00	18.00	.04	-1	C0	S1	DRY
18.00	20.00	.03	-1	C0	S0	DRY
20.00	22.00	.26	-1	C0	S0	DRY
22.00	24.00	.15	-1	C0	S0	DRY
24.00	26.00	.32	-1	C0	S0	DRY
26.00	28.00	.04	-1	C0	S1	DRY
28.00	30.00	.09	P0	C0	S1	DRY
30.00	32.00	.06	P0	C0	S1	DRY
32.00	34.00	.14	P0	C0	S1	DRY
34.00	36.00	.32	P0	C0	S2	DRY
36.00	38.00	.58	P0	C0	S1	DRY
38.00	40.00	.08	P0	C0	S2	DRY
40.00	42.00	.12	P0	C1	S1	DRY
42.00	44.00	.09	P0	C2	S1	DRY
44.00	46.00	.16	P0	C1	S1	DRY
46.00	48.00	.48	P0	C2	S1	DRY
48.00	50.00	.23	P0	C2	S1	DRY
50.00	52.00	.08	P0	C2	S2	DRY
52.00	54.00	.06	P0	C2	S0	DRY
54.00	56.00	.05	P0	C2	S0	DRY
56.00	58.00	.11	P0	C2	S0	DRY
58.00	60.00	.07	P0	C2	S0	DRY

0.0	8.0	OB	=> LAQM: ARG Overburden – probably pad fill; drill site technician indicates FILL to 2.0m; large chips, organics and soil-like consistency of unwashed sample is indicative of rock that is not in place. Mixed lithologies – dominantly intrusive with sediments to 6.0m, then mostly sediments. LAQM: Dark yellowish-orange monzonite; intensely sericitized throughout; intensely argillically altered locally; gross textures; < 1% dark red limonite flecks < 1/4mm after disseminated pyrite; calcareous matrix to 4.0m; not silicified. ARG: Black and dark grey argillite and silty argillite; graphitic locally; weak quartz veining; variably hard and soft; dominantly sericitic siltstone from 6.0m; not calcareous; no sulfides; rare limonitic surfaces.
8.0	10.0	SLT	+Lm Dark grey to black siltstone; most surfaces coated with greenish to orange-stained sericite; several limonitic fractures; minor quartz veining; no sulfides.
10.0	14.0	ARG	+Lm Black argillite to silty argillite; graphitic horizons; weak quartz stockwork; occasional limonitic surfaces; not calcareous; no sulfides.
14.0	28.0	SLT	Siltstone; 50% harder, black, weakly graphitic siltstone interbedded with medium to dark grey, softer siltstone (resembles Steel Formation locally); platy fragments; carbon content steadily increases; some sericitic and/or limonitic fractures and bedding/cleavage planes; softer, shale-like fragments are more typically sericitized and rare fragments with moderately pervasive limonitic staining; no sulfides; not calcareous. Transitional into:
28.0	34.0	SLTG	10PØ Dark grey to black, increasingly graphitic siltstone to silty argillite; black milky, mm-scale quartz stockwork and interstitial blebs; good bedding laminations locally; excellent graphitic luster. > 10% fresh yellow pyrite as, 1) ultrafine (<< 1/10mm) disseminations that saturate some horizons (cm-scale horizons with > 50% pyrite), 2) as clusters of pyrite cubes > 1/2mm, 3) as sub-mm pyritic stringers and as 4) quartz-pyrite veinlets ≤ 1/2mm; all pyrite is unoxidized.
34.0	35.0	AQM	S3 Sk 7PØ Sb Grey and white monzonite; greyish monzonite has glassy, homogenous appearance – quartz flooded with associated stockwork; original textures overprinted; silicified monzonite contains significant (but unestimatible) quantities of ultrafine disseminated pyrite and stibnite – some stibnite to 1-2mm; looks delicious, white pyrite contains > 7% fresh yellow pyrite as mm-scale blobs composed of very fine crystals (<< 1/4mm) and good striated cubes 2/3mm; > 40% of interval composed of quartz fragments with sulfides. Yum!
35.0	36.0	ARG	S3 15PØ As 28.0-34.0m, but argillite is strongly pervasively silicified and contains more than 15% fresh sulfides; related to AQM finger.
36.0	39.8	ARGG	S2 Sk Black graphitic argillite; argillite fragments with smooth surfaces and sharp edges; moderate to strong quartz flooding associated with weak quartz veining;

some excellent graphitic surfaces; > 5% disseminated yellow pyrite as perfect cubes 1/10mm to 1-2mm; fresh pyrite is less common in occurrences described 28.0-34.0m.

39.8 49.0 AQM C2 S1 5PO Sb

White to grey monzonite; lacks all limonitic staining; original textures are well preserved; feldspar-rich matrix is sericitized near top of interval (softer, opaque chips) but less to lower contact (sub-translucent); k-spar crystals are alternately altered to sericite, clay or (very rarely) roscolite – develops creamy hue towards lower contact; no quartz eyes, but minor modal quartz; biotite altered to powdery, white ghosts - creamier colour and more sericitized to lower contact; weakly to moderately calcareous – reaction to HCl is quite slow to start.

5-6% fresh yellow pyrite as 1) mm-scale clusters composed of fine crystals, as 2) massive clots (to 1cm) of larger, striated cubes ≤ 1/2mm, and combined with finer crystals, as 3) disseminated striated cubes ≤ 1/2mm, and 4) as fine (< 1/4mm) disseminated cubes; silvery pyrite (ultrafine - < 1/10mm) as clusters that occasionally appear to replace former biotite.

Rare quartz veinlet fragments, especially near upper contact, host ultrafine and rarely massive stibnite with some associated kermesite; difficult to estimate stibnite quantity as crystals are too fine to see.

Most siliceous-looking near lower contact.

(Looks OK.)

49.0 50.2 ARGG 90:10 SST 5PO

Silicified, graphitic, pyritic argillite (as 36.0-39.8m) but with > 10% dove grey, pyritic Steel Formation siltstone; moderately silicified and stockworked; < 5% disseminated and stringy pyrite.

50.2 58.0 AQM 85:15 LAQM C2 5PO

Creamy, opaque, dominantly featureless monzonite; ≤ 15% chips with moderate to strong, even pervasive limonitic staining as alteration envelopes adjacent to fractures; sericitized throughout; textures seem slightly better preserved in limonitic fractures; moderately calcareous; not silicified except near upper contact; biotite altered to sericitic ghosts.

≤ 5% ragged, silvery, tarnished to fresh disseminated pyrite flecks ≤ 1/4mm – appear secondary after former biotite; excellent disseminated cubic, striated pyrite ≤ 1/2mm is more common right at upper contact, but minor quantities are seen throughout.

Limonitic chips are strongly sericitized locally.

Some argillic alteration?

58.0 60.0 AQM C2 6PO

As 50.2 – 58.0m, but without limonitic fragments; > 6% ragged, silvery disseminated pyrite is not the type that typically host Au mineralization.

(Ho hum!)

EOH = 60.0m.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2236

NORTHING : 19290.7 EASTING : 23366.9 ELEVATION : 860.9

MAXDEPTH : 60 AZIMUTH : 270 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	9.50	OB	=>ARGG+LAQM+SHG S1 TRP4
9.50	11.80	LAQM	S1 Sk 3P4
11.80	14.80	LAQM	S1 Sk 3P4
14.80	17.00	ARGG	S1 Sk
17.00	18.20	LAQM	2P4
18.20	21.80	ARGG	
21.80	23.00	LAQM	TRP4
23.00	25.00	SHG	90:10 ARGG
25.00	31.50	LAQM	S1 Sk TRP3
31.50	34.30	LAQM	S1 Sk TRP3
34.30	39.80	SHG	70:30 SLTG
39.80	46.20	LAQM	C1 2P2
46.20	47.90	LAQM	C1 S1 TRP3
47.90	56.50	LAQM	C1 1P2
56.50	57.50	SST	C1
57.50	60.00	SLTG	

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HOLE ID : RC98-2236

NORTHING : 19290.7 EASTING : 23366.9 ELEVATION : 860.9

MAXDEPTH : 60 AZIMUTH : 270 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	P4	C0	S1	DRY
2.00	4.00	.07	P4	C0	S1	WET
4.00	6.00	.55	P4	C0	S1	WET
6.00	8.00	1.45	P4	C0	S1	WET
8.00	10.00	1.69	P4	C0	S1	WET
10.00	12.00	1.56	P4	C0	S1	WET
12.00	14.00	.67	P4	C0	S1	WET
14.00	16.00	.22	P4	C0	S1	WET
16.00	18.00	.47	P4	C0	S1	WET
18.00	20.00	.69	-1	C0	S0	WET
20.00	22.00	.31	-1	C0	S0	DRY
22.00	24.00	.39	P4	C0	S0	DRY
24.00	26.00	.15	P3	C1	S0	DRY
26.00	28.00	.20	P3	C0	S1	DRY
28.00	30.00	.11	P3	C0	S1	DRY
30.00	32.00	.08	P3	C0	S1	DRY
32.00	34.00	.15	P3	C0	S1	DRY
34.00	36.00	.05	P3	C0	S0	DRY
36.00	38.00	.15	P0	C0	S0	DRY
38.00	40.00	.12	P1	C0	S0	DRY
40.00	42.00	.12	P2	C1	S0	DRY
42.00	44.00	.56	P2	C1	S0	DRY
44.00	46.00	.96	P2	C1	S0	DRY
46.00	48.00	.61	P2	C1	S1	DRY
48.00	50.00	.13	P2	C1	S0	DRY
50.00	52.00	.14	P2	C1	S0	DRY
52.00	54.00	.08	P2	C1	S0	DRY
54.00	56.00	.14	P2	C1	S0	DRY
56.00	58.00	.09	P2	C1	S0	DRY
58.00	60.00	.02	-1	C0	S0	DRY

0.0	4.5	OB	=>ARGG + LAQM + SHG 4.0 m of Fill/OVB determined by drill tech, pretty close, but actually 4.5 m; very minor organics in tray 4-6 m, as well as continued OVB/Fill lithologies; 0-2 m dry, 2-4 m damp and muddy, continues to be wet fill 20 m, but after 4.5 m, lithology very consistent; moderate amount of organics from 2-4.5 m; lithologies consist of argillite, LAQM and SHG. ARGG: dark grey to black, hard, angular fragments of graphitic argillite; good crude bedding laminations; weak to moderate graphitic lustre; weak to moderate patchy and even limonitic fracture; weak cloudy S1 quartz veinlet/micro-veinlet stockwork +/- segmented veinlets +/- limonite staining; no sulfide; minor illite coatings. LAQM: tan to browny-orange, weak to moderate pervasive limonite altered monzonite; patchy, uneven limonite staining; tannish, opaque, feldspar-rich matrix with moderate preservation of textures; biotite altered to orange-dark orange patchy soft limonite anhedral blebs and shreds with very minor sericitic biotite sub-anhedral pseudomorphs +/- limonite staining; rare k-spar, faint limonite stained; no quartz eyes; non-calcareous: no secondary quartz or stockwork; very few fragments almost look brecciated, clasts separated by argillite? or oxidized manganese oxide veinlets?'; ~1% oxidized pyrite, to limonite occurring mostly as 1) anhedral replace blebs of biotite laths and pseudomorphs 2) very fine specks of anhedral pyrite. SHG: medium-dark grey, soft, platy, graphitic shale; weak bedding laminations; very minor patchy limonite coatings.
4.5	11.8	LAQM	S1 Sk 3P4 Tannish-orange, weak to more moderate pervasive limonite altered monzonite; very good preservation of texture with abundant, strong, definitive, soft, orange, limonite altered laths and subhedral sericitic biotite pseudomorphs; stand out quite well in less altered, even, opaque to very weakly translucent-looking sericite-rich groundmass; see occasional silver, shimmery rims of limonite altered sericite pseudomorphs; k-spars not too common occurring both as faint, sericitic altered, limonite sub-anhedral phenocryst, and rare milky-looking, fairly defined phenocrysts; no quartz eyes; non-calcareous; weak to moderate S1 quartz flooding and stockwork as dark grey-cloudy (sulfide-rich?) quartz; some fragments almost all dark grey with limonite and sericitic biotite visible, lesser, very trace clear quartz; 3-4% oxidized pyrite, P4, to limonite an lesser manganese oxide occurring as 1) fine < ¼ mm anhedral replacement blebs of limonite altered biotite 2) fine disseminated sub-anhedral cubes and 3) coarser ½ - ¾ mm anhedral, massive granular oxidized blebs; limonite tending to increase just slightly downhole; unwashed tray, samples wet-muddy.
11.8	14.8	LAQM	S1 Sk 3P4 Pale orange-creamy, extremely bleached, weak pervasive limonitic altered monzonite; not AQM; groundmass is extremely milky-creamy, smooth-looking, not all sugary like some similar-looking , very feldspar-rich; still pretty good texture with intense orange-dark orange limonite altered biotite shreds and lesser intense limonite altered silvery sericitic biotite pseudomorphs givers orange hue to rock; k-spar? very difficult to see, just like the matrix, very faint, milky sub-anhedral phenocrysts; no quartz eyes; moderately cloudy-grey S1 quartz veinlet/micro-veinlet stockwork, quartz mostly as free fragments with lesser in situ cloudy veinlets; non-calcareous; very, very weak silica flooding in very few fragments; 2-3 % pyrite occurring as 1) disseminated anhedral replacement blebs of pyrite, especially near rims and cores 2) fine < ¼ mm disseminated anhedral blebs 3) coarser < ½ mm disseminated anhedral blebs and subhedral cubes; P4, complete oxidized to dark red limonite.
14.8	17.0	ARGG	S1 Sk Black, hard, angular fragments of graphitic argillite; strong cloudy S1 quartz veinlet/micro-veinlet stockwork, may segmented, and with limonite, mostly

			towards upper contact, decreasing altered to lower contact; orange to dark red patchy limonitic fracture; non-calcareous; fairly equant fragments.
17.0	18.2	LAQM	2P4 Orange to dark orange very strong pervasive limonite altered monzonite; strong very even, limonite staining of opaque, sugary-looking groundmass; not good texture, mostly destroyed – it almost looks recrystallized or something?; remnant biotite texture seen as soft, orange limonite?; non-calcareous; very trace green roscolite, alteration of biotite k-spar, looks to be k-spar; no secondary quartz or stockwork; ~2% dark red limonite altered pyrite (could be a bit underestimated because of dark groundmass); occurs as fine < ¼ mm disseminated sub-anhedral blebs; < 1% cloudy small < ½ mm, angular lumpy quartz eyes?
18.2	21.8	ARGG	Black, hard, angular fragments of graphitic argillite; weak to moderate graphitic lustre; doesn't appear to have any quartz veinlet stockwork; very few patchy limonite coatings of surfaces; 20-22 m, quite muddy, difficult to see...; < 1% fragments of dark grey soft shale.
21.8	23.0	LAQM	TrP4 Orange, moderate to strongly pervasive limonite altered monzonite; kinda patchy, uneven, limonite staining; not too much preservation of texture, can see very orange soft patchy limonite bobs, limonite alteration of biotite, outlined with dark red rims, oxidized pyrite?; k-spar as relatively faint, soft, sericite altered phenocryst; no quartz eyes; opaque feldspar-sericite rich matrix; no secondary quartz or stockwork; very trace fine < ¼ mm disseminated anhedral blebs of oxidized pyrite, P4, alteration to dark red limonite flecks.
23.0	25.0	SHG	90:10 ARGG Predominant, dark grey to greeny-grey, soft, platy fragments of graphitic shale; smooth surfaces and rounded edges; pretty good graphitic lustre; orange and yellow weak to moderately patchy limonitic fracture coatings; good crude bedding laminations; > 10% fragments of hard black, angular fragments of graphitic argillite; no secondary quartz or stockwork; no sulphides.
25.0	31.5	LAQM	S1 Sk TrP3 Orange to orangy tan, moderately to strongly pervasive limonite altered monzonite; relatively smooth, even limonite staining, not quite as much from 25-26.0 m; opaque, sugary-looking groundmass with pretty much all texture destroyed; biotite and k-spare have altered to limonite and now blends in with matrix; this is orange, soft, patchy limonite on many surfaces, but can't get a sense of any previous textures; overall, non-calcareous, except 25-26 m, which ahs a very, very weak reaction to HCl; a few darker orange, dark red limonite fracture coatings; very trace manganese oxide, replaces of biotite?; very trace small quartz eye < 1/2 mm from 28-30 m; subtle clear quartz micro-veinlet stockwork (almost looks like silica flooding, but up close, very small, thin jaggedy quartz veinlets), a lesser free fragments of clear quartz +/- limonite ; not too much pyrite, destroyed?, trace P3-P4 fine < ¼ mm disseminated sub-anhedral blebs and cubes.
31.5	34.3	LAQM	S1 Sk TrP3 Brick red to very orange, very strong pervasive limonite altered monzonite; near intense patchy limonite, not as even as LAQM unit above; not too much preservation of texture, big blobs of brick re, and orange limonite, no sense of what was there before; very trace remnants of siliceous sericitic biotite pseudomorphs, red limonite; no quartz eyes; both biotite and k-spar have altered to limonite; very few patterns of white-beige unaltered groundmass, limonite quite uneven; sugary, opaque, groundmass as LAQM above; non-calcareous; S1, extremely thin, in situ clear quartz micro-veinlet stockwork, not too noticeable; could be very weak silica flooding in a few fragments; trace clear-cloudy free quartz fragments; very trace pyrite as fine < ¼ mm disseminated sub-anhedral

			blebs, P3-P4, mostly P3, with oxidized to dark red limonite; not as much brick red limonite from 34-34.3 m.
34.3	39.8	SHG	70:30 SLTG Appears to be most dark grey, very soft platy fragments of graphitic shale; fragments are smooth with rounded edges; soft, easily breakable and scratched; smushy sound when smushed in tray(?); quite a few fractures have weak to moderate patchy and fairly even, yellow-orange limonite coatings; weakly interbedded with graphitic siltstone, most near top and bottom of unit (not much of anything but shale from 36-38 m); fragments harder, not as hard as ARG, kinda sub-angular, sub-rounded edges; weak bedding laminations in shale; non-calcareous; no secondary quartz or stockwork; trace fresh pyrite, appears to be a pyrite-rich horizon or unit because few fragments with pyrite, packed with it.
39.8	46.2	LAQM	C1 2P2 Tan to orange-tan weak to moderately pervasive limonite altered monzonite; weak to moderate preservation of texture; even to patchy limonite staining; biotite seen as faint to defined laths of orange to dark orange limonite; occasional subhedral hexagon of siliceous sericitic pseudomorphs altering to limonite; k-spars as faint white-creamy, soft, sericitic altered phenocryst; no quartz eye; mostly sugary, opaque groundmass but a few fragments where more weakly translucent-looking; weakly calcareous, C1; very trace clear-cloudy quartz micro-veinlet, not at all consistent; fragments more white-bleached feldspar-sericite rich groundmass along upper contact with SHG from 39.8-40.0 m; ~2% pyrite occurring as 1) fine disseminated anhedral blebs < ¼ mm 2) coarser ½ - ¾ mm granular-massive sub-anhedral pyrite blebs and cubes 3) very trace of limonitic biotite; P1-P3, oxidized to manganese oxide and limonite.
46.2	47.9	LAQM	C1 S1 TrP3 Creamy-beige, "bleached", weakly pervasive limonite altered monzonite; almost kinda yellowy-looking; opaque, sugary, feldspar-sericite rich bleached groundmass with weak preservation of yellowy-orange-brown limonitic altered biotite shreds, very few silvery sericitic biotite pseudomorphs altering to limonite; faint to moderate defined white, milky, opal-like, sericite/clay altered k-spar phenocrysts; no quartz eyes; fairly, even very weak limonite staining of matrix; trace clear jaggedy fragments of free quartz; very little sulphide, trace fine < ¼ mm disseminated sub-anhedral blebs of pyrite P1 – P3, oxidized manganese oxide.
47.9	56.5	LAQM	C1 1P2 Tannish-brown/orange, moderately pervasive limonite altered monzonite; weak to moderate preservation of texture with common, milky white-cream, soft, sericite/clay, sub-anhedral k-spar phenocrysts in an opaque, dull, sugary-looking groundmass; biotite less preserved, seen occasionally as faint brown orange limonitic altered laths; no quartz eyes; weakly calcareous, C1; minor pits of leached out biotite or k-spar; trace brown/black biotite remnants from 48-50m; no secondary quartz or stockwork; ~1% pyrite occurring mostly as fine < ¼ mm disseminated sub-anhedral blebs 1) coarser < ½ mm disseminated granular massive subhedral blebs, P2-P3, oxidized to limonite and manganese oxide; race stibnite fragments, most likely a vein.
56.5	57.5	SST	C1 Light-medium grey, fine, uniform, calcareous, Steel Formation Siltstone; minor orange-yellowy patchy limonite fracture not much to light.

57.5	60.0	SLTG

Dark grey, fine, uniform, graphitic siltstone; could be part of Steel unit, but lacks the specific distinct uniform colour etc; this looks more like argillite, but a bit too soft; non-calcareous, more orange patchy limonite on fracture; no secondary quartz or stockwork, no pyrite; good graphitic lustre; weak bedding laminations, sub-angular to sub-rounded edges, not as crunchy as argillite when smushed in tray.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2237

NORTHING : 19360.1 EASTING : 23198.9 ELEVATION : 824.6

MAXDEPTH : 90 AZIMUTH : 316 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=> LAQM+ARGG C1 TrP4
4.00	7.80	LAQM	C2 2P2
7.80	11.00	ARGG	S1 C1
11.00	16.00	LAQM	C2 1P3 Sb
16.00	20.00	LAQM	70:30 AQM C1 S1 Sk 1P2 Sb
20.00	27.00	LAQM	C2 2P2
27.00	32.00	AQM	C2 2P2 Sb
32.00	33.00	LAQM	C1 2P2
33.00	34.00	AQM	C1 2P3
34.00	34.20	ARGG	S1 TrP0
34.20	35.10	AQM	C1 2P3
35.10	37.50	ARGG	S1 TrP0
37.50	40.00	SST	90:10 ARGG C2 S1 Sk
40.00	50.20	ARGG	60:40 SST C1 S1 Sk
50.20	59.00	AQM	C2 2P2 Sb
59.00	61.00	LAQM	80:20 AQM C2 1P3 Sb
61.00	61.50	ARGG	S1 Sk
61.50	63.00	LAQM	80:20 AQM C2 1P3
63.00	72.20	AQM	C3 TrP3
72.20	75.00	ARGG	70:30 SST S1 C2 TrP0
75.00	83.50	AQM	C2 1P2
83.50	90.00	SST	85:15 ARGG C1 TrP0

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MAXDEPTH : 90 AZIMUTH : 316 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.29	P4	C1	S0	WET
2.00	4.00	.90	P4	C1	S1	DRY
4.00	6.00	.06	P2	C1	S0	DRY
6.00	8.00	.02	P2	C2	S0	DRY
8.00	10.00	.03	P3	C1	S1	DRY
10.00	12.00	.07	P2	C1	S1	DRY
12.00	14.00	.14	P3	C2	S0	DRY
14.00	16.00	.07	P3	C1	S1	DRY
16.00	18.00	.12	P3	C1	S1	DRY
18.00	20.00	.09	P2	C1	S1	DRY
20.00	22.00	.11	P2	C2	S0	DRY
22.00	24.00	.15	P2	C2	S0	DRY
24.00	26.00	.21	P2	C2	S0	DRY
26.00	28.00	.24	P3	C2	S0	DRY
28.00	30.00	.90	P2	C2	S1	DRY
30.00	32.00	1.09	P2	C2	S0	DRY
32.00	34.00	.52	P3	C1	S0	DRY
34.00	36.00	.16	P2	C1	S1	DRY
36.00	38.00	.07	P0	C1	S1	DRY
38.00	40.00	.03	-1	C2	S1	DRY
40.00	42.00	.01	-1	C1	S1	DRY
42.00	44.00	.01	P0	C1	S1	DRY
44.00	46.00	.01	P0	C1	S1	DRY
46.00	48.00	.03	-1	C1	S1	DRY
48.00	50.00	.09	-1	C2	S1	DRY
50.00	52.00	.19	P1	C2	S0	DRY
52.00	54.00	.51	P1	C3	S1	DRY
54.00	56.00	.19	P2	C2	S0	DRY
56.00	58.00	.09	P2	C2	S0	DRY
58.00	60.00	.16	P3	C2	S0	DRY
60.00	62.00	.17	P3	C2	S0	DRY
62.00	64.00	.01	P3	C3	S0	DRY
64.00	66.00	.02	P3	C3	S0	DRY
66.00	68.00	.04	P3	C3	S0	DRY
68.00	70.00	.03	P3	C3	S0	DRY
70.00	72.00	.03	P3	C2	S0	DRY
72.00	74.00	.31	P0	C1	S1	DRY
74.00	76.00	.05	-1	C2	S1	DRY
76.00	78.00	.04	P0	C2	S1	DRY
78.00	80.00	.17	P3	C2	S0	DRY
80.00	82.00	.09	P2	C2	S0	DRY
82.00	84.00	.05	P2	C2	S0	DRY
84.00	86.00	.03	P0	C1	S0	DRY

86.00	88.00	.03	P0	C1	S0	DRY
88.00	90.00	.02	P0	C1	S0	DRY

0.0	4.0	OB	=>LAQM +ARGG C1 TrP4 4.0 m of overburden, as determined by drill tech; 0-2 m fragments moist and coated with mud, 2-4 m, dry and soil-rich; very minor organics; not too many large fragments, 1-2 up to 1.5 cm, typical of fractured OVB/Fill; mixed lithologies consist mostly of LAQM and ARGG with minor SHG and QM and SLT. LAQM: predominantly orange/brown moderate to strong pervasive limonite altered monzonite; weak preservation of textures with faint shreds and subhedral hexagons of silvery-white and limonite altered sericitic biotite pseudomorphs and faint, rare k-spars, anhedral-subhedral sericite/clay altered phenocrysts +/- stained pale orange in an orange/brown, opaque, feldspar-rich groundmass; very weakly calcareous, C1; very trace, clear, sub-rounded quartz eye; trace ~1% fine pyrite (< ¼ mm) occurring as disseminated anhedral blebs, and disseminated sub-euhedral cubes, mostly P4, alteration to limonite and lesser manganese oxide, some P3; trace quartz micro-veinlets 2-4 m. ARGG: black, hard, angular fragments of graphitic argillite; weak graphitic lustre; very weak S1 milky quartz veinlets/micro-veinlets. Others: dark grey, soft, platy shale, dark grey harder siltstone with weak bedding laminations and with relatively fresh biotite.
4.0	7.8	LAQM	C2 2P2 Orange/tan, moderate pervasive limonite altered quartz monzonite; moderately even limonite staining of opaque, feldspar-rich groundmass; moderately pervasive of igneous texture with < 1% large, up to 2 mm, clear, sub-rounded well defined quartz eyes, shreds and anhedral blebs of orange limonitic altered biotite (faint to moderately defined) and faint to defined, milky, +/- limonite stained sub-anhedral k-spar phenocrysts; moderately calcareous, C2; no secondary quartz or stockwork; ~2-3% variably oxidized pyrite; pyrite occurs as disseminated 1) fine < ¼ mm sub-euhedral cubes 2) fine to coarser anhedral blebs and 3) coarser < ¾ mm granular-massive blebs; oxidized ranges from P1-P4, most P1-P2 (?? – so close to surface?) with lesser P3-P4, oxidized to limonite and manganese oxide.
7.8	11.0	ARGG	S1 C1 Dark grey to black, hard, angular fragments of graphitic argillite; good graphitic lustre; fine to medium grained, silty argillite; both equant and platy fragments, platy fragments show very weak bedding laminations, with sharp jagged edges; weak milky S1 quartz veinlets/micro-veinlets, no stockwork; minor orange patchy limonite on oxidized fracture surfaces and in around quartz veinlets; very weakly calcareous, C1; no much sulfide; < 2% fragments of soft, grey, platy, graphitic shale.
11.0	16.0	LAQM	C2 1P3 Sb Dark orange to dark orange/brown, pervasive limonite altered monzonite; relatively even limonite staining; relatively poor preservation of texture; sub to anhedral patones and shreds of limonite altered sericitic pseudomorphs (very trace silvery white sericite remnants) and intensely clay altered, soft k-spar phenocryst +/- stained with orange limonite, not too defined in dark orange, opaque, feldspar-rich groundmass; very trace (< ½ mm) small sub-rounded quartz eye; weak to moderately calcareous, C2; 11-12 m a few fragments a bit less altered, more tan-orange in colour; average thin interfinger or zenolith of argillite, a large clast and < 1% smaller fragments with quartz stockwork, stibnite and kermesite; trace ~2% pyrite occurring as fine < ¼ mm disseminated anhedral blebs and sub-euhedral cubes; variable oxidized from P2-P4, trace P1; most oxidized to limonite and manganese oxide; overall P3.
16.0	20.0	LAQM	70:30 AQM C1 S1 Sk 1P2 Sb 70% fragments of tan to dark orange, weak to strongly pervasive limonite altered monzonite; patchy limonite staining; weak to moderate texture with biotite altering to limonite shreds and anhedral hexagons and k-spar altering to

			sericite/clay, altering to limonite; in light grey AQM, better preservation of texture with biotite altering to silvery-white sericitic pseudomorphs, altering to +/- limonite; no quartz eye; cloudy weakly translucent-looking groundmass; quartz-sericite rich; strong S1 quartz veinlet/micro-veinlet stockwork and lesser silica flooding, as cloudy-grey (sulfide-rich?) fragments and veinlets; very trace roscolite; AQM fragments pinkish-red tinge due to fine stibnite altering to kermesite; 1-2% pyrite, variable oxidized borderline P2-P3, some P4 and P1 – ugh!!; some relative to nature of pyrite; fine to coarser sub-euhedral cubes, and granular-massive pyrite fine to coarser < ¼ mm to ¾ mm, tends to be more P1-P2; disseminated anhedral blebs < ½ mm more P3-P4, weakly calcareous, C1.
20.0	27.0	LAQM	C2 2P2 Tan to creamy-pale orange very weak to weak pervasive limonite altered monzonite; "bleached" creamy-milky, opaque feldspar-rich matrix with well altered orange to beige/brown limonite altered shreds and sub-anhedral hexagons of sericitic biotite pseudomorphs given groundmass an orange hue and/or weak pervasive limonite; k-spars, faint to moderately defined, while, altered to sericite, sub-anhedral phenocrysts +/- limonite staining; no quartz eye; limonite tends to decrease slightly downhole; moderately calcareous, C2; very trace roscolite; 1-3% fine < ¼ mm disseminated anhedral blebs and subhedral cubes of pyrite; variably oxidized* borderline P1-P2, oxidized increases slightly to P2-P3 from 24-27 m, some P3-P4, dependent on limonite alteration; no secondary quartz or stockwork.
27.0	32.0	AQM	C2 2P2 Sb Predominantly light grey, altered monzonite with minor beige (very weak pervasive limonite) and orange fracture coatings on some fragments (closest to fracture); moderate texture with faint to fairly defined 1) beige and silvery-white shreds and anhedral to euhedral sericitic biotite pseudomorphs; no quartz eye; cloudy weakly translucent-looking quartz-rich groundmass; moderately calcareous, C2; two unusually large fragments up to 1.7 cm; ~2% pyrite occurring as 1) fine < ¼ mm disseminated anhedral blebs, P2-P3, oxidized to manganese oxide 2) fine to coarser <1/2 m sub-euhedral cubes and granular masses of pyrite, P1, slightly oxidized; 3) fine pyrite of biotite pseudomorphs, P2; no secondary quartz or stockwork, very trace clear micro-veinlet form 28-30 m; trace stibnite and bladed.
32.0	33.0	LAQM	C1 2P2 Orange-brown moderately pervasive limonite altered monzonite; fairly even limonite staining; weak preservation of texture (better in a few fragments with less pervasive limonite; biotite completely altering to sericite, completely altering to limonite (seen as orange shreds); k-spars altering to sericite, 70% altering to limonite, faint sub-anhedral phenocrysts; relatively opaque feldspar-quartz rich groundmass; weakly calcareous, c1; < 1% very small < ½ m sub-angular quartz eyes; no secondary quartz or stockwork; ~2% fine < ¼ mm disseminated anhedral blebs of pyrite, P2-P3 oxidized to manganese oxide; trace pyrite of biotite.
33.0	34.0	AQM	C1 2P3 Light grey altered monzonite, same as 27.0-32.0 m, see description; a bit less limonite alteration along fracture; weakly calcareous, C1; no secondary quartz or stockwork; ~2% pyrite occurring as fine < ¼ mm disseminated anhedral blebs of pyrite, P3, oxidized to manganese oxide; minor pyrite of biotite pseudomorphs.
34.0	34.2	ARGG	S1 TrP0 Dark grey to black, hard, angular fragments of graphitic argillite; excellent graphitic lustre; fragments both equant and platy (which show crude bedding laminations); weak S1 quartz veinlet/micro-veinlet cloudy – stockwork?; trace fresh to slightly tarnished pyrite occurring as 1) fine < ¼ mm disseminated sub-euhedral cubes and 2) fine to coarser < ½ mm granular blebs in quartz veins.

34.2	35.1	AQM	C1 2P3 Light grey to whitish altered monzonite; same as other AQM's above, see descriptions 27-32 and 33-34 m; weakly calcareous, C1; ~2% pyrite occurring as fine disseminated anhedral blebs < ¼ mm, P2-P3, oxidized to manganese oxide with minor limonite; no secondary quartz or stockwork.
35.1	37.5	ARGG	S1 TrP0 Black, hard angular fragments of graphitic argillite; weak S1 milky-cloudy quartz veinlets/micro-veinlets; trace disseminated sub-euhedral cube of fresh pyrite.
37.5	40.0	SST	90:10 ARGG C2 S1 Sk Predominant medium-dark grey, medium grained (kinda grainy), uniform calcareous siltstone; moderately calcareous, C2; with ~10% fragments of black, hard angular graphitic argillite; SST siliceous-looking – quartz grains; weak to moderate milky S1 segmented quartz veinlet/micro-veinlet stockwork; minor creamy clay veins; very trace P0.
40.0	50.2	ARGG	60:40 SST C1 S1 Sk Near equal amounts of dark grey to black hard angular fragments of graphitic argillite and grainy, uniform medium-dark grey (very minor white) calcareous siltstone; moderate milky S1 quartz veinlet/micro-veinlet stockwork – some segmented; pretty much no sulfide, very trace fresh cubes; towards lower contact 48-50.2, appears brecciated, rock has lost its competency; medium grey clay coatings on many fragments – argillite alteration? 48-50 < 1% fragments of AQM, very thin, interfinger of lower AQM.
50.2	59.0	AQM	C2 2P2 Sb Light grey-beige-white, altered monzonite; light grey and beige show moderate texture with well-defined subhedral, milky-white, +/- clay altered k-spar phenocryst and faint to moderate defined beige and silvery-white sericitic biotite pseudomorphs; no quartz eyes; opaque to weakly translucent-looking quartz-sericite rich matrix; very trace green roscolite; white AQM fragments, less preservation of texture with a sugary recrystallized-looking matrix; moderately calcareous, C2; 1-3% pyrite, tends to be decreasing downhole; occurs as 1) fine < ¼ mm disseminated anhedral blebs P2-P3 2) fine < ¼ mm sub-euhedral cubes P0-P1, disseminated and 3) jammed pack fragments of pyrite >25% P0-P1 cubes, etc – many striated; P2-P3 oxidized to manganese oxide with lesser limonite; no secondary quartz or stockwork; trace stibnite occurring as fine, massive anhedral blebs, many with bladed bronzy and pyrite.
59.0	61.0	LAQM	80:20 AQM C2 1P3 Sb Pale orange to orange weak to moderate pervasive limonite altered monzonite; limonite alteration most likely due to a fracture system, many fragments stained but ~20% with limonite staining on one fracture of none at all , AQM fragments (cores of fractured rock); LAQM fairly poor texture biotite altering to sericite, altering to limonite, faint limonite stained k-spars; better preservation of AQM, fairly defined sericitic altered biotite pseudomorphs and k-spar phenocrysts; no secondary quartz or stockwork; moderately calcareous, C2; ~1% pyrite as fine < ¼ mm disseminated anhedral blebs of moderately oxidized, P3, altering to manganese oxide, some P2 and P4.
61.0	61.5	ARGG	S1 Sk Black, hard, angular fragments of graphitic argillite; weak to moderate S1 quartz veinlet/micro-veinlet stockwork, milky-cloudy quartz, some stained with limonite.
61.5	63.0	LAQM	80:20 AQM C2 1P3 Limonite altered AQM, close to fracture system, same as 59-61.0 m, see description.
63.0	72.2	AQM	C3 TrP3

			Light grey-green grey altered monzonite; 70-72.2 m more tan/beige "bleached"; very good textures with sub-euhedral hexagons of biotite altering to well defined silvery-white sericitic pseudomorphs and faint greenish-cream, or milky-beige sericitic altered k-spar phenocrysts; no quartz eye; relatively opaque feldspar-sericite rich greenish or milky matrix; strongly calcareous, C3 except for bleached AQM 70-72.2, C2; unusually large fragments, a few up to 2 cm in length; no secondary quartz or stockwork; trace pyrite as fine < ¼ mm disseminated anhedral blebs, almost completely oxidized to manganese oxide, with minor dark red limonite, P3;
72.2	75.0	ARGG	70:30 SST S1 C2 TrP0 Fine, black, hard, uniform, angular fragments of graphitic argillite; very black, with good graphitic lustre; with ~30% fragments of interbedded medium to dark grey, fine, uniform, calcareous siltstone; weak to moderate S1 milk quartz veinlet/micro-veinlets; fragments of SST decrease downhole, no much SST from 76-77.8 m; weak to moderate calcareous, C2; trace euhedral cubes +/- striated of yellowy fresh pyrite, a few fragments jammed pack with pyrite.
75.0	83.5	AQM	C2 1P2 Light grey to beige "bleached" altered monzonite; good texture with beige to silvery-white anhedral to euhedral hexagons of sericitic altered biotite and creamy-milky sericite altered k-spar phenocrysts; no quartz eyes; opaque feldspar-sericite rich groundmass; moderately calcareous, c2; no secondary quartz or stockwork; 1-2% pyrite, as 1) *fine < ¼ mm disseminated anhedral blebs, P2-P3 oxidized to manganese oxide and limonite 2) fine < ¼ mm disseminated sub-euhedral cubes of pyrite, relatively fresh to slightly tarnished P0-P1.
83.5	90.0	SST	85:15 ARGG C1 TrP0 Predominantly medium to dark grey, fine, uniform, calcareous, siltstone interbedded with ~15% thin beds of black graphitic argillite; coldly calcareous, C1; trace contamination from AQM above in 84-86m; can see weak wispy lamina in a few fragments; appears to be no secondary quartz or stockwork; trace pyrite as 1) fresh, bronzy to brassy, sub-euhedral disseminated cubes, some concentrated locally 2) a few fragments with >50% fresh pyrite cubes packed into one fragments, pyritic vein? or in quartz?

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2238

NORTHING : 19379.9 EASTING : 23176 ELEVATION : 818.1

MAXDEPTH : 76 AZIMUTH : 316 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.20	OB	=>LAQM+ARGG
4.20	10.00	AQM	60:40 LAQM S1 Sk
10.00	17.50	LAQM	C1 S1 1P4
17.50	19.00	ARGG	3P0
19.00	19.20	AQM	7P0 Sb
19.20	22.00	LAQM	C2 5P1
22.00	26.00	AQM	+Lm C2 2P2
26.00	32.20	AQM	C2 1P3 Sb
32.20	36.50	LAQM	C3 TRP3
36.50	37.80	LQM	75:25 QM
37.80	40.20	LAQM	C3 S1 TRP2
40.20	42.50	LQM	C3
42.50	46.00	QM	C3
46.00	54.50	LAQM	C3
54.50	57.50	SST	80:20 ARGG C1 S1
57.50	61.50	ARGG	C1 C3
61.50	63.20	LQM	C3 TRP3
63.20	65.50	LAQM	90:10 ARGG C1 S1
65.50	76.00	SST	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2238

NORTHING : 19379.9 EASTING : 23176 ELEVATION : 818.1

MAXDEPTH : 76 AZIMUTH : 316 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.10	P4	C1	S1	WET
2.00	4.00	.08	P4	C1	S1	WET
4.00	6.00	.42	-1	C0	S1	DRY
6.00	8.00	.16	P4	C0	S1	DRY
8.00	10.00	.17	-1	C0	S1	DRY
10.00	12.00	.36	P4	C1	S1	DRY
12.00	14.00	.64	P4	C1	S1	DRY
14.00	16.00	.40	P4	C1	S0	DRY
16.00	18.00	.50	P4	C1	S0	DRY
18.00	20.00	.41	P0	C1	S0	DRY
20.00	22.00	.12	P1	C2	S0	DRY
22.00	24.00	.08	P2	C2	S0	DRY
24.00	26.00	.08	P2	C2	S0	DRY
26.00	28.00	.15	P3	C3	S0	DRY
28.00	30.00	.04	P3	C2	S0	DRY
30.00	32.00	.09	P2	C2	S0	DRY
32.00	34.00	.13	P3	C2	S0	DRY
34.00	36.00	.03	P3	C3	S0	DRY
36.00	38.00	.09	P0	C3	S1	DRY
38.00	40.00	.19	P2	C3	S0	DRY
40.00	42.00	.05	-1	C3	S0	DRY
42.00	44.00	.02	-1	C3	S0	DRY
44.00	46.00	.01	-1	C3	S0	DRY
46.00	48.00	.01	P3	C3	S0	DRY
48.00	50.00	.01	P3	C3	S0	DRY
50.00	52.00	.28	P3	C3	S0	DRY
52.00	54.00	.16	P3	C2	S0	DRY
54.00	56.00	.05	-1	C1	S0	DRY
56.00	58.00	.01	-1	C1	S1	DRY
58.00	60.00	.01	-1	C1	S0	DRY
60.00	62.00	.02	-1	C1	S0	DRY
62.00	64.00	.02	P0	C3	S0	DRY
64.00	66.00	.01	P3	C3	S0	DRY
66.00	68.00	.01	P0	C1	S1	DRY
68.00	70.00	.01	-1	C2	S0	DRY
70.00	72.00	.02	-1	C1	S1	DRY
72.00	74.00	.01	P4	C1	S1	DRY
74.00	76.00	.01	-1	C1	S1	DRY

0.0	4.2	OB	=>LAQM +ARGG C1 S1 TrP4 1 m of OVB/Fill determined by drill tech, actually ~4 cm of OVB/Fill; pretty noticeable in both washed and unwashed trays; 0-4 m damp and muddy, a moderate amount of organics; mostly LAQM with minor amounts of AQM, ARG and SLTG; LAQM: dark orange, moderate to strongly pervasive limonite altered monzonite; fairly strong, even staining; texture weak to moderate preserved with biotite altering to sericite, altering to limonite, seen as orange limonite shreds and silvery-white (+/- stained orange) subhedral sericitic pseudomorphs and k-spar seen as anhedral blebs of orange stained, sericitic pseudomorphs; no quartz eye; quartz-feldspar-sericite rich groundmass; weakly calcareous, C1; weak S1 clear and cloudy veinlets; trace fine < ¼ mm disseminated pyrite blebs, P4, altered to dark red limonite. ARGG: black, hard, angular fragments of graphitic argillite; moderate S1 cloudy quartz veinlet/micro-veinlet stockwork; patchy oxidized fracture. Others; soft, platy, dark grey shale, platy dark grey siltstone, beige to medium grey, fine, uniform SST and bleached beige AQM.
4.2	10.0	AQM	60:40 LAQM S1 Sk Near equal amounts of beige to white bleached altered monzonite and orange/dark orange weak to moderate pervasive limonite altered monzonite; LAQM appears to be more dominant from 4-6 m with AQM from 6-10 m; AQM: beige to white in colour; moderate preservation of texture with biotite altering to beige and silvery-white sericitic pseudomorphs to +/- orange limonite; no quartz eye. LAQM: orange in colour, pretty good texture with biotite to orange sub-anhedral limonite shreds and pseudomorphs and faint sericitic altered orange stained anhedral k-spar phenocrysts; no quartz eye; both are non-calcareous with a moderate to strong S1 clear-cloudy (sulfide-rich?) quartz veinlet/micro-veinlet stockwork; silica flooding form 8-10 m; not much sulfide, destroyed?, very, very trace < ¼ mm disseminated anhedral blebs altered to limonite; very trace green roscolite alteration of k-spar.
10.0	17.5	LAQM	C1 S1 1P4 Dark orange to brown, moderate to strong pervasive limonite altered monzonite; strong, even limonite staining; appears to be a dull, earthy, feldspar-sericite-quartz rich groundmass; fairly good preservation of texture with moderate defined dark orange limonitic sub-anhedral shreds and hexagons of altered biotite and milky creamy-orange +/- limonite shimmery sericitic altered k-spar phenocrysts; biotite completely altering to sericite (rare remnant of silica rims) 90% altering to limonite, k-spar completely altering to sericite, altering to limonite; no quartz eye; pseudomorphs and phenocrysts stand out in darker groundmass; towards 17.0 m, < 1% fragments of light grey-white AQM; weakly calcareous, C1; weak to moderate S1 clear – limonite stained quartz veinlets/micro-veinlets, most apparent from 10-12 m, decreases downhole ; no silica flooding; ~1% pyrite occurring as 1) mostly disseminated fracture coatings, concentrated, P4, altered to dark red limonite manganese oxide (I believe there is also manganese oxide fracture coatings that weren't pyrite too). 2) fine < ¼ mm disseminated anhedral blebs, P4 alteration to limonite 3) coarse < ½ mm granular – massive blebs, less oxidized, P2-P3.
17.5	19.0	ARGG	3P0 Dark grey to black, hard, angular fragments of graphitic argillite; excellent graphitic lustre; very trace quartz veinlet/micro-veinlets; non-calcareous, very trace patchy limonite; more equant, not platy fragments; towards lower contact at 19.0 m, (tray 18-20 m), argillite becomes packed with fine < ¼ mm fresh pyrite ~10% - like a "pyritic" horizon with AQM below? Overall ~3% P0.

19.0	19.2	AQM	7P0 Sb Thin sliver of light grey altered monzonite; weak to moderate preservation of texture with biotite to beige sericitic pseudomorphs and k-spar to anhedral silvery-shimmery sericitic blobs; main thing is this thin sliver is packed with ~7% fresh (to S1 tarnished) anhedral-euhedral fine < ¼ mm disseminated pyrite; quartz-sericite-rich groundmass, but doesn't appear to be any secondary quartz; a trace red kermesite.
19.2	22.0	LAQM	C2 5P1 Dull orange, moderately pervasive limonite altered monzonite; pretty good textures with biotite altering to well-defined silvery-white sub-euhedral pseudomorphs (hexagons) and shreds +/- alteration to limonite; k-spar altering to weak to moderate defined sub-anhedral milky sericitic altered phenocrysts; no quartz eye; overall, same texture as LAQM above, just a bit less limonite and sericite altered; cloudy-orange quartz-sericite rich groundmass; moderately calcareous, C2; some parts of fragments a bit less altered very weak pervasive limonite, almost AQM (less altered cores); no secondary quartz or stockwork; 3-7% pyrite as fine < ¼ mm to coarser < ½ mm disseminated and sub-euhedral cubes and anhedral blebs; fresh to slightly tarnished.
22.0	26.0	AQM	+Lm C2 2P2 Light grey to beige, bleached-looking altered monzonite; orange to dark orange limonite coating a few surfaces of fragments, some weakly pervasive forming limonite envelope along edges; moderately calcareous, C2; opaque, kinda sugary-looking feldspar-sericite rich matrix with faint to moderate outlines of beige sericite altered biotite pseudomorphs and milky sub-anhedral and/or sericite altered k-spars, limonite staining of these towards limonite coatings; no quartz eye; no secondary quartz or stockwork; very trace pink in groundmass to kermesite? (altered stibnite); 1-3% pyrite as fine < ¼ mm disseminated anhedral blebs, not nearly as much nice shaped cubes etc, as LAQM above, plus more altered, P2-P3 but still a minor amount of more coarser < ½ mm granular – massive blebs and disseminated cubes of relatively fresh pyrite; quite noticeable pyrite of sericitic biotite pseudomorphs.
26.0	32.2	AQM	C2 1P3 Light grey-beige bleached altered monzonite, same as 19.2-22.0 m but without the limonitic fracture coatings; see description above for details of texture; pretty much no secondary quartz or stockwork, but very, very trace (actually two) from 28-30 m, milky beige-clay or quartz micro-veinlets; ~1% pyrite as fine < ¼ mm disseminated anhedral blebs with variable oxidized from P2-P4 alteration to manganese oxide and dark red limonite (very minor), so overall P3, sometimes quite borderline; trace fresh cubes; increasing in limonite fracture towards lower contact.
32.2	36.5	LAQM	C3 TrP3 Tan to orange, weak to moderately pervasive limonite altered monznotie with some dark orange and brown/black limonite and manganese oxide fracture coatings; moderate to strong calcareous, C2-C3; unit stands out due to its strongly defined sub-anhedral milky-white, clay altered k-spar phenocrysts in the tan opaque, feldspar-sericite rich matrix; biotite pseudomorphs don't appear to be well preserved, rare very faint outline of sericitic biotite shreds; all altered to limonite; very trace clear S1 quartz micro-veinlet: k-spars up to 6 mm in length; trace fine < ¼ mm disseminated sub-anhedral pyrite, mostly P3-P4, manganese oxide and limonite, but minor P2 and very trace P1-P2, so overall ~P3.
36.5	37.8	LQM	75:25 QM C3 Brownish-orange weak to moderate pervasive limonite monzonite with ~20-30% fragments of dark grey, non-limonitic quartz monzonite; excellent textures at least 5% brown/black biotite; biotite has very weakly begun to altered to silica sericite near rims and close to cleavage fracture of the phenocrysts; biotite is

			fairly equigranular; k-spars are very rare, very trace and/or limonite stained soft sericite/clay altered sub-anhedral blebs; no quartz eye; earthy opaque groundmass altering to LAQM; cloudy weakly translucent-looking groundmass, quartz –feldspar-sericite rich; strongly calcareous, C3; no secondary quartz or stockwork; no apparent sulfides.
37.8	40.2	LAQM	C3 S1 TrP2 Tan/brown to orange, weak to moderate pervasive limonite altered monznotie with minor darker orange limonite fracture; relatively the same as 32.2-36.5 m, but fewer milky k-spar phenocrysts; more altered fragments most likely closer to fractures; see description 32.2-36.5; < 1% fragments of AQM; trace S1 quartz veinlet clear and cloudy with of relatively fresh disseminated pyrite; very trace pyrite as fine < ¼ mm disseminated anhedral-euhedral blebs and cubes P1-P4, Ah!!!; so overall ~P2? (it is just trace pyrite).
40.2	42.5	LQM	C3 Greeny-brown to orangy-brown weak to moderate pervasive limonite monzonite; excellent texture with 3-5% brown/black flakes and books of relatively fresh pyrite; has begun to alter to sericite near rims and along cleavage fracture, very few have almost completely altered to sericite; a few more k-spars than 36.2-37.8 m, seen as faint to well-defined, very soft, milky (stained orange), clay altered phenocrysts; no quartz eye; dark earthy, opaque groundmass; no secondary quartz or stockwork; no visible sulfide; strongly calcareous, C3.
42.5	46.0	QM	C3 Dark bluish-grey monzonite with at least 10% brown/black flakes and books of equigranular biotite; not much alteration, like above, just very little sericitic alteration of rims; k-spars are kinda cloudy-grey; faint anhedral outlines, relatively unaltered; very minor limonite fracture close to upper contact; no quartz stockwork, but a few tips of fragments, appear to be clear quartz, silica flooding? (still biotite phenocrysts); no sulfides.
46.0	54.5	LAQM	C3 Variably limonitic altered monzonite but consistent opaque, sugary-looking feldspar-sericite rich groundmass with limonite altered sericitic biotite pseudomorphs and milky, white and/or limonite staining, opaline-looking sub-anhedral k-spars; pervasive limonite increases downhole from tarnished brown weak to moderate pervasive limonite (46-49.0 m) to brown orange strong pervasive limonite and finally to almost intense dark orange pervasive limonite form 54.0-54.4 m; gradual change; difficult to pick out contacts, besides, all the same intrusive unit; no quartz eye; overall strongly calcareous, C3; but as limonite increases, calcareous decreases form 52-54.5 to C2; trace LQM continues from above < 1% of fragments from 46-48 m; minor yellowy clay alteration of a few k-spar phenocrysts; * limonite alteration is strong and even; no secondary quartz or stockwork; trace fine < ¼ mm disseminated sub-anhedral blebs of pyrite, P3-P4, alteration to dark red limonite; very trace segmented pyrite, P3 micro-veinlet; LAQM is soft, and intensely altered near lower contact (0.5 m).
54.5	57.5	SST	80:20 ARGG C1 S1 Medium-dark grey, fine, uniform, siliceous-looking, calcareous, Steel Formation Siltstone; more tan-grey for 54.5-56.0 m where weak pervasive limonite and orange limonite fracture staining; ~20% angular fragments of hard, black, graphitic argillite; less near upper contact but increasing towards lower contact; weakly calcareous, C1; weak S1 milky-limonite stained veinlets/micro-veinlets, not stockwork; minor patchy yellowy-green clay coatings on a few fractures; very trace pyrite as 1) very fine < ¼ mm disseminated euhedral fresh cubes and 2) very thin oxidized (P3-P4) to manganese oxide, segmented pyrite micro veinlets.

57.5	61.5	ARGG	C1 Dark grey to black, hard, angular fragments of graphitic argillite; excellent graphitic lustre, can even see dark grey flecks of graphite; more equant and lesser platy fragments; no quartz veinlet/micro-veinlets or stockwork; very trace patchy limonite on a few surfaces; very weakly calcareous, C1; no sulfide.
61.5	63.2	LQM	C3 Greeny-brown to orange-brown weak to moderately pervasive limonite monzonite, similar to 40.2-42.5 m, see description except just a bit more alteration of biotite to sericite; < 1% fragments of grey QM.
63.2	65.5	LAQM	C3 TrP3 Dull, orangy-brown, earthy, limonite altered monzonite; opaque, sugary-looking feldspar-rich matrix with relatively poor preservation of limonite altered sericitic biotite pseudomorphs and creamy-beige sericite altered k-spars and/or limonite stained; no quartz eye; strongly calcareous, C3; no secondary quartz or stockwork; trace pyrite as 1) mostly – fine < ¼ mm disseminated anhedral specks of oxidized pyrite P3-P4;, alteration to both limonite and manganese oxide and 2) very thin parallel micro-veinlets of grey-cloudy quartz-sulfide rich most likely; very trace pyrite a s 1) fresh P1 very fine cubes 2) coarser < ½ mm granular sub-euhedral masses of pyrite cubes 3) oxidized disseminated pyrite (72-76 m) in SST, P4, altered to orange disseminated limonite subhedral blebs.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2239

NORTHING : 19371 EASTING : 23400.2 ELEVATION : 847.1

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	7.80	OB	=>ARGG+LAQM+SHG S1 TRP4
7.80	16.00	LQM	80:20 QM C3
16.00	21.80	LAQM	C3 TRP4
21.80	33.90	LQM	C3
33.90	35.90	LAQM	C3 2P4
35.90	42.10	AQM	C3 8P3
42.10	44.50	AQM	C2 2P2
44.50	47.00	AQM	C2 6P3
47.00	52.00	LAQM	C2 2P2
52.00	54.30	LAQM	C3 TRP4
54.30	60.00	ARGG	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2239

NORTHING : 19371 EASTING : 23400.2 ELEVATION : 847.1

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.15	P4	C0	S0	DRY
2.00	4.00	.12	P4	C0	S1	DRY
4.00	6.00	.11	-1	C0	S1	DRY
6.00	8.00	.04	P4	C1	S1	DRY
8.00	10.00	.05	-1	C3	S0	DRY
10.00	12.00	.05	-1	C3	S0	DRY
12.00	14.00	.24	-1	C3	S1	DRY
14.00	16.00	.01	P4	C3	S0	DRY
16.00	18.00	.01	P4	C3	S0	DRY
18.00	20.00	.08	P4	C3	S1	DRY
20.00	22.00	.48	P4	C3	S0	DRY
22.00	24.00	.86	P4	C3	S0	DRY
24.00	26.00	.77	-1	C3	S1	DRY
26.00	28.00	.60	P4	C3	S0	DRY
28.00	30.00	.66	-1	C3	S0	DRY
30.00	32.00	.07	-1	C3	S1	DRY
32.00	34.00	.05	P4	C3	S0	DRY
34.00	36.00	.15	P4	C3	S0	DRY
36.00	38.00	.21	P3	C3	S0	DRY
38.00	40.00	.01	P3	C3	S1	DRY
40.00	42.00	.04	P3	C2	S0	DRY
42.00	44.00	.09	P2	C2	S0	DRY
44.00	46.00	.13	P3	C2	S1	DRY
46.00	48.00	.36	P2	C2	S0	DRY
48.00	50.00	.33	P2	C2	S0	DRY
50.00	52.00	.26	P2	C3	S0	DRY
52.00	54.00	.02	P4	C3	S0	DRY
54.00	56.00	.08	P4	C3	S1	DRY
56.00	58.00	.03	-1	C1	S0	DRY
58.00	60.00	.01	-1	C0	S1	DRY

0.0	7.8	OB	=>ARGG +LAQM +SHG S1 TrP4 Depth of overburden not recorded by drill tech, but estimated ~4 m of fill, so with the addition of OVB (typically 2-3 m) probably ~1-8 m before bedrock starts; verified by unwashed tray where 0-7.8 m, is dark brown, slightly moist and looks soil-rich; mixed lithologies consist mostly of ARGG with lesser amounts of LAQM and SHG; large fragments up to 1.5 cm, typical of fractured overburden. ARGG: dark grey to black, hard, angular fragments of graphitic argillite; fairly good graphitic lustre; not much stockwork, weak milky S1 quartz veinlets/micro-veinlets; very little orange oxidized fracture coatings. LAQM: dark orange to red, moderate to very strong pervasive limonite altered monzonite; limonite staining relatively patchy; most texture destroyed; biotite completely altered to k-spar, completely altering to limonite; k-spar altering to sericite, altering to limonite; no quartz eye; opaque, earthy, feldspar-sericite rich groundmass; non-calcareous; no secondary quartz or stockwork; SHG: dark grey, soft, graphitic shale; some platy, some more rounded fragments, but all have fairly smooth rounded edges; occasionally see very well defined bedding laminations (orange oxidized laminations).
7.8	16.0	LQM	80:20 QM C3 Predominantly greeny-brown to orange-brown, weak to moderate pervasive limonitic monzonite with ~20% fragments of dark grey unaltered monzonite consistently throughout unit; excellent texture with at least 5% bi-modal brown/black flakes and books of biotite in a weakly translucent-looking feldspar-quartz rich matrix; k-spars are not common and are seen as faint cloudy and/or sericite altered, and/or limonite stained anhedral blebs (not fresh, defined phenocrysts); minor silvery sericitic alteration of rims and cleavage fracture of biotite; a few in LQM almost completely altered; pretty barren of sulfide, but 14-16 m towards lower contact very trace pyrite as fine < ¼ mm disseminated anhedral blebs; P4 oxidized to limonite in LQM, fresh P0 in lesser QM; no secondary quartz or stockwork; a few tips of fragments quite translucent-looking almost look silica flooded, very minor; strongly calcareous, C3.
16.0	21.8	LAQM	C3 TrP4 Dull orange/brown moderately pervasive limonite altered monzonite; limonite staining is patchy and uneven; fairly moderate preservation o texture; well-defined sub-euhedral biotite appears to be altering directly to limonite (can see trace remnants of fresh biotite) or altered to sericite, then to limonite, so biotite altering to limonite, altering to manganese oxide or biotite altering to sericite, altering to limonite; k-spars appear as soft, milky, clay altered subhedral phenocrysts, faint (+ limonite stained) to moderate defined (milky-white), not very common; no quartz eye; dull, earthy, opaque, feldspar-rich groundmass overall, no secondary quartz or stockwork, but 18-20 m, has weak S1 cloudy-blue-greyish fragments where biotite uncommon as rare limonite shreds; trace – 1% pyrite as fine < ¼ mm disseminated sub-anhedral specks and blebs, mostly P4, alteration to dark red limonite and lesser manganese oxide, some P3.
21.8	33.9	LQM	C3 Greeny-brown to orangy-brown weak to moderate pervasive limonite monzonite, a few fragments more strongly limonite, < 2% fragments of dark relatively unaltered monzonite (especially from 32-34 m); same as 7.8-16.0 m, see above description; k-spar phenocrysts stand out more, are milky, soft, anhedral and clay altered; very trace clear in situ jaggedy fragments of quartz from 24-26 m and 30-32 m; minor manganese oxide coatings and few biotite; trace fine < ¼ mm disseminated anhedral specks and blebs of pyrite, P4, altered to limonite and lesser manganese oxide; strongly calcareous, C3.

33.9	35.9	LAQM	C3 2P4 Orange, moderate to strongly pervasive limonite altered monzonite; limonite staining is fairly even; good preservation of texture with biotite seen as 1) orange patchy limonite shreds and 2) as sub-euhedral hexagons altered to sericite altering to limonite; k-spars are faint, altered to sericite and stained with limonite; sugary-looking feldspar-sericite rich groundmass; no quartz eye; strongly calcareous, C3; no secondary quartz or stockwork; ~2% pyrite occurring as 1) fine < ¼ mm disseminated sub-anhedral specks and blebs, P4, oxidized to dark red limonite, borderline P3 2) disseminated pyrite fracture coatings, P4, oxidized to manganese oxide and limonite 3) coarser < ½ m granular-massive blebs or cubes, P3, less oxidized to limonite.
35.9	42.1	AQM	C3 8P3 Borderline LAQM-AQM; to the naked eye appears to be LAQM but under the micro-scope groundmass is creamy-milky and unaltered with strong dark orange-red limonite alteration of biotite and k-spar and pyrite giving fragments a weak orange-red limonitic hue; none to very, very weak pervasive limonite groundmass; opaque feldspar-sericite rich matrix; sub-anhedral shreds and hexagons of biotite, almost all altered to limonite, but some remnants of silvery-white sericitic pseudomorphs; k-spars are faint, anhedral, shimmery and limonite stained soft, phenocrysts; no quartz eye; strongly calcareous, C3, slightly decreasing to C2, towards lower contact; abundant sulfide, ~7-10% pyrite, P3-P4, borderline, alteration to limonite (mostly manganese oxide); but can still feel fairly easily, pyrite; quite variable in size ranging from very fine/fine < ¼ mm to very coarse < 1 mm disseminated 1) sub-euhedral cubes 2) anhedral blebs 3) massive-granular blebs very trace grey quartz fragments 38-40 m.
42.1	44.5	AQM	C2 2P2 Creamy-white altered monzonite with an opaque, sugary, sericite rich matrix and pale orange sub-anhedral blebs of limonitic altered biotite and k-spar; lesser silica, shimmery sericitic biotite pseudomorphs; biotite completely to sericite, altering to limonite; k-spar altering to sericite and/or roscolite (green), altering to limonite; no quartz eye; and less pyrite than above unit, ~2% mostly coarser pyrite ½ - ¾ mm, sub-euhedral cubes and granular massive blebs (minor); minor fine < ¼ mm pyrite (cubes); less altered than above, borderline P2-P3 oxidized to limonite; < 1% coarse 2mm free cubes of pyrite, P2; no secondary quartz or stockwork.
44.5	47.0	AQM	C2 6P3 Pretty much the same as 35.9-42.1 m, see description; except less calcareous, more moderate C2, groundmass is a bit less milky and more shimmery (sericite-rich), a bit less pyrite 5-7%, very trace quartz fragments from 44-46 m.
47.0	52.0	LAQM	C2 2P2 Same intrusive texture as above units, but weak to moderately pervasive limonite; sugary to milky weak to moderate stained limonitic matrix; good preservation of texture with biotite altering to sericite, altering to limonite and k-spar altering to sericite, altering to limonite, mostly seen as orange-dark orange sub-anhedral blebs and silvery-white remnants; no quartz eye; moderate to strongly calcareous, C2, reaction to HCl slow to start but within a few seconds quite a positive reaction; variable pyrite ranging in oxidized from P1 to P3, so overall ~P2 occurs as fine < ¼ mm to coarse < ½ mm sub-anhedral blebs; extent of limonite alteration tends to increase downhole.
52.0	54.3	LAQM	C3 TrP4 Dull, dark orange/brown, strongly pervasive limonite altered monzonite; dull earthy, opaque, sugary-looking matrix; strong, even limonite staining; some texture is destroyed; borderline LAQM, can see quite a few black remnants in limonitic altered biotite shreds; lesser silvery-white sericitic biotite pseudomorphs altering to limonite; rare faint limonitic, sericite/clay altered k-

spars; no quartz eye; strongly calcareous, C3; very trace clear jaggedy in situ quartz from 52-54 m; trace –1% fine < ¼ mm pyrite, mostly as disseminated anhedral blebs and disseminated fracture coatings, mostly P4, some P4, alteration to both limonite and manganese oxide.

54.3 60.0 ARGG C1

Very, black, hard, angular fragments of graphitic argillite; good graphitic lustre; unusual absence of S1 quartz veinlet/micro-veinlet stockwork, very trace cloudy micro-veinlets in 58-60 m; more equant than platy fragments, no crude bedding laminations; crunchy when smushed in tray; very weakly calcareous; very trace orange limonite fracture coatings 58-60 m; no sulfide.

E.O.H.

SURPAC DRILL HQLE LOG Date : 13-Jan-99

HOLE ID : RC98-2240

NORTHING : 19373.7 EASTING : 23354.8 ELEVATION : 830.7

MAXDEPTH : 74 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	.50	OB	=>LAQM C1 TRP4
.50	5.50	LAQM	C1 S1 TRP4
5.50	7.50	LAQM	C2 TRP4
7.50	9.90	LAQM	C2 2P4
9.90	21.20	LQM	C3
21.20	22.50	QM	C3
22.50	25.80	LQM	C3
25.80	36.00	LAQM	C3 TRP4
36.00	45.00	LAQM	60:40 AQM C3 S1 7P4
45.00	53.80	LAQM	C3 2P4
53.80	56.50	ARGG	C1 S1 Sk TRP4
56.50	67.80	LAQM	C2 S1 Sk 3P2
67.80	70.50	ARGG	C1
70.50	71.50	LAQM	C1 S1 Sk 2P3
71.50	74.00	SST	80:20 ARGG C1 S2 Sk TRP1 Ft*

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2240

NORTHING : 19373.7 EASTING : 23354.8 ELEVATION : 830.7

MAXDEPTH : 74 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.43	P4	C1	S0	DRY
2.00	4.00	.39	P4	C1	S1	DRY
4.00	6.00	.88	P4	C1	S0	DRY
6.00	8.00	2.86	P4	C2	S0	DRY
8.00	10.00	.92	P4	C2	S0	DRY
10.00	12.00	.10	P4	C3	S0	DRY
12.00	14.00	.05	-1	C3	S0	DRY
14.00	16.00	.29	-1	C3	S0	DRY
16.00	18.00	.38	-1	C3	S1	DRY
18.00	20.00	.14	-1	C3	S1	DRY
20.00	22.00	.11	-1	C3	S0	DRY
22.00	24.00	.10	-1	C3	S0	DRY
24.00	26.00	.07	-1	C3	S0	DRY
26.00	28.00	.42	P4	C3	S0	DRY
28.00	30.00	.12	P4	C3	S0	DRY
30.00	32.00	.07	P4	C3	S0	DRY
32.00	34.00	.09	P4	C3	S0	DRY
34.00	36.00	.21	P4	C3	S0	DRY
36.00	38.00	1.10	P4	C3	S0	DRY
38.00	40.00	.14	P4	C3	S1	DRY
40.00	42.00	.49	P4	C3	S1	DRY
42.00	44.00	.83	P4	C3	S0	DRY
44.00	46.00	.20	P4	C3	S0	DRY
46.00	48.00	.10	P4	C3	S0	DRY
48.00	50.00	.08	P4	C3	S0	DRY
50.00	52.00	.04	P4	C3	S0	DRY
52.00	54.00	.80	P4	C2	S0	DRY
54.00	56.00	.12	P3	C1	S1	DRY
56.00	58.00	.06	P3	C2	S1	DRY
58.00	60.00	.27	P2	C2	S1	DRY
60.00	62.00	.37	P2	C2	S1	DRY
62.00	64.00	1.35	P2	C2	S1	DRY
64.00	66.00	.46	P2	C2	S1	DRY
66.00	68.00	.12	P1	C2	S1	DRY
68.00	70.00	.08	-1	C1	S0	DRY
70.00	72.00	.04	P3	C1	S2	DRY
72.00	74.00	.04	P1	C1	S2	DRY

0.0	0.5	OB	=>LAQM C1 TrP4 0.5 m of overburden, as determined by drill technician; very minor organics from 0-2 m in washed tray; a few large fragments up to 20m, typical of fractured OVB; almost entirely LAQM with a few < 1% fragments of hard, black argillite; no way to distinguish OVB LAQM from bedrock LAQM, both are equivalent, therefore, see below for description.
0.5	5.5	LAQM	C1 S1 TrP4 Dark orange-brown, strong, even, pervasive limonite altered monzonite; a dull, earthy, opaque, sugary groundmass with weak to moderate preservation of textures; few k-spars appear as cloudy-milky, opaline-like, weak to moderate defined sub-anhedral phenocrysts; some, quite faint, are stained with limonite; biotite are orange to dark red, sub-anhedral shreds dispersed throughout matrix, very little sericitic biotite pseudomorphs remnants, mostly all altered to limonite and/or manganese oxide coatings; don't stand out to well in dark groundmass; no quartz eye; weakly calcareous, C1; very trace clear stained orange and red quartz micro-veinlets from 2-4 m; trace –1% oxidized pyrite, difficult to estimate due to grainy nature and dark limonite alteration of groundmass; oxidized to both limonite and manganese oxide, P4, occurring as 1) fine < ¼ mm disseminated anhedral blebs 2) coarser < ½ mm disseminated anhedral blebs 3) concentrated blebs as fracture coatings.
5.5	7.5	LAQM	C2 TrP4 Tan weakly pervasive limonite altered monzonite; pale orange even, weak limonite staining, quite similar to LAQM above, but much lighter in colour; extremely sugary, opaque feldspar-sericite? rich groundmass; k-spars are much more common (1-2 at least in every fragments) soft, milky-white, opaline-like; biotite as faint orange, anhedral patches, no quartz eye; no secondary quartz or stockwork; moderately calcareous, C2; trace pyrite as fine < ¼ mm sub-anhedral specks and blebs.
7.5	9.9	LAQM	C2 2P4 Dark reddy-brown to orangy-brown, very strong even pervasive limonite altered monzonite; dull, earthy, opaque, sugary matrix, as in above intrusive units; k-spars are common, and appears as milky-cloudy, opaline-like, subhedral phenocrysts in a dark groundmass; most biotite remnants are destroyed, trace beige-silvery outlines of rare pseudomorphs; no quartz eye; moderately calcareous, C2; no secondary quartz or stockwork; ~2% oxidized P4?, could be underestimated, due to dark red nature of matrix; oxidized to limonite, P4; occurs as fine < ¼ mm disseminated anhedral blebs, some appear to be concentrated.
9.9	21.2	LQM	C3 Greeny-brown to orangy-brown, weak to moderate pervasive limonite monzonite (LBM-like); excellent texture with at least 5-10%, brown-black flakes-books of fresh biotite; no quartz eyes; in ~50% of fragments, some sericitic alteration along rims or cleavage fracture has occurred, some quite altered with biotite remnant cores; k-spars aren't too common, and occur as soft, milky-beige, strong clay altered anhedral phenocrysts; fragments quite incompetent form 12-14 m; some fragments of LAQM where all biotite altered to sericite from 14-18 m < 1%; very trace fragments QM; manganese oxide coats biotite from 16-18 m; no sulfides; very trace jaggedy (and/or vuggy) clear quartz micro-veinlets form 16-20 m; strongly calcareous, C3; opaque, sugary-looking groundmass.
21.2	22.5	QM	C3 Dark grey unaltered monzonite; excellent texture at least 10% fairly equigranular flakes and books of biotite; very weak sericite alteration of biotite around rims and cleavage fracture; strongly calcareous, C3; rare k-spars appear cloudy and silica flooded, not quartz eyes; cloudy weakly translucent-looking groundmass sericite-quartz rich; no sulfide; no secondary quartz or stockwork.

22.5	25.8	LQM	C3 Greeny-brown to orangy-brown to orange weak to strong pervasive limonite monzonite, same as 9.9-21.2 m, see above description.
25.8	36.0	LAQM	C3 TrP4 Orange-brown to dark orange brown strong to very strong, even, pervasive limonite altered monzonite; quite similar to 0.5-5.5 m and 7.5-9.9 m with the dark, dull, earthy, sugary, opaque groundmass; k-spars are common, well-defined milky, opaline-like, sub to anhedral phenocrysts; no quartz eye; not much preservation of biotite pseudomorphs, trace faint silvery-white (altering to red limonite) sericitic biotite pseudomorphs; manganese oxide replacement of both limonitic biotite and k-spar phenocrysts; minor manganese oxide fracture coatings (was not once pyrite); unusually large fragments up to 2.5 cm from 26-32 m; strongly calcareous, C3; no secondary quartz or stockwork; trace pyrite as very fine to fine < ¼ mm disseminated specks and anhedral blebs, oxidized to mostly limonite and lesser manganese oxide; P4; minor pyrite replacement of biotite, but mostly manganese oxide replacement.
36.0	45.0	LAQM	60:40 AQM C3 S1 7P4 Borderline LAQM-AQM (same as AQM unit in RC98-2239, but this unit slightly more pervasive limonite); appears to be LAQM, but under microscope, still a creamy-grey, shimmery sericite-rich groundmass; intense limonite alteration of biotite to dark orange and red sub-anhedral shreds and blebs gives fragments very weak to weak orange-red hue, weakly pervasive in quite a few fragments ~30% remain unaltered groundmass, mostly from 38-41 m; k-spars remain soft, milky sericite/clay altered, fairly defined phenocrysts; no quartz eye; limonite increasing form ~41-42 m to 45.0 m, to moderately pervasive; strongly calcareous, C3; trace grey-cloudy (sulfide-rich?) quartz veinlet fragments and in situ blebs (sic?) form 38-42 m; abundant sulfides, ~7% overall, oxidized pyrite, mostly P4, oxidized to limonite with lesser manganese oxide, P3-P4 form 42-44 m; occurs as 1) fine < ¼ mm to coarse < ½ mm disseminated sub-euhedral cubes 2) fine to coarse disseminated anhedral blebs 3) fine replacement of biotite 4) disseminated – concentrated patchy fracture coatings.
45.0	53.8	LAQM	C3 2P4 Orange to orange-brown, moderate to strongly pervasive limonite altered monzonite; limonite staining both even and patchy; dull, earthy, sugary, matrix, as LAQM units near top of hole; pretty weak preservation of texture with biotite altering to limonite or biotite altering to sericite altering to limonite, faint limonite shreds and lesser sericitic silvery-white to orange sub-anhedral pseudomorphs; k-spar to faint anhedral sericite altered pseudomorphs, stained with limonite , no quartz eyes; strongly calcareous, C3; no secondary quartz or stockwork; 1-3% oxidized pyrite occurring 1) fine < ¼ mm to coarser < ½ mm disseminated sub-anhedral blebs, 2) concentrated blebs, most likely fracture coatings 3) very thin and/or segmented oxidized micro-veinlets 4) minor of biotite shreds, along with manganese oxide.
53.8	56.5	ARGG	C1 S1 Sk TrP4 Black, hard, angular fragments of graphitic argillite; excellent graphitic lustre; crunchy, when smushed in tray; fragments most equant in shape, but a few play with sharp, jaggedy edges; weak milky-cloudy S1 quartz veinlet/micro-veinlet stockwork, many appear segmented; very trace dark orange limonite along fracture; trace pyrite, P3, oxidized to limonite, fine < ¼ mm sub-anhedral inclusions in quartz micro-veinlets; weakly calcareous, C1; trace LAQM continues from above.
56.5	67.8	LAQM	C2 S1 Sk 3P2 Bright orange-tannish "limonite-rich" strongly pervasive limonite altered monzonite; limonite alteration appears to be slightly increasing downhole; moderate preservation of textures with orange limonite altered biotite shreds and limonite stained, silvery-white sericitic biotite pseudomorphs and anhedral

			limonite stained clay altered k-spar phenocrysts, stand out in lesser, strong, even, limonitic groundmass; sericite-quartz-rich groundmass to weakly translucent looking; strong S1-S2 quartz veinlet/micro-veinlet stockwork to clear to cloudy-grey to limonite stained milky quartz as both in situ veinlets and free fragments; minor silica flooding, but appears to increase downhole; moderately calcareous, C2; variable pyrite form 2-5%, overall ~3% occurring as 1) fine < ¼ mm disseminated anhedral blebs 2) fine disseminated sub-euhedral cubes 3) pyrite of biotite pseudomorphs and 4) inclusions in or along selvages of quartz veinlets; oxidized variable from P1-P3, most P2 with limonite alteration around rims, but less altered cores, more P1 from 66-68 m; more P3 from 56-58 m.
67.8	70.5	ARGG	C1 Black, hard, angular fragments of graphitic argillite; excellent graphitic lustre; weak crude bedding laminations; no quartz veinlet stockwork, as in ARGG unit from 53.8-56.5; no sulfide; weakly calcareous, C1
70.5	71.5	LAQM	C1 S1 Sk 2P3 Orange to red, strongly pervasive limonite altered monzonite, same as 56.5-67.8 m, see description; a bit more oxidized pyrite P2-P3, very trace P1
71.5	74.0	SST	80:20 ARGG C1 S2 Sk TrP1 Ft* Medium grey to tan, fine, uniform, siliceous-looking calcareous Steel Formations Siltstone with ~20% fragments of brecciated-like graphitic argillite (such intense stockwork, breaking up ARG fragments); strongly S2 quartz veinlet/micro-veinlet stockwork, more in ARGG which is mostly likely the upper portion of this unit; some sort of movement because biotite in one fragment a quartz micro-veinlet was offset twice;, ~1 mm offset each time - fault?; weakly calcareous, P1-P2, stockwork tarnished.

E.O.H

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2241

NORTHING : 19178 EASTING : 23682.5 ELEVATION : 832.4

MAXDEPTH : 90 AZIMUTH : 311 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	7.00	OB	=>LAQM+ARG C1
7.00	11.00	LAQM	C2 TRP4
11.00	15.20	LAQM	C3 S2 Sk 5P4
15.20	23.00	LSST	C1 S2 Sk 2P4
23.00	31.00	LAQM	C2 TRP4
31.00	35.50	LAQM	C1 S1 Sk 3P4
35.50	43.00	LAQM	C2 S1 2P3
43.00	46.80	SST	+Lm C2
46.80	52.00	ARGG	60:40 SHG C1 Ft*
52.00	53.00	ARGG	95:5 SST
53.00	53.20	LAQM	C1 S1 1P3
53.20	55.00	ARGG	
55.00	61.50	SST	80:20 ARGG C1 S1 Sk
61.50	63.00	LAQM	C1 S2 Sk 2P3
63.00	65.80	ARGG	95:5 SST S2 Sk C1
65.80	67.00	LAQM	C1 S3 Sk 2P3
67.00	88.20	ARGG	C1 S1 Sk
88.20	90.00	SST	C1 S1 TRP0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2241

NORTHING : 19178 EASTING : 23682.5 ELEVATION : 832.4

MAXDEPTH : 90 AZIMUTH : 311 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.54	P4	C1	S0	WET
2.00	4.00	.27	P4	C1	S0	WET
4.00	6.00	.68	P4	C1	S0	WET
6.00	8.00	.77	P4	C1	S0	WET
8.00	10.00	.53	P4	C2	S0	WET
10.00	12.00	.46	P4	C2	S1	DRY
12.00	14.00	.31	P4	C3	S2	DRY
14.00	16.00	.30	P4	C2	S2	DRY
16.00	18.00	.17	P4	C1	S3	DRY
18.00	20.00	.19	P4	C1	S2	DRY
20.00	22.00	.35	P4	C2	S2	DRY
22.00	24.00	.54	P4	C3	S1	DRY
24.00	26.00	.75	P4	C2	S0	DRY
26.00	28.00	1.95	P4	C2	S0	DRY
28.00	30.00	.58	P4	C3	S0	DRY
30.00	32.00	2.70	P4	C1	S1	DRY
32.00	34.00	4.52	P4	C1	S1	DRY
34.00	36.00	1.82	P4	C1	S1	DRY
36.00	38.00	1.61	P3	C3	S1	DRY
38.00	40.00	.24	P3	C3	S1	DRY
40.00	42.00	1.40	P3	C2	S1	DRY
42.00	44.00	.09	P3	C2	S1	DRY
44.00	46.00	.04	P4	C2	S1	DRY
46.00	48.00	.13	-1	C1	S1	DRY
48.00	50.00	.04	P3	C1	S0	DRY
50.00	52.00	.01	-1	C1	S1	DRY
52.00	54.00	.04	P3	C1	S0	DRY
54.00	56.00	.06	-1	C0	S0	DRY
56.00	58.00	.13	-1	C1	S1	DRY
58.00	60.00	.05	-1	C1	S1	DRY
60.00	62.00	.06	P3	C0	S1	DRY
62.00	64.00	.23	P3	C1	S1	DRY
64.00	66.00	.13	-1	C1	S2	DRY
66.00	68.00	.14	P3	C1	S2	DRY
68.00	70.00	.03	-1	C1	S1	DRY
70.00	72.00	.03	-1	C1	S1	DRY
72.00	74.00	.02	-1	C1	S1	DRY
74.00	76.00	.02	-1	C1	S1	DRY
76.00	78.00	.02	-1	C1	S1	DRY
78.00	80.00	.02	-1	C1	S1	DRY
80.00	82.00	.04	-1	C1	S1	DRY
82.00	84.00	.10	-1	C1	S1	DRY
84.00	86.00	.03	-1	C1	S1	DRY

86.00	88.00	.05	-1	C1	S1	DRY
88.00	90.00	.03	P0	C1	S1	DRY

0.0	7.0	OB	=>LAQM +ARG C1 7.0 m of overburden, as determined by drill technician; 0-7 m of unwashed tray wet and muddy with large fragments up to 1.5 cm typical of fractured overburden; very minor organics; 4-6 m poor recovery? – ¼ of tray full; mixed lithologies consist almost entirely of LAQM with a minor amount of argillite; LAQM: is quite variable; ranges from tan to brown to orange/brown to orange/brown in color; weak to strongly pervasive limonite altered monzonite; moderately pervasive of textures with fairly well-defined 1) limonite altered biotite shreds 2) silvery sericitic altered sub-anhedral hexagonal biotite pseudomorphs to and/or limonite alteration 3) uncommon, faint to defined, milky-creamy, sericite/clay altered k-spar phenocrysts; no quartz eyes; and/or limonite stained, opaque, sericite-rich matrix; weakly calcareous, C1; no secondary quartz or stockwork; 1-2% oxidized pyrite occurring as fine < ¼ mm disseminated sub-anhedral blebs of pyrite, lesser coarser pyrite < ½ mm. ARG: dark grey to black, hard, angular fragments of argillite; trace limonite on fracture surfaces; very trace tan, uniform, SST.
7.0	11.0	LAQM	C2 TrP4 Orangy-brown to reddy brown, moderately to strongly pervasive limonite altered monzonite; fairly strong, even, limonite staining; good preservation of texture with well defined abundant biotite seen as dark orange/red limonitic shreds and sub-euhedral hexagonal pseudomorphs (orange limonite cores with silver sericitic unaltered rims); k-spar, weak to moderately defined anhedral, creamy-beige to white, opaline-like phenocrysts; opaque, limonite-sericite rich groundmass, weakly sugary-looking; no quartz eyes; moderately calcareous, C1-C2; manganese oxide replacement of k-spar and biotite around rims and some cores; minor disseminated manganese oxide coatings on a few fractures (don't believe it was pyrite); very little sulfide; trace fine < ¼ mm disseminated anhedral blebs of oxidized pyrite, oxidized to dark red limonite;
11.0	15.2	LAQM	C3 S2 Sk 5P4 Creamy-tan, bleached, weakly pervasive limonite altered monzonite; weakly translucent-looking sericite-quartz rich beigish matrix with orange limonitic altered biotite shreds and hexagonal sub-anhedral pseudomorphs, trace silver-shimmery sericitic biotite pseudomorphs, almost all altered to limonite, except some rims; no quartz eyes; faint to weekly defined, creamy-milky sericitic altered k-spar phenocrysts, a little with clay alteration; weak S1-S2 clear-cloudy quartz veinlet/micro-veinlet stockwork, both free quartz fragments; strongly calcareous, C3; overall oxidized pyrite, locally in some fragments close to lower contact 5-7% pyrite (14-15.2 m); oxidized to dark red limonite, P4; occurs mostly as fine < ¼ mm disseminated subhedral cubes with lesser anhedral blebs and coarser < ½ mm disseminated cubes.
15.2	23.0	LSST	C1 S2 Sk 2P4 Most fragments are orange to light-grey/tan, fine, uniform-looking calcareous siltstone with orange limonite fracture and weak pervasive limonite; excellent very fine/thin clear-cloudy micro-veinlet stockwork; minor silica flooding, fragments hard and siliceous looking; weakly calcareous, C1; some variation near top of unit where from 15.2-18 m, > 50% of fragments are medium-dark grey in colour due to strong cloudy (sulfide-rich) silica flooding and stockwork, can just see trace remnants of tan/grey uniform siltstone (almost looks like an intrusive); < 2% fragments of LAQM consistent throughout, can see the limonite alteration on many surfaces of SST deceiving, makes a few fragments almost look like intrusive; 2-3% oxidized pyrite occurring as fine < ¼ mm disseminated anhedral to euhedral cubes of pyrite, occasional coarser < ½ mm subhedral cube; alteration mostly to limonite; minor manganese oxide (wasn't pyrite) as fracture coatings on many surfaces.

23.0	31.0	LAQM	C2 TrP4 Predominantly orangy-brown moderate to strongly pervasive limonite altered monzonite; limonite staining very strong and even; a few fragments, not many, more tarnish colour where limonite more weak to moderately pervasive; earthy, opaque, sugary-looking groundmass with very poor preservation of texture, mostly destroyed with alteration to limonite; biotite remnants difficult to see as faint limonite shreds blending with matrix; k-spar a bit more obvious as milky-creamy, anhedral opaline-like, weakly clay altered phenocrysts in a dark groundmass; no quartz eyes; moderately to strongly calcareous, C2-C3; trace - 1% pyrite occurring as fine < ¼ mm disseminated sub-anhedral blebs?, a lot of disseminated and concentrated manganese oxide as fracture coatings (don't think it is altered pyrite??), so could be more than thought; doesn't appear to be any secondary quartz or stockwork; pyrite altering to dark red limonite.
31.0	35.5	LAQM	C1 S1 Sk 3P4 LAQM pretty much the same, texturally, as above but very strong to intense dark brown-dark orange-dark-red limonite altered monzonite; same earthy, opaque, limonite-rich sugary groundmass with limonitic biotite pseudomorphs completely destroyed and milky-creamy, opaline-like anhedral phenocrysts and/or limonite staining; no quartz eyes; less calcareous than LAQM above, weakly calcareous, C1; moderate S1 quartz veinlet/micro-veinlet stockwork, as clear and jaggedy in situ veinlets cutting LAQM; 2-4% pyrite, probably underestimated due to blending with very dark red limonite rich matrix, occurring as very fine to fine < ¼ mm disseminated specks and blebs, sub to anhedral, altered to very dark red limonite – looks good!
35.5	43.0	LAQM	C2 S1 2P3 Tannish-orange weak to more moderately pervasive limonite altered monzonite; looks like was bleached, before relatively even weak limonite staining of groundmass; similar to both LAQM units above with opaque, sugary-looking sericite-rich groundmass (shimmers); preservation of texture much better with less pervasive limonite; orange to dark orange limonitic altered biotite shreds and sub-euhedral hexagons with silver sericitic rims and cores (patchy alteration) still visible – stand out in matrix; faint to weakly defined limonite stained, sub-anhedral, soft, creamy sericite altered k-spar phenocrysts; moderate-strong calcareous, slow to start, but quite positive reaction with in a few secondary; 2-3% pyrite occurring mostly as fine < ¼ mm disseminated anhedral blebs and subhedral cubes and lesser coarse < ½ mm disseminated anhedral blebs and subhedral and granular-less oxidized masses; P3, some P2 and P4, oxidized to limonite; weak S1 in situ clear quartz as micro-veinlets – stockwork?
43.0	46.8	SST	+Lm C2 Dark grey to greenish grey, fine, uniform, calcareous siltstone; moderate orange to dark orange fracture coatings; moderate calcareous, C2; trace very weak bedding laminations; moderate very thin/very fine S1 quartz micro-veinlet stockwork, as limonite stained, milky veinlets; very trace very fine pyrite as disseminated sub-anhedral cubes, oxidized to limonite, P4; very few orange pervasive limonite fragments.
46.8	52.0	ARGG	60:40 SHG Ft* Near equal amounts of hard, very black, fine, argillite fragments of very graphitic argillite with ~40% fragments of very sooty, black, soft, platy graphitic shale; very poor recovery from 48-52 m < ¼ of tray full, unwashed sample, dry, very fine sooty – (shale) therefore most likely a fault; < 2% fragments of dark greeny-grey SST and a very thin silver of LAQM; weakly calcareous, C1; very weak S1 quartz micro-veinlets in 50-52 m, not any quartz before; no sulfide (trace P4 in LAQM silver).

52.0	53.0	ARGG	95:5 SST Predominantly very black, hard, angular fragments of graphitic argillite with < 5% fragments of dark grey SST; very minor patchy limonite on a few surfaces; weakly calcareous, C1.
53.0	53.2	LAQM	C1 S1 1P3 Very thin silver (interfinger off above LAQM?) of weak to moderately pervasive limonite altered monzonite, same as 35.5-43.0 m, see description; weak clear quartz micro-veinlet, as above, ~1% very fine < ¼ mm disseminated anhedral pyrite, P3, altering to limonite.
53.2	55.0	ARGG	Very black, hard, angular fragments of graphitic argillite; good graphitic lustre; very trace, very crude bedding laminations in a few fragments; very minor patchy limonite on a few surfaces; no sulfide or quartz stockwork; non-calcareous.
55.0	61.5	SST	80:20 ARGG C1 S1 Sk Medium-dark grey to greeny-grey, fine, uniform, calcareous, siltstone with ~20% fragments of hard, black angular-argillite; very weakly calcareous; weak patchy limonite on many SST surfaces; weak milky and/or limonite stained quartz micro-veinlets; no sulfide – trace? Cloudy thin veinlets in SST oxidized pyrite veinlets or quartz?
61.5	63.0	LAQM	C1 S2 Sk 2P3 Bright orange, moderate to strongly pervasive limonite altered monzonite; strong S2 clear quartz veinlet/micro-veinlet stockwork and silica-flooding (S1-S2); not much preservation of texture, mostly destroyed; biotite completely altering to sericite 95% altering to limonite (orange anhedral patches); k-spar altering to sericite, altering to limonite, faint limonitic stained subhedral? phenocrysts; no quartz eyes; silica-rich groundmass; weakly calcareous, C1; ~2% very fine to fine < ¼ mm disseminated anhedral blebs and subhedral cubes; P3, oxidized to limonite.
63.0	65.8	ARGG	95:5 SST C1 S2 Sk Very black, hard, angular fragments of graphitic argillite with < 5% fragments of dark greeny-grey SST like 52-53 m; S1-S2 clear-cloudy quartz veinlet/micro-veinlet stockwork towards lower contact with LAQM; trace patchy orange limonite on a few surfaces.
65.8	67.0	LAQM	C1 S3 Sk 2P3 Bright orange strongly pervasive limonite altered monzonite, same as above, 61.5-63.0 m, see description; strong S2-S3 quartz veinlet/micro-veinlet stockwork and silica flooding; ~2% pyrite as fine < ¼ mm disseminated anhedral blebs and subhedral cubes, borderline P2-P3 oxidized to limonite.
67.0	88.2	ARGG	C1 S1 Sk Very black, hard, angular fragments of graphitic argillite; very good graphitic lustre; weak crude bedding laminations in a few fragments; fragments more equant shape than platy; moderate to strong milky-cloudy S1 quartz veinlets/micro-veinlet stockwork, stockwork decreases downhole strong to moderate near top, moderate to weak near bottom of unit; weakly calcareous, C1; very thin interbed of dark grey Steel Formation Siltstone form 80-82 m;
88.2	90.0	SST	C1 S1 TrP0 Medium to dark greeny-grey, fine, uniform, calcareous, siltstone; Steel Formation Siltstone; very thin dark grey little veinlets, - quartz veinlets?; trace very fine < 1/8 mm disseminated fresh euhedral pyrite; weakly calcareous, C1; no limonite alteration.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2242

NORTHING : 19188.4 EASTING : 23657.2 ELEVATION : 825.7

MAXDEPTH : 90 AZIMUTH : 300 DIP : -55

ZONE : SCHOONER PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	12.00	OB	
12.00	17.00	OB	=>LAQM+ARGG S1 3P4
17.00	18.10	LAQM	C1 S1 3P4
18.10	23.90	ARGG	S1
23.90	24.80	SST	S1 Sk Ft*
24.80	25.50	LAQM	2P4
25.50	29.00	LAQM	S1 6P4
29.00	38.20	LAQM	C3 3P4
38.20	39.00	SST	+Lm C1 S1
39.00	44.00	ARGG	S1 Sk
44.00	48.00	SHG	60:40 ARGG S2 Sk Ft
48.00	58.00	ARGG	S1 Sk
58.00	90.00	ARGG	C1 S2 Sk

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2242

NORTHING : 19188.4 EASTING : 23657.2 ELEVATION : 825.7

MAXDEPTH : 90 AZIMUTH : 300 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	-1.00	-1	-1	-1	-1.00
2.00	4.00	-1.00	-1	-1	-1	-1.00
4.00	6.00	-1.00	-1	-1	-1	-1.00
6.00	8.00	-1.00	-1	-1	-1	-1.00
8.00	10.00	-1.00	-1	-1	-1	-1.00
10.00	12.00	-1.00	-1	-1	-1	-1.00
12.00	14.00	.63	P4	C0	S1	WET
14.00	16.00	.54	P4	C0	S1	WET
16.00	18.00	.21	P4	C1	S1	WET
18.00	20.00	.05	-1	C0	S1	DRY
20.00	22.00	.02	-1	C0	S1	SRY
22.00	24.00	.05	P4	C0	S1	WET
24.00	26.00	.06	P4	C0	S1	DRY
26.00	28.00	.12	P4	C0	S1	DRY
28.00	30.00	.05	P4	C2	S0	DRY
30.00	32.00	.67	P4	C3	S0	DRY
32.00	34.00	.13	P4	C3	S0	DRY
34.00	36.00	.54	P4	C3	S0	DRY
36.00	38.00	.76	P4	C3	S0	DRY
38.00	40.00	.77	-1	C1	S1	DRY
40.00	42.00	.15	-1	C0	S1	DRY
42.00	44.00	.08	-1	C0	S1	DRY
44.00	46.00	.04	-1	C0	S1	DRY
46.00	48.00	.04	-1	C0	S2	DRY
48.00	50.00	.03	-1	C0	S1	DRY
50.00	52.00	.02	-1	C0	S1	DRY
52.00	54.00	.01	-1	C0	S1	DRY
54.00	56.00	.01	-1	C0	S1	DRY
56.00	58.00	.01	-1	C0	S2	DRY
58.00	90.00					
58.00	60.00	.03	-1	C1	S1	DRY
60.00	62.00	.02	-1	C1	S2	DRY
62.00	64.00	.02	-1	C1	S1	DRY
64.00	66.00	.02	-1	C1	S2	DRY
66.00	68.00	.03	-1	C1	S1	DRY
68.00	70.00	.02	-1	C1	S1	DRY
70.00	72.00	.01	-1	C1	S1	DRY
72.00	74.00	.02	-1	C1	S1	DRY
74.00	76.00	.02	-1	C1	S1	DRY
76.00	78.00	.05	-1	C1	S1	DRY
78.00	80.00	.05	-1	C1	S1	DRY
80.00	82.00	.04	-1	C1	S1	DRY
82.00	84.00	.02	-1	C1	S0	DRY

84.00	86.00	.06	-1	C1	S1	DRY
86.00	88.00	.06	-1	C1	S1	DRY
88.00	90.00	.04	-1	C1	S1	DRY

0.0	12.0	OB	0-12.0 m of casing; no recovery; drill technician estimated > 10 m of fill for drill pad.
12.0	17.0	OB	=>LAQM +ARGG S1 3P4 First sample taken at 12-14 m; hard rock, sample damp and muddy, lithology consists of LAQM + ARGG; 14-15 m, no bedrock, drilled mud and ice therefore above boulders?; hit competent rock at 17 cm. LAQM: appears to be two LAQM lithologies: Dark orange-red, strongly pervasive limonite altered monzonite; limonite staining looks patchy due to very good preservation of texture; strongly defined sub-euhedral sericitic biotite pseudomorphs; equal amounts of silvery pseudomorphs and those altering to orange limonite; limonite altered biotite shreds moderately defined, as well; k-spar? – doesn't appear to be any; no quartz eye; weakly translucent-looking sericite and/or quartz rich groundmass; non-calcareous; very weakly milky S1 weakly limonite stained quartz micro-veinlet; minor manganese oxide coatings; ~2% fine < ¼ mm disseminated anhedral specks and blebs, and subhedral cubes, P4, oxidized to dark red limonite; 2) tannish-beige, very weakly pervasive limonite altered monzonite; texture quite similar texturally to above LAQM; moderately defined orange limonite altered biotite shreds and silvery sub-anhedral sericitic biotite pseudomorphs – orange limonite; moderately defined, anhedral, relatively soft, shimmery sericitic altered k-spar phenocrysts, alteration to limonite around rims; non-calcareous, no secondary quartz or stockwork 1-2% pyrite as 1) fine < ¼ mm to coarser < ½ mm disseminated anhedral blebs and sub-euhedral cubes; P4, alteration to dark red limonite; trace manganese oxide. ARGG: dark grey to black, hard, angular fragments of graphitic non-calcareous, limonite stained argillite; very weak cloudy-milky quartz stockwork.
17.0	18.1	LAQM	C1 S1 3P4 Pale orange to beige, weakly pervasive limonite altered monzonite; kinda a silvery-beige-light grey, sericite and/or quartz rich shimmery groundmass; weakly translucent-looking, < 20% fragments, almost appear weakly silica flooded; strong, bright orange limonite alteration of fairly defined 1) biotite shreds 2) sub-anhedral hexagons silver of silver sericitic biotite pseudomorphs altering to limonite; gives matrix its pale orange hue; no quartz eyes; k-spars not as common and occur as creamy, soft, sericitic altered, anhedral phenocrysts; moderate manganese oxide replacement of limonite biotite, biotite altering to limonite altering to pyrite altering to manganese oxide; weakly calcareous, C1; no secondary quartz stockwork, just very minor silica flooding as mentioned above; ~3% pyrite occurring as 1) fine < ¼ mm disseminated and concentrated anhedral blebs 2) rare sub-euhedral fine cubes 3) pyrite altering to manganese oxide replacement of biotite and 4) oxidized patchy fracture coatings; oxidized to manganese oxide and limonite.
18.1	23.9	ARGG	S1 Very black, hard, angular fragments of graphitic argillite; good graphitic lustre; non-calcareous; equant, shard-like, and slightly platy-like fragments, all with jagged angular edges; very weak crude bedding laminations in very few fragments; weak cloudy-milky S1 quartz veinlets/micro-veinlets; patchy clay? or quartzose or quartz? patchy coating on some fragments, oxidized of this clay? is responsible for weak patchy limonite alteration of surfaces of a few fragments; no sulfide.

23.9	24.8	SST	S1 Sk Ft* TrP4 Light-medium grey fine, uniform, siltstone; Steel Formation Siltstone; doesn't appear to be calcareous, but fragments are quite soft therefore has undergone argillic/clay alteration and decalcification; weak orange fracture on a few surfaces; patchy yellow clay alteration? of a few fragments; platy with smooth surfaces and rounded edges; very weak thin interbeds of darker grey argillite; a few fragments with weak wispy laminations; weak to moderate S1 clear-cloudy quartz veinlets/micro-veinlets; very trace oxidized pyrite, as very fine to fine (1/8 to ¼ mm) disseminated pyrite; 22-24 m poor recovery ~ ¼ of tray full – most likely a fault because 22-24 in unwashed tray, soft damp and gougy.
24.8	25.5	LAQM	2P4 Orangy-tan to orange moderately pervasive limonitic altered monzonite; moderate, even, limonite staining of opaque, sugary-like groundmass with white, milky, sub-anhedral, weakly clay altered k-spar phenocrysts common; no quartz eyes; biotite faint as sub-anhedral and/or limonite stained silvery sericitic biotite pseudomorphs and orange limonite altered biotite shreds, blending in with matrix; no secondary quartz or stockwork; non-calcareous; -2% pyrite occurring as fine < ¼ mm disseminated sub-anhedral specks and blebs, very trace coarser < ½ mm blebs; P4, oxidized to light red limonite specks.
25.5	29.0	LAQM	S1 6P4 Light brown-orange brown, weak to moderate pervasive limonite altered monzonite; unit stands out due to its abundance of pyrite and altered biotite; orange biotite shreds are very strongly defined due to replacement by dark red oxidized pyrite around rims of limonitic shreds and lesser replacement of sub-anhedral silvery sericitic hexagonal pseudomorphs; k-spars are less common than LAQM unit above and appear as rare small to large 1 mm – 3 mm, creamy-milky weakly clay altered phenocrysts; no quartz eye; opaque, sericite-rich matrix; weak S1 quartz veinlets/micro-veinlets as clear jaggedy in situ fragments of quartz, no silica flooding; non-calcareous; ~5-7% pyrite, P4, altered mostly to manganese oxide, and limonite; occurs as 1) anhedral replacement blebs of biotite. 2) fine < ¼ mm disseminated sub-anhedral blebs.
29.0	38.2	LAQM	C3 3P4 Tan, brown, dark brown, and orange weak to strongly pervasive limonite altered monzonite; texture very consistent throughout with sugary, opaque matrix, k-spar and biotite, same as 24.8-25.5 m see description; variable pervasive limonite – tan (weak) brown (moderate) dark brown and orange (strong) – where strong to very strong limonite, texture more destroyed and less preserved; strongly calcareous, C3; oxidized pyrite porphyroblasts in k-spar? or manganese oxide staining?; ~3% pyrite difficult to guesstimate cause so much manganese oxide, and I don't think all of it is altered pyrite – could be over or under-estimated; P4, oxidized to manganese oxide and limonite; occurs as 1) fine to coarse < ½ m disseminated and concentrated anhedral blebs and fracture coatings, 2) sub-hedral cubes 3) replacementof biotite shreds (less than above LAQM unit); no secondary quartz or stockwork – actually very weak quartz flooding? or micro-veinlet towards lower contact (38-38.2 m); trace fragments of SST – xenolith?
38.2	39.0	SST	+Lm C1 S1 Light-medium grey and tan fine, uniform, sugary-looking siltstone; weakly calcareous, C1 – Steel Formation Siltstone; many fragments weak limonite staining, mostly those fragments near upper contact, weakly pervasive but some just fracture coatings; yellowy – limonite patchy clay coatings on quite a few surfaces; weak to moderate S1 quartz micro-veinlets, very fine, appear to be parallel, not stockwork and grey-cloudy segmented veinlets; not much sulfide.

39.0	44.0	ARGG	S1 Sk Very black, hard, angular fragments of graphitic argillite; good graphitic lustre; appears to be a bit silty - medium grained towards upper contact from 39.0-40.0 m; weak to moderate patchy limonite fracture coatings on many surfaces from 40-42 m, otherwise very trace limonite, probably oxidized close to fracture; non-calcareous; moderate milky-cloudy quartz veinlet/micro-veinlet stockwork; fragments hard and crunchy.
44.0	48.0	SHG	60:40 ARGG S2 Sk Ft* Fault due to poor recovery and presence of shale; shale is dark grey, soft, platy and graphitic; moderate S2 quartz veinlet/micro-veinlet stockwork in argillite fragments from 46-48 m; trays ¼ to ½ full; no sulfide.
48.0	58.0	ARGG	S1 Sk Very black hard, angular fragments of graphitic argillite; same as 39.0-44.0 m. see above description.
58.0	90.0	ARGG	C1 S1 Sk Very black, hard, angular fragments of graphitic argillite; great graphitic lustre; weakly calcareous, C1; strong S1-S2 quartz veinlet/micro-veinlet stockwork as both milky and cloudy very thin veinlets and larger in situ/free fragments; weak limonite staining occasionally of quartz and fracture, close to fracture; very trace patchy yellow clay on a few surfaces; no sulfide; trace thin interbeds of SST from 66-70 m.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2243

NORTHING : 19341.3 EASTING : 23499 ELEVATION : 834

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.00	OB	=>LAQM+ARGG S1 1P4
8.00	13.00	QM	+Lm C3
13.00	20.00	LQM	60:40 LAQM C3 1P4
20.00	21.90	LAQM	C3 1P4
21.90	26.50	LAQM	C3 2P4
26.50	27.50	SST	70:30 ARGG C2 2P4 S1
27.50	39.00	LAQM	C3 S2 Sk 1P4
39.00	43.50	SST	80:20 ARGG C1
43.50	45.00	LSST	C1
45.00	60.00	SST	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2243

NORTHING : 19341.3 EASTING : 23499 ELEVATION : 834

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.07	P4	C0	S1	WET
2.00	4.00	.04	P4	C0	S1	WET
4.00	6.00	.04	P4	C0	S1	WET
6.00	8.00	.04	P4	C1	S1	WET
8.00	10.00	.03	-1	C3	S1	DRY
10.00	12.00	.04	-1	C3	S0	DRY
12.00	14.00	.03	P4	C3	S0	DRY
14.00	16.00	.16	P4	C3	S0	DRY
16.00	18.00	.08	P4	C3	S0	DRY
18.00	20.00	1.36	P4	C3	S1	DRY
20.00	22.00	.84	P4	C3	S0	DRY
22.00	24.00	.92	P4	C3	S1	DRY
24.00	26.00	1.24	P4	C3	S0	DRY
26.00	28.00	5.52	P4	C2	S1	DRY
28.00	30.00	.20	P4	C3	S2	DRY
30.00	32.00	.08	P4	C3	S1	DRY
32.00	34.00	.03	P4	C3	S2	DRY
34.00	36.00	.04	P4	C3	S1	DRY
36.00	38.00	.06	P4	C3	S2	DRY
38.00	40.00	.18	P4	C2	S1	DRY
40.00	42.00	.05	-1	C1	S0	DRY
42.00	44.00	.07	-1	C1	S0	DRY
44.00	46.00	.05	-1	C1	S0	DRY
46.00	48.00	.03	-1	C1	S1	DRY
48.00	50.00	.05	-1	C1	S0	DRY
50.00	52.00	.05	-1	C1	S0	DRY
52.00	54.00	.04	-1	C1	S0	DRY
54.00	56.00	.03	-1	C1	S0	DRY
56.00	58.00	.04	-1	C1	S0	DRY
58.00	60.00	.01	-1	C1	S0	DRY

0.0	8.0	OB	=>LAQM +ARGG S1 1P4 5.0 m of OVB/Fill determined by drill tech, actually 0-8.0 m of Fill and OVB; 0-8.0 m of unwashed tray very wet and muddy; minor organics; fragments up to 1.5 cm typical of fractured OVB; mixed lithologies consist mostly of LAQM with lesser ARGG and very minor SST. LAQM: pervasive limonite is variable ranging from moderate (more from 0-4.0 m) to weak (more 4.0-8.0 m); tannish to dull orange-brown in colour; limonite staining is patchy and uneven; many fragments (from 4.0-8.0 m) appear to have been bleached before limonite staining; matrixes are dull, opaque, and feldspar-sericite rich – some milky; overall relatively good preservation of textures with biotite altering to sericite to limonitic shreds and sub-anhedral pseudomorphs; appears orange of silvery-orange blebs in groundmass; k-spars appear less common as faint, milky and/or limonite stained, phenocrysts; no quartz eyes; non-calcareous; trace –2% pyrite occurring as 1) very fine < 1/8 mm to fine < ¼ mm disseminated 1) anhedral specks and blebs, 2) subhedral cubes 3) replacement of limonitic-sericitic biotite shreds 4) minor coarser < ½ mm pyrite blebs/cubes; pretty much no secondary quartz or stockwork, except 6-8.0 m, possibly?, cloudy-grey (sulfide-rich) free fragments of quartz? or SST?: ARGG: hard, dark grey to black, angular fragments of weakly graphitic argillite; non-calcareous; patchy limonite on many surfaces; weak to moderately cloudy S1 quartz veinlet/micro-veinlet stockwork.
8.0	13.0	QM	+Lm C3 Greeny-grey monzonite; not "fresh" definitely altered a bit, but non to very weak pervasive limonite and 2-3% brown, black, equigranular flakes and books of biotite; biotite has begun to alter around rims and cleavage fracture to silvery sericite; moderately orange limonitic fracture coatings, some very weakly pervasive; milky-sugary white to cream and/or limonite stained, soft sericitic altered subhedral k-spar phenocrysts; no quartz eyes; weakly translucent-looking, sericitic – quartz matrix; strongly calcareous, C3; 8-10.0 m, minor, clear, jagged in situ, angular pieces of quartz – veinlets or almost look like quartz eye, but not consistent throughout rest of unit to 13 m, so weak S1 veinlets; no sulfides; strongly calcareous, C3.
13.0	20.0	LQM	60:40 LAQM C3 1P4 Near equal amounts of orangy-brown to greeny-brown, weak to moderate pervasive limonite monzonite and orangy-brown moderately pervasive limonite altered monzonite; limonitic monzonite has 2-3% equigranular brown/black biotite flakes and/or remnants (sometimes a rim or core) altering to sericitic-limonitic sub-euhedral pseudomorphs; LAQM the biotite is completely altered. appears to be biotite, but up close, is actually manganese oxide and/or dark limonite; biotite altering to sericite to limonite to pyrite to manganese oxide and limonite; LAQM increases from 8-20 m; weakly defined k-spars soft, milky, sericitic altered phenocrysts; no quartz eyes; weakly translucent-looking to sugary, opaque sericite-rich matrixes; strongly calcareous, C3; trace –2% pyrite occurring mostly after replacement of biotite and also as fine < ¼ mm disseminated anhedral specks and blebs; trace clear jaggedy quartz micro-veinlets from 18-20 m; minor manganese oxide disseminated.
20.0	21.9	LAQM	C3 1P4 Orange-tan weak to moderate pervasive limonite altered monzonite; limonite staining is quite even, throughout sugary, opaque, feldspar-sericite rich matrix; not very good preservation of textures; limonite altered biotite shreds, and limonitic altered silvery subhedral hexagonal sericitic pseudomorphs mix in with groundmass; rare k-spars, cloudy-milky, opaline-like anhedral phenocrysts, and/or limonite stained; no quartz eye; very trace quartz micro-veinlet; strongly calcareous, C3; ~1% oxidized pyrite occurring as fine < ¼ mm disseminated sub-anhedral blebs.

21.9	26.5	LAQM	C3 2P4 Orange, moderately pervasive limonite altered monzonite; some fragments more weak limonite, others more strong, overall moderate patchy, uneven limonite staining; fairly well defined limonitic biotite shreds and limonitic altered, silvery sericitic biotite pseudomorphs, orange to dark orange limonite which stands out in creamy-tan-orange opaque, feldspar-sericite rich groundmass; k-spars don't appear to be common, altered to sericite and limonite?, blending in with matrix?; no quartz eyes; strongly calcareous, C3; 1-2% oxidized pyrite occurring as 1) very fine to fine < ¼ mm disseminated anhedral blebs and subhedral cubes 2) replacement of biotite and k-spar as fine to granular blebs and 3) slightly coarser pyrite as subhedral cubes < ½ mm; overall, no secondary quartz or stockwork, but 22-24, 1-2 fragments of clear, and/or limonite stained jagged quartz.
26.5	27.5	SST	70:30 ARGG C2 2P4 S1 Tannish-grey, fine to medium, uniform, calcareous, siltstone, interbedded with ~30% fragments of hard, black, graphitic argillite; very weak crude wispy laminations; 1-2% pyrite? Disseminated dark grey patches on surfaces of SST and thin dark micro-veinlets, P4 altered to manganese oxide; weak S1 quartz veinlet/micro-veinlet and stockwork? in argillite.
27.5	39.0	LAQM	C3 S2 Sk 1P4 Orange to dark orange to orange-red strong pervasive limonite altered monzonite; "limonite-rich", staining strong and even though opaque, sugary, feldspar-sericite rich matrix; weak to sometimes moderately preserved of texture with biotite – dark orange limonite, which blends or faintly stands out in orange groundmass; k-spars rare, most probably altered to limonite but few creamy-milky, clay altered subhedral phenocrysts; no quartz eyes; very good quartz veinlet/micro-veinlet stockwork, borderline S1-S2, from ~8-12% moistly grey-cloudy quartz (sulfide-rich?) both as in situ and free fragments of quartz; some segmented – make it almost look like quartz eyes, some segmented – make it almost look like quartz eyes, (32-34 m), but not at all consistent throughout rest of unit; I'll say more – S2; no silica flooding at all; not too much pyrite – destroyed?, consistently 1% oxidized pyrite as 1) fine < ¼ mm disseminated anhedral blebs 2) replacement of biotite and k-spar 3) disseminated fracture coatings – manganese oxide? 4) very trace segmented oxidized pyrite micro-veinlets 4) very minor coarser < ½ mm disseminated pyrite.
39.0	43.5	SST	80:20 ARGG C1 Colourful Steel Formation Siltstone; greeny-grey, blue grey, brown-grey, yellowy-grey, fine, uniform calcareous siltstone with ~20% fragments of weak interbedded hard, black, graphitic argillite appears to be mostly towards the top and bottom of the unit; weakly calcareous, C1; minor patchy orange-yellow limonitic fracture, coatings; trace good darker wispy laminations in light grey siltstone; overall weak S1 stockwork in ARGG near upper contact; very trace disseminated pyrite, oxidized to limonite.
43.5	45.0	LSST	C1 Predominantly brick red-pinkish, weak to moderate pervasive limonite in fine, uniform, weakly calcareous siltstone; colourful, lesser green-blue greys with limonitic fracture coatings; weakly calcareous, C1; a few fragments with good wispy laminations and crude bedding laminations; very trace disseminated oxidized pyrite.
45.0	60.0	SST	C1 Colourful Steel Formation Siltstone, same as 39.0-43.5 m, with < 3% fragments of black, graphitic argillite throughout, with no stockwork; mostly green and blue-greys with lesser orangy-brown fragments, these limonitic fragments decrease downhole; yellowy-patchy coatings on many fractures; very few, very thin quartz micro-veinlets; trace very fine 1/8 – ¼ mm disseminated pyrite, oxidized to limonite and manganese oxide; calcareous, but very weakly, slow to start.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2244

NORTHING : 19394.8 EASTING : 23497 ELEVATION : 824

MAXDEPTH : 56 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.90	OB	=>LQM+QM+LAQM C2 2P4
3.90	5.00	ARGG	70:30 SST C1 S1
5.00	7.00	LAQM	C1 1P4
7.00	9.50	ARGG	80:20 SST C1 S1
9.50	19.00	LSST	60:40 SST C2
19.00	30.00	SST	C2
30.00	37.80	SST	C2 S1
37.80	47.00	SST	C1
47.00	50.50	LSST	C2
50.50	51.50	LAQM	C2 3P4
51.50	56.00	LSST	C2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2244

NORTHING : 19394.8 EASTING : 23497 ELEVATION : 824

MAXDEPTH : 56 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.35	P4	C2	S0	WET
2.00	4.00	.20	P4	C2	S0	WET
4.00	6.00	.09	P4	C1	S1	DRY
6.00	8.00	.11	P4	C1	S1	DRY
8.00	10.00	.08	P4	C1	S1	WET
10.00	12.00	.03	P4	C1	S0	DRY
12.00	14.00	.03	-1	C2	S0	DRY
14.00	16.00	.01	-1	C2	S0	DRY
16.00	18.00	.02	-1	C2	S0	DRY
18.00	20.00	.05	-1	C2	S0	DRY
20.00	22.00	.03	-1	C2	S0	DRY
22.00	24.00	.04	P4	C2	S0	DRY
24.00	26.00	.03	P4	C2	S1	DRY
26.00	28.00	.09	-1	C2	S1	DRY
28.00	30.00	.03	-1	C2	S1	DRY
30.00	32.00	.08	-1	C2	S1	DRY
32.00	34.00	.03	P0	C2	S0	DRY
34.00	36.00	.03	-1	C2	S0	DRY
36.00	38.00	.02	-1	C2	S0	DRY
38.00	40.00	.03	P4	C2	S0	DRY
40.00	42.00	.02	-1	C1	S0	DRY
42.00	44.00	.07	P4	C1	S0	DRY
44.00	46.00	.03	-1	C1	S0	DRY
46.00	48.00	.08	P4	C2	S0	DRY
48.00	50.00	.02	-1	C1	S0	DRY
50.00	52.00	.05	P4	C2	S0	DRY
52.00	54.00	.06	P4	C2	S0	DRY
54.00	56.00	.04	P4	C2	S0	DRY

0.0	3.9	OB	=>LQM +Qm +LAQM C2 TrP4 5.0 m of Fill/OVB determined by drill tech, actually appears to be ~4.0 m; 0-4.0 m of unwashed tray, damp and muddy; doesn't appear to be many organics; mixed lithologies consist mostly of LQM-QM with LAQM increasing from 2-4m; LQM-QM: orange-brown to greeny-brown to greeny-grey weak to moderate pervasive limonitic monzonite and non-limonitic monzonite; good texture with 2-3% fairly equigranular flakes and books of brown/black biotite, many altering to silvery sericite around rims and cleavage fracture; as well as orange limonite; rare k-spars as well defined anhedral opaline-like phenocrysts, no quartz eyes; moderately calcareous, C2; no sulfides; very trace quartz micro-veinlet; LAQM: still pretty good texture with well-defined limonite and sericitic biotite shreds and hexagons (sub-euhedral) pseudomorphs but oxidized pyrite and manganese oxide replacement of biotite ~1-2% oxidized pyrite altering to limonite and manganese oxide; very trace bladed marcasite from 0-2 m; no secondary quartz or stockwork
3.9	5.0	ARGG	70:30 SST C1 S1 Black, hard, angular fragments of graphitic argillite, weakly to moderately interbedded with ~30% fragments of bluish-grey, fine, uniform; weakly calcareous Steel Formation Siltstone; weak cloudy S1 quartz veinlet/micro-veinlet stockwork, mostly in ARGG; moderate amount of very fine/thin stockwork of dark grey/black micro-veinlets in SST – oxidized pyrite veinlets to manganese oxide?; minor patchy limonitic clay? coatings; could be overburden? as noted by drill technician;
5.0	7.0	LAQM	C1 1P4 Orange to orangy-brown, weak to moderate pervasive limonitic altered monzonite; weak to moderate preservation of texture, with a few fragments very little preservation at all; limonite staining appears to be moderate and even, except towards lower contact where more patchy; almost all biotite and sericitic biotite pseudomorphs have altered to orange limonite, blending somewhat with the opaque feldspar-rich matrix; k-spars not at all common, very trace visible as milky and/or limonite stained phenocrysts; no quartz eyes; weakly calcareous. C1; no secondary quartz or stockwork; trace –2% pyrite as 1) fine disseminated < ¼ mm sub-anhedral blebs 2) minor replacement of biotite; could be OVB??. unwashed looks a bit soil-rich.
7.0	9.5	ARGG	80:20 SST C1 S1 Black, hard angular fragments of argillite with ~20% fragments of tannish-grey, fine uniform, calcareous siltstone, same as 3.9-5.0 m, see description.
9.5	19.0	LSST	60:40 SST C2 Various colours of Steel Formation Siltstone; ~60% of fragments pinkish-brick red to orangy tan-brown weakly pervasive limonitic fine, uniform, siltstone fragments and the other 40% of fragments greenish-to bluish-tannish grey, non-pervasive limonite siltstone fragments, some with orange fractures as well as a few darker wispy laminations; moderately calcareous, C2, a bit slow to start but quite a positive reaction within seconds; non to very, very trace, very thin milky micro-veinlets (16-18 m); typical very fine (1/8 – ¼ mm) disseminated sub-euhedral pyrite, in SST, no "additional" pyrite, P0 to P4.
19.0	30.0	SST	C2 Same fine, uniform, calcareous Steel Formation Siltstone; just a bit darker in color, no weakly pervasive limonitic fragments; dark greys to purple-grey to brown-grey; quite a few crude bedding laminations and darker wispy laminations; moderately calcareous, C2, slow to start but quite positive within a few seconds; 24-26 m very trace parallel milky quartz micro-veinlets; typical very fine disseminated pyrite of SST, P0 to P4; a few fragments pyrite concentrated, locally ~2-3% P$4altered to limonite

30.0	37.8	SST	C2 S1 Dark grey to dark brown to black, fine, uniform, calcareous siltstone; to the naked eye almost looks like argillite, but through micro-scope quite obvious siltstone with its fine to medium, grainy look (not smooth, very fine), crude wispy bedding laminations and sub-rounded, not angular, jaggedy edges; moderately calcareous, C2; slow to start but rapid within a few seconds; trace milky S1 quartz micro-veinlets (from 30-34 m); very trace fragments (32-34 m) of locally packed fresh pyrite up to 30% of fragments.
37.8	47.0	SST	C1 Color of siltstone, not as dark as above, quite similar to 19.0-30.0 m; dark grey to black to purply-reds to brownish greys, a few fragments of very weak pervasive limonite, towards lower contact; less calcareous, than units above, very weakly calcareous, C1; crude bedding and wispy laminations; ~1-2% disseminated pyrite, P4 altered to soft orange limonite in black fragments; very trace thin cloudy grey micro-veinlets from 40.0-42.0 m.
47.0	50.5	LSST	C2 Colorful siltstones, many weak pervasive limonite; colour ranges from pinks to reds to oranges to brown to purples to green-blue grey, to tans to greys to rainbow colors; a bit more calcareous than above SST, moderately calcareous, C2 a bit slow to start;
50.5	51.5	LAQM	C2 3P4 Orange to red to pink, weak to moderate pervasive limonite altered monzonite; sugary nature of groundmass makes it almost look like siltstone but fragments quite angular, and different looking than surrounding siltstone; texture completely destroyed; very faint limonite-hematite stained anhedral k-spars?; no secondary quartz or stockwork but lots of pyrite; 2-5% very fine < ¼ mm disseminated sub-euhedral cubes of oxidized pyrite, P4, with alteration to limonite.
51.5	56.0	LSST	C2 Colourful siltstone, same as 47.0-50.5 m, see description.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2245

NORTHING : 19268.746 EASTING : 23348.886 ELEVATION : 860.081

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	6.20	OB	=>LAQM+ARG+SH C1 S1 TRP4
6.20	16.20	LAQM	C2 S2 Sk 1P4 Qe
16.20	18.00	LAQM	C2 S1 Sk TRP3 Qe
18.00	24.00	AQM	C2 S1 TRP2 Qe
24.00	34.20	SLTG	S1 Sk P0
34.20	41.90	AQM	C1 S3 Sk 15P2
41.90	43.00	ARGG	C1 S2 Sk Bx 2P0
43.00	46.80	AQM	C1 S3 Sk 10P2
46.80	53.00	ARGG	C1 S1 Sk P0
53.00	60.00	SLTG	C1 Sk Sk 5P0 Ft*

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2245

NORTHING : 19268.746 EASTING : 23348.886 ELEVATION : 860.081

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.32	P4	C1	S0	WET
2.00	4.00	.04	P4	C1	S1	WET
4.00	6.00	.10	P4	C1	S1	WET
6.00	8.00	.04	P4	C3	S1	DRY
8.00	10.00	.02	P4	C3	S2	DRY
10.00	12.00	.03	P4	C1	S2	DRY
12.00	14.00	.01	P4	C1	S2	DRY
14.00	16.00	.03	P4	C1	S2	DRY
16.00	18.00	.01	P3	C2	S1	DRY
18.00	20.00	.02	P2	C2	S1	DRY
20.00	22.00	.02	P2	C2	S1	DRY
22.00	24.00	.03	P2	C2	S1	DRY
24.00	26.00	.04	P0	C0	S2	DRY
26.00	28.00	.06	P0	C0	S1	DRY
28.00	30.00	.05	P0	C0	S1	DRY
30.00	32.00	.02	P0	C0	S1	DRY
32.00	34.00	.15	P0	C0	S2	DRY
34.00	36.00	16.54	P2	C1	S3	DRY
36.00	38.00	24.11	P2	C1	S4	DRY
38.00	40.00	19.52	P2	C1	S4	DRY
40.00	42.00	14.45	P2	C1	S3	DRY
42.00	44.00	8.85	P2	C1	S3	DRY
44.00	46.00	8.41	P2	C1	S3	DRY
46.00	48.00	1.31	P0	C1	S1	DRY
48.00	50.00	.38	-1	C1	S1	DRY
50.00	52.00	.58	P0	C1	S1	DRY
52.00	54.00	.12	P0	C1	S2	DRY
54.00	56.00	.07	P0	C1	S1	DRY
56.00	58.00	.53	P0	C1	S1	DRY
58.00	60.00	.19	P0	C1	S1	DRY

0.0	0.2	OB	=>LAQM +ARGG+SH C1 S1 TrP4 6.2 m of Fill/OVB, drill technician sheet not available; 0-6.2 m of unwashed samples wet; fragments coated with and/or soil-rich mud; very few organics; no particularly large fragments typical of fractured OVB; mixed lithologies consist of near equal amounts of LAQM (60%) ARG (40%) and minor SH (< 10%); 0-2 m LAQM dominant, 2-4 m ARG dominant, 4-6 near equal LAQM and ARG; LAQM: orange to dark orange, moderate to strongly pervasive limonite altered monzonite; moderately good preservation of texture with biotite altered to dark orange limonitic laths with less nice silvery sericitic biotite pseudomorphs altering to dark orange limonite – stand out in less limonitically altered opaque, mottled limonite, feldspar-sericite rich groundmass; no quartz eyes; k-spar more visible from 4-6 m, not too common 0-4 m, appear as creamy-beige, sub-euhedral, soft, sericitic altered phenocrysts; very weakly calcareous; no secondary quartz or stockwork; minor manganese oxide coatings of limonite altered biotite; trace –1% pyrite, mostly as fine < ¼ mm disseminated anhedral blebs, but also as lesser fine subhedral cubes and minor replacement of biotite pseudomorphs; P4, oxidized to dark red limonite and manganese oxide. ARGG; black, hard, angular fragments of argillite; weak cloudy-milky S1 quartz veinlets/micro-veinlets, very weak stockwork?; non-calcareous; very weak graphitic lustre; weak to moderate patchy limonite coatings; no sulfide. SH: dark grey to brown, soft, platy fragments of shale; rounded edges, weak bedding laminations.
6.2	16.2	LAQM	C2 S2 Sk 1P4 Qe Bright orange, strong pervasive limonite altered quartz monzonite; fairly consistent, strong, even, limonite staining throughout cloudy weakly translucent-looking sericite-quartz rich groundmass; pretty poor preservation of texture, mostly seen as soft, orange, anhedral limonite blebs, anhedral limonite blebs, which was most likely biotite; k-spar fairly common, usually as yellowy-beige, faintly defined, soft, sericitic altered subhedral phenocrysts and/or limonite stained; < 1% free and in situ, sub-rounded, small to large (up to 3 mm), clear and very few cloudy quartz eyes; variably calcareous, surprising since texture and alteration consistent; 6-10 m, strongly calcareous, C3, 10-16 m weakly calcareous C1, so overall ~C2 reaction with HCl; moderately silicified with ~20% grey-cloudy (sulfide-rich)? quartz veinlet/micro-veinlet stockwork, a few fragments appear to be silica flooded, not too many; stockwork seen as in situ veinlets and cloudy free fragments of quartz – trace black-dark grey angular clast in veins?; trace –2% pyrite occurring mostly as fine < ¼ mm disseminated anhedral blebs, but also as coarser < ½ mm disseminated subhedral cubes and replacement of biotite; oxidized, P4, to dark red limonite and manganese oxide; minor manganese oxide that wasn't pyrite (kinda dendritic) on a few surfaces.
16.2	18.0	LAQM	C2 S1 Sk TrP3 Qe Yellowy-tan/orange/beige patchy weak to moderate pervasive limonitic altered quartz monzonite; typical "bleached" transitional zone/halo between above LAQM and lower AQM; poor preservation of texture with rare silvery remnants of sub-anhedral sericitic biotite pseudomorphs and limonitic biotite shreds; rare, faint milky limonite stained remnants of k-spar phenocrysts; opaque, shimmery, sericite-rich matrix; < 1% in situ and free, clear, sub-rounded to sub-angular quartz eyes; moderately calcareous, C2; moderate to strong cloudy S1 quartz veinlet/micro-veinlet stockwork as in situ and free fragments of grey (sulfide-rich) quartz; very trace pyrite as very fine to fine 1/8 – ¼ mm disseminated sub-anhedral blebs of pyrite; P3, alteration to manganese oxide and limonite.
18.0	24.0	AQM	C2 S1 TrP2 Qe Predominantly whitish altered quartz monzonite; < 2% fragments with orange limonite, but only as fracture coatings, not at all pervasive; very good textures with nice, defined, beige sub-euhedral, sericitic biotite pseudomorphs and fairly soft, milky-creamy, moderate to weakly defined sericitized altered k-spar

			phenocrysts; very trace cloudy-grey (secondary?) 3 mm quartz eye; cloudy kinda in between opaque and translucent-like) sericitic – feldspar and quartz matrix; moderately calcareous, C2; very weak < 1% clear and lesser cloudy, in situ jaggedy clear quartz and micro-veinlets, not enough to tell whether stockwork; trace pyrite occurring as 1) very fine to fine (1/8 – ¼ mm) disseminated specks and anhedral blebs, mostly P2 with dark, manganese oxide? rim and slightly tarnished core 2) pyrite micro-veinlets, P2 3) coarser < ½ mm fresh bronzy-brassy pyrite blebs or coating; very fine pyrrhotite-looks like a coating.
24.0	34.2	SLTG	S1 Sk P0 Dark grey to black, fine, graphitic siltstone; excellent greasy, graphitic lustre, can actually see grey limonite flecks of graphite on many surfaces; too soft and platy for argillite; smooth surfaces and rounded edges; abundant weak to crude bedding laminations; non-calcareous; variable cloudy-milky quartz veinlet/micro-veinlet stockwork, > 10% quartz stockwork towards upper and lower contacts with adjacent intrusives, ~2-5% towards center of unit; variable fresh pyrite as 1) very fine to fine (< ¼ mm) sub-euhedral disseminated 2) abundant cubes locally concentrated in inclusions and around selvages of quartz veinlets; no limonite alteration.
34.2	41.9	AQM	C1 S4 Sk 15P2 Light grey to medium grey altered monzonite; incredibly altered; appears to have originally been a white, very sugary, (almost looks recrystallized), opaque feldspar-sericite rich groundmass; no quartz eye; almost all igneous texture completely destroyed with trace remnants of yellowy-beige sericite altered k-spar and biotite; very trace green roscolite (alteration of k-spar); strong to intensely silicified with a cloudy-grey extremely sulfide-rich quartz veinlet/micro-veinlet stockwork and silica flooding; multiphase, micro-veinlets – truncation of some units visible – all phases appear to be sulfide-rich; anywhere from 40-60% quartz; pyrite incredibly difficult to estimate – alteration least 15-20% pyrite, occurring as 1) extremely fine pyrite dispersed throughout quartz; quartz-pyrite veinlets P2-P3 oxidized to manganese oxide 2) fine < ¼ mm sub-anhedral disseminated pyrite blebs 3) anhedral replacement blebs of sericitic biotite pseudomorphs 4) coarser < ½ mm cubes and granular – massive blebs 5) coarser and fine fresh pyrite cubes; minor disseminated bladed marcasite; weakly calcareous, C1.
41.9	43.0	ARGG	C1 S2 Sk Bx 2P0 Very black, hard, angular fragments of graphitic argillite; probably a sliver – zenolith or interfinger from ARGG downhole; brecciated, angular clasts of AQM; moderate cloudy quartz stockwork; ~2% fresh coarse and fine fresh pyrite.
43.0	46.8	AQM	C1 S3 Sk 10P2 Light grey altered monzonite same as 34.2-41.9 m with great quartz – sulfide stockwork and flooding; see above description; a bit less quartz, S3, ~30-40%, and a bit less pyrite, P2, but ~10% still weakly calcareous, C1 – brecciated lower contact with argillite, clasts of argillite in AQM and vice versa.
46.8	53.0	ARGG	C1 S1 Sk P0 Very black, hard, angular fragments of graphitic argillite; very weakly calcareous, C1; equant, angular shaped fragments; excellent greasy graphitic lustre; weak cloudy-milky S1 quartz veinlets/micro-veinlets stockwork; trace fresh pyrite – occasionally becomes quite, abundant in local concentrations; transitional into:
53.0	60.0	SLTG	C1 S1 Sk 5P0 Ft*? Dark grey to black, fine, graphitic siltstone; fragments more platy with rounded edges and smooth surfaces; weak bedding laminations; excellent greasy graphitic lustre; very weakly calcareous, C1; moderate to strong milky quartz veinlet stockwork; 3-7% fresh pyrite as 1) very fine to fine (1/8 to ¼ mm)

disseminated, cubic pyrite – many times locally concentrated and 2) coarser < ½ mm cubes and granular – massive subhedral blebs and quartz inclusions; fault? from 54-58 m – poor recovery, ¼ to ½ tray full – unwashed tray doesn't appear gougy at all.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2246

NORTHING : 19352.211 EASTING : 23230.245 ELEVATION : 825.882

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

ZONE : BOHEMIAN PURPOSE : INFILL LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	2.10	SHG	
2.10	4.00	LAQM	
4.00	6.30	LAQM	Ft
6.30	12.50	LAQM	90:10 SED 1P4 Ft
12.50	13.50	LAQM	Ft
13.50	20.00	LAQM	75:25 AQM*
20.00	26.00	ARGG	
26.00	30.00	ARGG	60:40 SHG P0
30.00	35.00	ARGG	Sk
35.00	37.90	SST	55:45 LSST Py
37.90	42.40	LAQM	C2 1P1
42.40	44.50	AQM	C2 1P0
44.50	48.10	LAQM	90:10 AQM S1 1P1
48.10	54.00	AQM	C2 S1 7P0 Sb
54.00	57.40	ARGG	C2 S1 Sk P0
57.40	60.00	AQM	C2 10P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2246

NORTHING : 19352.211 EASTING : 23230.245 ELEVATION : 825.882

MAXDEPTH : 60 AZIMUTH : 345 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.38	-1	C0	S0	DRY
2.00	4.00	.22	P4	C0	S0	DRY
4.00	6.00	.30	-1	C0	S1	DRY
6.00	8.00	.26	P4	C0	S1	DRY
8.00	10.00	.20	P4	C0	S1	DRY
10.00	12.00	.07	P4	C0	S1	DRY
12.00	14.00	.14	P4	C0	S0	DRY
14.00	16.00	.33	P4	C0	S0	DRY
16.00	18.00	.27	P4	C0	S0	DRY
18.00	20.00	.23	P4	C0	S0	DRY
20.00	22.00	.31	-1	C0	S1	DRY
22.00	24.00	.27	-1	C0	S1	DRY
24.00	26.00	.14	-1	C0	S1	DRY
26.00	28.00	.07	P0	C0	S0	DRY
28.00	30.00	.47	P0	C0	S0	DRY
30.00	32.00	.76	P0	C0	S0	DRY
32.00	34.00	.21	P0	C0	S2	DRY
34.00	36.00	.67	P0	C0	S1	DRY
36.00	38.00	.30	P0	C0	S1	DRY
38.00	40.00	.08	P1	C1	S0	DRY
40.00	42.00	.55	P1	C2	S0	DRY
42.00	44.00	.24	P0	C2	S0	DRY
44.00	46.00	.94	P0	C0	S1	DRY
46.00	48.00	.39	P0	C0	S1	DRY
48.00	50.00	1.61	P0	C0	S0	DRY
50.00	52.00	2.82	P0	C1	S0	DRY
52.00	54.00	1.23	P0	C2	S1	DRY
54.00	56.00	1.00	P0	C2	S1	DRY
56.00	58.00	.70	P0	C2	S1	DRY
58.00	60.00	.27	P0	C2	S0	DRY

0.0 2.1 SHG

Grey to black shale/argillite; very soft, bleached-looking; fine bedding laminations; dominant cleavage along bedding; several bedding and fracture surfaces with greenish to orange-stained sericitic coating; sericitization is stronger and more pervasive in several fragments; not calcareous; very rare quartz veinlets; no sulfides; moderately graphitic; siliceous/silicified right at lower contact.

2.1 4.0 LAQM

Deep orange monzonite; strong, even, pervasive limonitic staining; uniform appearance to equigranular, fine-grained, feldspar-rich matrix with minor quantities of clear modal quartz; strong sericitization – all surfaces of all chips (plus some more pervasive alteration) are coated with wispy, orange-stained sericite that has developed due to alteration of modal feldspar and biotite; good sericite pseudomorphs after biotite are rare, but former biotite is frequently recognizable; no phyric feldspar; < 1% manganese oxide as very, very fine specks on sericite after biotite and on occasional fractures; good sub-vitreous to pearly luster beneath shimmery sericitic coating; no carbonate.

No quartz flooding or veining; clay clots of intrusive and sediment suggests alteration/shearing at contacts.

Rare disseminated, dark orange to red, sub-cubic limonite flecks ≤ ¼ mm after pyrite.

Transitional into:

4.0 6.3 LAQM Ft

Monzonite; mottled cream and orange; bleached appearance due to strong argillic alteration (lots of clay in unwashed sample; void space and clay and/or sericite clots in washed sample where lots of feldspar has altered to clay and been washed away; only more competent minerals remain, suggesting a slightly higher than average percentage of primary quartz) and leaching of colour, sericitic patches (after biotite and feldspar) remain as chips; biotite ghosts are still occasionally recognizable; one feldspar crystal shows alteration to green roscolite; not calcareous; textures are amplified due to void space left by altered minerals and alterations that favour crystal boundaries; trace hairline clear quartz veinlets; no visible sulfides; < 2% argillite fragments.

Bleaching and clay content, plus unexplained argillite fragments suggest that this might be a fault/shear; contacts are not sharply defined.

6.3 12.5 LAQM 90:10 SED 1P4 Ft

Deep orange monzonite, similar to 2.1-4.0 m; original textures are easily recognized, but strong alterations have alternately enhanced OR destroyed them; k-spar crystals ≤ 2 mm are variably orange-stained and are very strongly to intensely sericitized or clay-altered; biotite has altered to dark orange-brown sericitic shreds and masses that remain in situ; equigranular, feldspar-rich groundmass – gorgeous crystal form and pearly luster in those rare chips that lack alteration; elsewhere, feldspar has altered (occasionally intensely) to sericite – texture of groundmass is amplified where sericitization is weak but completely blurred and obscured where alteration is complete; sericite creates a shimmery (like craft glitter), wispy coating; rock has sucrosic, recrystallized, opaque appearance where sericitization is complete; not calcareous; minor modal quartz; rare quartz eyes; no quartz veining; < 1% dark red cubic limonite flecks ≤ ¼ mm; stronger clay-like alterations near 'contacts'; unwashed sample has distinctly stronger limonitic hue than more clay-rich, adjacent intervals.

< 10% assorted sediments, including grey Steel formation siltstone, siliceous black argillite with disseminated, oxidized pyrite cubes ≤ ½ mm, grey cherty, and slightly orange-stained wispy laminated, silicified Steel Formation Silstone; these fragments (≤ ½ cm in chip form) seem to occur as clasts caught within intrusion (whole SED package is most like CPC) – most fragments are

			independent, but some chips show mm-scale, intrusion-hosted microbreccia; very interesting! Probable fault zone component; transitional contacts.
12.5	13.5	LAQM	Ft White, bleached intrusive as 4.0-6.3 m; original textures are well preserved although strongly altered; soft and incompetent; not calcareous; not silicified; no sulfides; minor sediments (as mm-scale clasts) caught within matrix; not as strongly altered as 4.0-6.3 m.
13.5	20.0	LAQM	75:25 AQM* Deep orange limonitic altered quartz monzonite, much as 6.3-12.5m with 5-40% (average = 25%) intrusive that lacks pervasive limonitic staining; intensity of staining decreases; excellent textures; feldspar-rich groundmass retains sub-translucence and pearly luster – variably, but typically weakly sericitized; all modal biotite has altered to deep orange to orange-brown sericitic pseudomorphs to ragged masses – partial coating with manganese oxide from 18.0m only; former biotite crystal form is always identifiable; unstained chips show biotite as creamy, sericitic ghosts; k-spar crystals are sericitized and occasionally clay altered; not calcareous; not silicified; very, very rare oxidized pyrite < 1/10 mm at cores of former biotite; some sediment fragments caught within matrix near upper contact.
20.0	26.0	ARGG	Deep black, graphitic argillite; strong greasy luster due to gorgeous graphite crystals; hard, angular fragments; weak localized quartz flooding and clear to milky barren quartz stockwork; rare limonitic surfaces near upper contact only; not calcareous; no sulfides.
26.0	30.0	ARGG	60:40 SHG P0 Graphitic argillite as 20.0-26.0 m with ≤ 40% dark grey to black, soft, platy, graphitic shale-like, bleached-looking rock that may contain > 50% ultrafine, yellow disseminated pyrite locally (sub-cm horizons of diagenetic pyrite); rare massive pyrite chips ≤ ½ cm; not calcareous; rare quartz veinlets; not silicified.
30.0	35.0	ARGG	Sk Intensely graphitic argillite, as 20.0-26.0 m; no quartz near upper contact to strong quartz veining and flooding from 32.0 m; ubiquitous fresh pyrite – non-abundant.
35.0	37.9	SST	55:45 LSST Py Steel Formation siltstone; pale to medium grey with ≤ 45% fragments with strong orange pervasive staining; stained fragments are increasingly abundant; rare fresh pyrite ≤ ½ cm; rare fractures with fine (< ¼ mm) oxidized cubic limonite flecks after pyrite; every chip is different; weird colour mottling; rare silicification; variable sulfides; not calcareous; very, very rare hairline clear quartz veinlets.
37.9	42.4	LAQM	C2 1P1 Dull medium orange monzonite; good feldspar-rich phyric texture; pale orange, waxy k-spar crystals ≤ 4 mm are moderately clay and/or sericite altered – often remain in place; rare modal quartz; biotite altered to silver/orange pseudomorphs; feldspar-rich groundmass is uniformly, moderately sericitized, creating a sub-opaque, grainy (to wispy) recrystallized texture; weakly to moderately calcareous – positive reaction to HCl takes several seconds to start, but intensifies with time; no quartz or calcite veinlets. < 1% pyrite as very weakly oxidized disseminated crystals and clusters ≤ 1/3 mm; some pyrite after biotite (silvery ultrafine-grained masses); on chip surface completely coated with silvery yellow, anhedral, striated cubes ≤ 2/3 mm; 'Transitional' rock.

42.4	44.5	AQM	C2 1P0 Pale grey monzonite as 37.9-42.4 m, but lacks pervasive staining; pyrite is not oxidized; rare roscolite after feldspar; calcareous; not silicified.
44.5	48.1	LAQM	90:10 AQM S1 1P1 Dark orange to orange-brown monzonite as 37.9-42.4 m, but with very strong sericitization that gives rocks a grainy, opaque appearance but does not completely destroy original textures; k-spar crystals lack strong staining and stand out in contrast to strong staining of groundmass; all biotite altered beyond recognition – remnants blend with groundmass sericite; weak quartz stockwork with clear, barren veinlets < 1 mm; < 10% fragments lack limonitic staining; not calcareous. 1-2% pyrite – disseminated cubes – fresh to weakly oxidized; rare pyrite after biotite; rare stibnite with kermesitic staining in one quartz-rich chip.
48.1	54.0	AQM	C2 S1 7P0 Sb Monzonite, as 42.4-44.5 m; good textures; very strong sericitization decreased to lower contact; rock goes from sugary and opaque to translucent and shiny; white, grey to dark grey; very weak limonitic staining locally; former biotite is not abundant and barely recognizable as subtle creamy, soft altered masses; abundant former biotite is replaced by fresh silvery yellow pyrite; moderately to strongly calcareous. 5 to > 10% pyrite; most pyrite, especially near top of interval, is secondary after biotite; remaining pyrite as fresh, disseminated crystals > ½ mm but usually < ¼ mm; from 52.0m, pyrite is dominantly as ?, disseminated yellowish cubes << ¼ mm. Weak silicification throughout; secondary quartz associated with disseminated stibnite, with associated kermesitic staining; rock is increasingly juicy-looking toward lower contact.
54.0	57.4	ARGG	C2 S1 Sk P Black graphitic silty argillite with moderate creamy, sub-mm quartz-carbonate stockwork and a moderately calcareous matrix; hard, angular fragments; excellent graphitic luster; fresh yellowish pyrite as disseminated cubes ≤ ½ mm and as stringers and blobs. Intrusive lower contact; argillite caught within mottled AQM.
57.4	60.0	AQM	C2 10P0 Light grey monzonite as 48.1-54.0 m; good textures; rare creamy biotite ghosts; weak sericitization; moderately calcareous matrix; rare milky quartz veinlet fragments ≤ 3 mm. > 10% disseminated fresh pyrite as 1) striated cubes ≤ 2/3 mm, as 2) ultrafine disseminations ≤ 1/10 mm to ¼ mm and 3) as rare sub-mm stringers; rare chips saturated with pyrite; much of this pyrite (eg. large striated cubes) is not of the type typically associated with gold mineralization. Some argillite clasts caught within intrusive.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2247

NORTHING : 19256.863 EASTING : 23372.946 ELEVATION : 868.488

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.80	LAQM	2P4
1.80	2.10	ARGG	+Lm
2.10	7.20	LAQM	C2 1P4
7.20	10.00	SLT	+Lm
10.00	12.60	LAQM	
12.60	13.70	ARG	+Lm
13.70	21.00	LAQM	90:10 ARG C2
21.00	21.50	ARG	
21.50	26.00	AQM	+Lm C3 10P0
26.00	29.00	AQM	C3 7P0 Qe
29.00	30.00	ARGG	50:50 SST Bx S3 P0
30.00	31.90	AQM	C3 7P0
31.90	32.30	BX	=>ARG+SST C2 S2 Sk P0
32.30	39.00	AQM	C3 2P0
39.00	51.00	SLTG	C1 P0
51.00	52.00	AQM	C2 15P0 Qe
52.00	53.00	SLTG	C1 S1 Sk P0
53.00	54.00	AQM	C2 15P0
54.00	60.00	SLTG	C1 P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2247

NORTHING : 19256.863 EASTING : 23372.946 ELEVATION : 868.488

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.33	P4	C0	S0	DRY
2.00	4.00	.09	P4	C1	S0	DRY
4.00	6.00	.03	P4	C3	S0	DRY
6.00	8.00	.02	P4	C2	S0	DRY
8.00	10.00	.03	P4	C0	S0	DRY
10.00	12.00	.05	-1	C0	S0	DRY
12.00	14.00	.03	-1	C0	S0	DRY
14.00	16.00	.10	-1	C0	S0	DRY
16.00	18.00	.03	P4	C2	S0	DRY
18.00	20.00	.03	P4	C1	S0	DRY
20.00	22.00	.02	P4	C2	S0	DRY
22.00	24.00	.01	P0	C3	S0	DRY
24.00	26.00	.01	P0	C3	S0	DRY
26.00	28.00	.02	P0	C2	S0	DRY
28.00	30.00	.02	P0	C3	S1	DRY
30.00	32.00	.02	P0	C3	S0	DRY
32.00	34.00	.01	P0	C3	S2	DRY
34.00	36.00	.01	P1	C3	S0	DRY
36.00	38.00	.01	P0	C3	S0	DRY
38.00	40.00	.02	P0	C2	S0	DRY
40.00	42.00	.02	P0	C1	S1	DRY
42.00	44.00	.02	P0	C0	S1	DRY
44.00	46.00	.01	P0	C0	S1	DRY
46.00	48.00	.01	P0	C1	S1	DRY
48.00	50.00	.03	P0	C1	S1	DRY
50.00	52.00	3.54	P0	C1	S1	DRY
52.00	54.00	2.02	P0	C2	S1	DRY
54.00	60.00					
54.00	56.00	.05	P0	C1	S1	DRY
56.00	58.00	.03	P0	C1	S1	DRY
58.00	60.00	.02	P0	C0	S1	DRY

0.0	1.8	LAQM	2P4 Dark yellowish orange monzonite; moderate, even, pervasive staining; feldspar-rich, fine-grained, equigranular groundmass with good textures and pearly to vitreous luster; very rare off-white, sericitized k-spar crystal fragments; biotite altered to silver, silver-orange and orange sericite pseudomorphs, laths and shreds – frequently partially replaced with black manganese oxide (< 10%); manganese oxide and altered biotite provide darkest colouration of unit; not calcareous; no quartz flooding or veinlets; moderately sericitized groundmass. ≤ 2% dark red limonite flecks (corroded cubic forms ≤ ½ mm) disseminated throughout; minor fine-grained oxidized pyrite ≤ 1/6 mm appears to replace former biotite; rare fragments contain ≥ 5% fine, disseminated oxidized pyrite.
1.8	2.1	ARG	+Lm Dark grey to black argillite; hard, siliceous fragments; rare cloudy quartz veinlets ≤ 1 mm; several limonite-stained sericitic surfaces; not calcareous; no visible sulfides.
2.1	7.2	LAQM	C2 1P4 Orange monzonite as 0.0-1.8 m; pervasive limonitic staining is more intense; < 10% manganese oxide, decreasing with depth, partially coated intensely orange-stained sericitized biotite – creates distinct black speckling that is easily viewed without a lens; weakly to moderately sericitized feldspar-rich groundmass, but most sericite on chips is after biotite; intense pervasive sericitization of < 1% chips (soft, opaque, orange sericite and manganese oxide, textureless masses) near lower contact; sericitized k-spar crystals are very rare; weakly to very strongly calcareous –-variable throughout interval; no secondary quartz. < 1% pyrite as dark red, disseminated limonite cubes ≤ 1/3 mm – more common near contacts; at center of interval, pyrite as trace oxidized limonite cubes << ¼ mm that appear to replace biotite.
7.2	10.0	SLT	+Lm Siltstone with argillite and shale etc; strongly mottled colouration – grey, orange, black, etc.; all fragments moderately to intensely affected by sericitization; surficial to pervasive, greenish to orange; very strongly altered fragments with pervasive orange-staining; ugly rock! rare quartz veinlets; no visible sulfides; not calcareous; yuckers! Raft caught in intrusion? Shear/fault?
10.0	12.6	LAQM	Dark yellowish-orange monzonite as 0.0-1.8 m; matrix is more strongly sericitized but original textures are still very well preserved; < 5% manganese oxide; not calcareous; no secondary quartz; trace flecks of dark red limonite after pyrite ≤ ¼ mm; mm-scale clasts of sediments caught within at lower contact.
12.6	13.7	ARG	+Lm Black argillite with shale and siltstone; argillite is hard, black and graphitic locally; shale and siltstone are dark grey, softer, platier; no visible sulfides; not calcareous; rare quartz veinlets; sericitic, limonitic surfaces to some chips altered completely with greenish sericite. Ugly rock!
13.7	21.0	LAQM	90:10 ARG C2 Dark yellowish-orange monzonite as 10.0-12.6 m; moderately calcareous; no secondary quartz; very rare oxidized disseminated pyrite; very rare surfaces with patchy (mm-scale) tarnished pyrite clusters; increasingly sericitized and argillically altered to lower contact; increasingly opaque. < 10% argillite evenly distributed throughout – quick log indicates 'interbedding' rather than contamination.

21.0	21.5	ARG	Orange and grey, sericitized argillite, as 12.6-13.7 m.
21.5	26.0	AQM	+Lm C3 10P0 Medium grey monzonite; excellent original textures/luster; white, sericitized k-spar crystals ≤ 3 mm are commonly viewed insitu; quartz-pool, feldspar-rich groundmass is generally not altered; biotite altered to sericite ghosts; intensely calcareous; no quartz veining or flooding. > 10% ultrafine (<< ½ mm) as fracture-fill, stringers, etc.; almost all chips have more than one ultrafine (<<<1/2 mm) pyritic stringer; pyrite is fresh and yellow to silver to slightly oxidized; rare fractures are strongly oxidized and limonitic staining bleeds into groundmass; this pyritic stockwork is very strong and is not like anything else I've logged on this property (COOL!); oxidation state is variable, so this stuff might recover!; minor disseminated fresh pyrite cubes < 1/10 mm.
26.0	29.0	AQM	C3 7P0 Qe Monzonite, as 21.5-26.0 m; uniform groundmass due to stronger pervasive alteration (clay/sericite) – opaque, slightly granular, softer; occasional clear and smoky quartz eyes; very strongly calcareous. ≤ 7% fracture-related and stringy pyrite – dominantly fresh; minor disseminations and partial replacement of former biotite. < 2% silicified Steel Formation Siltstone (?) fragments. Brecciation at lower contact; mm-scale, angular silicified dove grey and black siltstone and argillite fragments within a very strongly altered intrusive groundmass.
29.0	30.0	ARGG	50:50 SST Bx S3 P0 Weird, interswirly, graphitic argillite and Steel Formation siltstone; silicified; mm-scale fragments caught within intrusion, pyritic stringers as in adjacent AQM; super neato-looking rock.
30.0	31.9	AQM	C3 7P0 White and light grey monzonite, most similar to 26.0-29.0 m; opaque; sericitized feldspar-rich groundmass; no quartz eyes; waxy, white sericite and/or clay altered k-spar crystals and crystal fragments ≤ 4 mm; biotite altered to creamy sericite – good pseudomorphs are very rare; intensely calcareous. > 7% pyrite as numerous fine stringers (stringer stockwork) and as ragged-looking ultrafine disseminations ≤ 1/10 mm – some of which occurs as partial replacement of former biotite. Still OK-looking, and the sulfide occurrence is definitely interesting.
31.9	32.3	Bx	=> ARG + SST C2 S2 Sk P0 Breccia, composed of graphitic argillite fragments (angular mm-scale) with a quartz-carbonate cement (like tight stockwork), as angular and rounded argillite and Steel Formation siltstone clasts within a quartz-carbonate and/or intrusive matrix; variable clast or matrix supported; neato!; fresh pyrite as disseminations and stringers within both clasts and cement.
32.3	39.0	AQM	C3 2P0 Unoxidized monzonite, as 30.0-31.9 m; 2-3% pyrite as rare stringers (as described above) and more commonly as ragged, silvery disseminated shreds that are more closely associated with former biotite; original textures muted; no secondary quartz; strongly calcareous; not nearly as interesting!
39.0	51.0	SLTG	C1 P0 Dark grey to black siltstone; strongly graphitic – excellent oily luster; weakly to moderately calcareous matrix, plus some quartz-carbonate stringers; ubiquitous and unestimatible quantities of pyrite, as disseminated cubes, as rare stringers, as ultrafine crystals completely saturating some horizons, and as massive chips ≤ ½ cm; Steel Formation-like locally.

51.0	52.0	AQM	C2 15P Qe Medium grey monzonite as 30.0-21.9 m; good textures; calcareous matrix; no secondary quartz; rare quartz eyes. > 15% fresh silver and yellow disseminations and less commonly as stringers; most pyrite does not seem secondary after biotite; some ultrafine sulfides may be pyrite oxidized stibnite. Yum?
52.0	53.0	SLTG	C1 S1 Sk P0 Pyritic, graphitic siltstone as 39.0-51.0 m
53.0	54.0	AQM	C2 15P0 Intensely pyritic unoxidized monzonite as 51.0-52.0 m.
54.0	60.0	SLTG	C1 P0 Intensely graphitic siltstone grading into slightly silty argillite; weakly and increasingly calcareous; weak stockwork; fresh pyrite (> 15% locally) as stringers, clots and disseminations; some completely pyritic horizons; few variations throughout.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2248

NORTHING : 19237.459 EASTING : 23424.353 ELEVATION : 873.053

MAXDEPTH : 80 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.50	OB	=>ARGG+SH S1 Sk
3.50	8.50	LQM	
8.50	11.80	SHG	70:30 ARGG S1 Sk Ft*
11.80	12.50	LAQM	Qe
12.50	14.80	SHG	60:40 ARGG
14.80	22.00	LAQM	S1 1P4
22.00	25.80	LAQM	70:30 AQM C2 TRP3 Qe
25.80	28.50	LQM	C3
28.50	30.00	LQM	80:20 QM C3
30.00	32.00	QM	80:20 LQM C3
32.00	47.80	AQM	C2 TRP1 Qe
47.80	56.10	ARGG	70:30 SLTG C1 S1 Sk P0
56.10	64.10	AQM	C3 Qe
64.10	70.10	ARGG	C1 S1 Sk TRP0
70.10	73.80	AQM	C3 TRP2
73.80	75.20	SLTG	C1 S1 Sk
75.20	76.50	AQM	C2
76.50	80.00	SLTG	C1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2248

NORTHING : 19237.459 EASTING : 23424.353 ELEVATION : 873.053

MAXDEPTH : 80 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.05	-1	C0	S1	DRY
2.00	4.00	.03	-1	C0	S1	DRY
4.00	6.00	.11	-1	C0	S0	DRY
6.00	8.00	.03	-1	C0	S0	DRY
8.00	10.00	.02	-1	C0	S1	DRY
10.00	12.00	.02	-1	C0	S1	DRY
12.00	14.00	.02	P4	C0	S0	DRY
14.00	16.00	.02	P4	C0	S0	DRY
16.00	18.00	.02	P4	C0	S0	DRY
18.00	20.00	.02	P4	C0	S0	DRY
20.00	22.00	.03	P4	C0	S1	DRY
22.00	24.00	.03	P3	C2	S0	DRY
24.00	26.00	.02	P3	C3	S0	DRY
26.00	28.00	.02	-1	C3	S0	DRY
28.00	30.00	.02	-1	C3	S0	DRY
30.00	32.00	.02	-1	C3	S0	DRY
32.00	34.00	.02	P2	C2	S0	DRY
34.00	36.00	.03	P2	C2	S0	DRY
36.00	38.00	.03	P1	C3	S0	DRY
38.00	40.00	.03	P1	C2	S0	DRY
40.00	42.00	.03	P2	C2	S0	DRY
42.00	44.00	.06	P1	C2	S1	DRY
44.00	46.00	.04	P2	C2	S0	DRY
46.00	48.00	.06	P1	C2	S0	DRY
48.00	50.00	.03	P0	C1	S1	DRY
50.00	52.00	.02	P0	C1	S1	DRY
52.00	54.00	.03	P0	C1	S1	DRY
54.00	56.00	.01	P0	C1	S1	DRY
56.00	58.00	.02	P1	C3	S0	DRY
58.00	60.00	.04	-1	C3	S0	DRY
60.00	62.00	.05	-1	C3	S0	DRY
62.00	64.00	.03	P2	C3	S1	DRY
64.00	66.00	.07	P0	C1	S2	DRY
66.00	68.00	.04	P0	C1	S1	DRY
68.00	70.00	.02	-1	C1	S1	DRY
70.00	72.00	.02	P2	C3	S0	DRY
72.00	74.00	.01	P2	C3	S0	DRY
74.00	76.00	.03	-1	C1	-1	DRY
76.00	78.00	.02	-1	C2	-1	DRY
78.00	80.00	.02	-1	C1	-1	DRY

0.0	3.5	OB	=>ARGG +SH S1 Sk 5.0m of OVB as determined by drill technician, actually ~3.5 m of OVB; 0-4 m of unwashed tray soil-rich, fragments coated with soil; very little organics; 2-4 m tray contains ~25% LAQM which is consistent with adjacent LAQM, so actually probably bedrock; no large fragments at all; mixed lithologies consist of near equal amounts of argillite and shale. ARGG: black, hard, angular fragments of siliceous, graphitic argillite; moderately milky S1 quartz veinlet/micro-veinlet stockwork; non-calcareous; weak graphitic lustre; patchy fracture coatings; SH: dark grey to brown, soft, platy shale; smooth surfaces and rounded edges; non-calcareous; weak bedding laminations – outlined by orange limonite; more fracture coatings than ARGG, as yellowy-orange patches; could be weakly graphitic; no secondary quartz.
3.5	8.5	LQM	Yellowy-green (4-6m) to orange (6-8.5 m), moderately pervasive limonitic quartz monzonite; good, even, limonite staining of opaque, semi-sugary looking. feldspar-sericite and/or quartz rich groundmass; texture, fairly well-preserved with abundant altered and unaltered biotite flakes; ~50% of biotite as brown/black flakes, most with rims or cleavage fracture altered to orange limonite – other 50% has altered to soft, orange, patchy anhedral limonitic blebs and lesser silvery-white sericitic biotite pseudomorphs; no quartz eyes; can't even see any k-spar? altered to sericite to limonite and blending in with matrix?; no secondary quartz or stockwork; no sulfide; non-calcareous; minor manganese oxide coatings on biotite; biotite appears to be completely altered in thin bands at upper and lower contacts.
8.5	11.8	SH	70:30 ARGG S1 Sk Ft* ~70% fragments of dark grey-brown, soft, platy, fragments of shale; smooth surfaces and rounded edges; easily scratched and squishable; patchy yellow-orange fracture coatings; interbedded with ~30% black hard, angular fragments of siliceous graphitic argillite; weak milky S1 quartz veinlet/micro-veinlet stockwork in argillite; non-calcareous; a bit of limonite clay in 10-12 m tray, from fracture?; 8.5-11.8 could be a fault due to poor recovery (¼ - ½ of tray full); no sulfide.
11.8	12.5	LAQM	Qe Thin sliver or interfinger of lower LAQM; bright orange limonite-rich, strong pervasive limonite altered monzonite; strong, even, limonite staining; hardly any preservation of texture at all; soft, dark orange limonite anhedral blebs and shreds of altered biotite, blends in with semi-sugary, translucent-looking groundmass; k-spar?; trace small ~ ¾ mm sub-angular, cloudy quartz eye; no secondary quartz or stockwork; non-calcareous; very trace , very fine to fine 1/8 ¼ mm disseminated subhedral specks of limonite altered pyrite, P4.
12.5	14.8	SH	60:40 ARGG Interbedded shale and argillite, same as 8.5-11.8 m, see description; changes; proportion of each 60:40; quartz stockwork pretty much absent.
14.8	22.0	LAQM	S1 1P4 Bright orange, strongly pervasive limonite altered monzonite; texture pretty much the same as 11.8-12.5 m with strong even staining of limonite-rich, sugary-looking, opaque to weakly translucent-looking groundmass; sericite-feldspar-quartz rich matrix with little texture; biotite has altered to soft orange to dark orange to red limonitic altered anhedral blebs; no quartz eyes; rare k-spar as faint creamy-milky clay altered, soft sub-anhedral phenocrysts; non-calcareous; very weak to weak S1 quartz veinlets/micro-veinlets, stockwork?, seen as very trace clear in situ and free fragments of quartz, more noticeable from 20-22 m, increasing downhole?; tray cloudy (sulfide-rich?) quartz fragments; ~1% pyrite as fine < ¼ mm disseminated sub-anhedral cubes and blebs, P4, oxidized to dark red limonite; lesser as patchy fracture coatings

			oxidized to manganese oxide; non-calcareous; very trace P1 pyrite micro-veinlets.
22.0	25.8	LAQM	70:30 AQM C2 TrP3 Qe Kind of a "transitional" phase between upper LAQM and lower LQM; 22-24 m mostly LAQM and AQM, but as decrease downhole from 24-25.8 m, to lower LQM, begin to have a few remnants of brown/black biotite, however most of the biotite in these fragments have already altered to sericite and/or limonite; LAQM is variable, from weak to strong pervasive limonite and/or altered monzonite, fairly patchy, uneven, limonite stained; biotite altering to sericite to limonite anhedral blebs and shreds and lesser silvery sericitic biotite pseudomorphs; AQM biotite altering to sericite silvery-beige pseudomorphs; in both k-spar, milky, and/or limonite stained, sub-anhedral, sericite altered phenocrysts; trace clear 3 mm sub-angular to sub-rounded quartz eyes; very trace quartz veinlet – pretty much no secondary quartz or stockwork; moderate to strong calcareous, C2-C3; trace pyrite as 1) fine < ¼ mm disseminated anhedral blebs 2) pyrite micro-veinlets 3) fracture coating; variable oxidized P2 to P4, so overall ~trace P3; transitional into:
25.8	30.0	LQM	80:20 QM C3 Pale orange to tan weakly pervasive limonitic monzonite with ~20% fragments of light grey-whitish, sugary groundmass, but still flakes of fresh biotite, some have altered to silvery-beige sericitic pseudomorphs, but many haven't; as in LQM, a lot of biotite has altered to soft, orange limonite blebs, but many remain unaltered; strongly calcareous, C3; no quartz eyes; trace, creamy and/or limonite stained k-spar phenocrysts; no secondary quartz or stockwork; no sulfide.
30.0	32.0	QM	80:20 LQM C3 Predominant whitish monzonite (?) with fresh, black biotite flakes and weakly pervasive limonitic monzonite, same as above, 28.5-30.0 m, just varying proportions of each lithology; see above description.
32.0	47.8	AQM	C2 TrP1 Qe Light grey altered quartz monzonite; very good preservation of texture with abundant well defined, white, milky sericitic altered, sub-euhedral k-spar phenocrysts; biotite completely altered to strong sericitic, silvery-beige, sub-anhedral hexagonal pseudomorphs with minor replacements by pyrite; < 1% clear sub-rounded quartz eyes; greyish-white, sugary, opaque feldspar-sericite matrix; moderately to sometimes strongly (36-38m) calcareous; no secondary quartz or stockwork; very trace quartz-pyrite micro-veinlets; trace –1% pyrite with variable oxidized, borderline P1-P2 alteration to manganese oxide; occurs as 1) fine (< ¼ mm) disseminated anhedral blebs, usually P2 2) massive, fine anhedral fracture coatings, P1, fairly fresh but rim noticeably oxidized 3) pyrite micro-veinlets usually both P1-P2.
47.8	56.1	ARGG	70:30 SLTG C1 S1 Sk P0 Black, hard, angular fragments of extremely graphitic argillite; weakly interbedded with black graphitic siltstone?; many fragments hard with jagged edges, both equant and platy, but a few platy with semi-rounded edges, that are scratchable; excellent greasy graphitic lustre of both ARGG and SLTG; very weakly calcareous reaction with HCl, slow to start, but after a few seconds quite a noticeable fizz; weak milky S1 quartz veinlet/micro-veinlet stockwork; trace pyrite occurring as a few fragments, just packed with massive pyrite (pyrite vein fragment?) or abundant thin micro-veinlets of fresh pyrite.
56.1	64.1	AQM	C3 Qe Whitish beige altered quartz monzonite; quite similar to 32.0-47.8 m with 1) whitish, opaque feldspar-sericite rich sugary groundmass, 2) well defined milky white sericitic altered sub-euhedral k-spar 3) well defined beige and silvery sericitic biotite pseudomorphs 4) < 1% 3 mm clear sub-rounded quartz eyes; trace remnant of brown/black fresh biotite; strongly calcareous, C3; no secondary quartz or stockwork; very trace pyrite as fine < ¼ mm disseminated,

			thin pyrite micro-veinlets and fracture coatings; P1-P2 alteration to manganese oxide, mostly P1.
64.1	70.1	ARGG	C1 S1 Sk TrP0 Very black, hard, angular fragments of extremely graphitic argillite; excellent greasy graphitic lustre; moderate milky and cloudy S1 quartz veinlet/micro-veinlet stockwork, quite strong, more S2, near upper contact, noticeably decreases downhole; weakly calcareous, C1; trace fresh pyrite as 1) fine-coarse (½ mm) disseminated sub-euhedral cubes and blebs 2) thin pyrite micro-veinlets 3) pyrite-quartz micro-veinlets 4) inclusions within quartz veinlets.
70.1	73.8	AQM	C3 TrP2 Light to medium grey to whitish altered monzonite; some fragments, more whitish ones are more altered (bleached) than others (light to medium grey fragments); good preservation of texture, same as above AQMS; cloudy and opaque feldspar-sericite rich matrixes, white fragments look recrystallized; no quartz eye; milky-cream sericitic altered sub-euhedral k-spar phenocrysts; silvery and beige sericitic altered biotite pseudomorphs; strongly calcareous, C3; no secondary quartz or stockwork; trace fine < ¼ mm disseminated specks and anhedral blebs of moderate oxidized pyrite, P2; alteration to manganese oxide.
73.8	75.2	SLTG	C1 S1 Sk Dark grey to black, fine, platy, graphitic siltstone; excellent greasy graphitic lustre; weak milky, segmented, S1 quartz veinlet/micro-veinlet stockwork, mostly towards upper contact; smooth surfaces, rounded eyes; weak bedding laminations; weakly calcareous, C1; no sulfide.
75.2	76.5	AQM	C2 Whitish-beige bleached-looking altered monzonite, same as 56.1-64.1 m, see description for texture details; changes; no biotite remnants, moderately calcareous, C2; no quartz eyes.
76.5	80.0	SLTG	C1 Black fine, platy, extremely graphitic siltstone, same as 73.8-75.2 m, see description; no secondary quartz or stockwork.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2249

NORTHING : 19204.015 EASTING : 23426.877 ELEVATION : 881.172

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>ARGG+SH
4.00	7.00	SH	80:20 ARGG +Lm
7.00	12.00	ARGG	S1 Sk Ft*
12.00	21.00	SHG	+Lm S1
21.00	21.20	LAQM	C1
21.20	32.00	SHG	S1
32.00	33.00	AQM	3P0 Qe
33.00	40.00	SLTG	70:30 SHG S1 TRP0
40.00	48.80	AQM	70:30 LAQM C2 2P1
48.80	50.20	ARGG	C1 S1 Sk P0
50.20	55.80	AQM	C2 2P0
55.80	57.90	ARGG	C1 S1 Sk P0
57.90	60.00	AQM	C1 4P2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2249

NORTHING : 19204.015 EASTING : 23426.877 ELEVATION : 881.172

MAXDEPTH : 60 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.06	-1	C0	S0	DRY
2.00	4.00	.03	-1	C0	S1	DRY
4.00	6.00	.03	-1	C0	S0	DRY
6.00	8.00	.05	-1	C0	S1	DRY
8.00	10.00	.05	-1	C0	S1	DRY
10.00	12.00	.03	-1	C0	S1	DRY
12.00	14.00	.04	-1	C0	S1	DRY
14.00	16.00	.05	-1	C0	S1	DRY
16.00	18.00	.03	-1	C0	S1	DRY
18.00	20.00	.03	-1	C0	S1	DRY
20.00	22.00	.04	-1	C0	S1	DRY
22.00	24.00	.04	-1	C0	S1	DRY
24.00	26.00	.02	-1	C0	S0	DRY
26.00	28.00	.02	-1	C0	S1	DRY
28.00	30.00	.01	-1	C0	S1	DRY
30.00	32.00	.03	-1	C0	S1	DRY
32.00	34.00	.01	P0	C0	S0	DRY
34.00	36.00	.08	P0	C0	S1	DRY
36.00	38.00	.05	P0	C0	S1	DRY
38.00	40.00	.05	P0	C0	S1	DRY
40.00	42.00	.03	P0	C1	S0	DRY
42.00	44.00	.03	P2	C2	S1	DRY
44.00	46.00	.05	P2	C2	S0	DRY
46.00	48.00	.02	P1	C2	S1	DRY
48.00	50.00	.05	P2	C1	S1	DRY
50.00	52.00	.08	P0	C2	S0	DRY
52.00	54.00	.04	P0	C2	S0	DRY
54.00	56.00	.03	P1	C2	S0	DRY
56.00	58.00	.06	-1	C1	S1	DRY
58.00	60.00	.04	-1	C1	-1	DRY

0.0	4.0	OB	=>ARGG +SH 4.0m of overburden?; not noted in drill technician log; 0-4.0 m of unwashed tray, appears to be kind of soil-rich; no presence of organics; trace large fragments from 2-4 m typical of fracture OVB; lithologies not at all helpful in determination of OVB – bedrock – the same; ARGG: Black, hard, angular fragments of fine, graphitic argillite; weak graphitic lustre; weak dark orange patchy limonite coatings; very trace milky quartz veinlets as free fragments; non-calcareous. SH: grey-brown, soft, platy shale; non-graphitic; smooth surfaces, rounded edges; easily squished and scratched; more limonite than ARG; defining bedding laminations and as patchy fracture coatings.
4.0	7.0	SH	80:20 ARGG +Lm Predominantly grey-brown, soft shale; non-graphitic, weak pervasive limonite, as well as, limonitic fracture coatings and limonitic bedding laminations; some easily squished others easily scratched; smooth surfaces and rounded edges; ~20%? Fragments of black, hard, angular fragments of weakly graphitic argillite – more smaller, equant shaped fragments; weak milky quartz veinlets in argillite; non-calcareous; no sulfide
7.0	12.0	ARGG	S1 Sk Ft* Black, hard, angular fragments of graphitic argillite; moderately S1 milky quartz veinlet/micro-veinlet stockwork; small and larger fairly equant fragments; dark orange patchy limonite fracture coatings, only a few, decreases downhole of unit; weak graphitic lustre; non-calcareous; no sulfide; fault from 7-10 m? poor recovery.
12.0	21.0	SHG	+Lm S1 Dark brownish to grey to dark grey- black, fine, soft, graphitic shale; non-calcareous; could be siltstone, definitely not argillite, but I think its even too soft for SLTC; platy and fissile fragments, others with sub-rounded edges; weak dark orange limonite fracture coatings; good bedding laminations; easily breaks, squishes and scratches; weak S1 quartz veinlets/micro-veinlets, not stockwork; could be < 2% fragments of interbedded argillite; no sulfide.
21.0	21.2	LAQM	C1 Thin sliver or pod of pale orange weakly pervasive limonite altered monzonite; fairly even, weak limonite staining; not much preservation of texture at all; creamy-orange large soft, sericite/clay altered anhedral patches of k-spar, biotite altered to soft patchy limonite, very faint, not too noticeable; sugary-opaque matrix; very weakly calcareous, C1; no secondary quartz or stockwork; no quartz eye; no sulfide.
21.2	32.0	SHG	S1 Sediment – I don't know I think it's shale but it could be SLTG; the unit is extremely fine, both platy and fissile; some fragments soft, others brittle when broken; scratches, but some fragments a bit harder; very uniform unit; extremely graphitic greasy lustre; no limonite alteration at all; non-calcareous; very weak milky S1 quartz veinlets/micro-veinlets, not at all stockwork; good bedding laminations; no sulfide; interbedded graphitic siltstone?
32.0	33.0	AQM	3P0 Qe Whitish altered monzonite; opaque, sugary-recrystallized groundmass with weak preservation of texture; biotite altered to tan; weakly limonite stained sericitic pseudomorphs; k-spar ? rare faint milky sericitic anhedral phenocrysts; < 1% small < ½ mm sub-angular clear quartz eye; non-calcareous; no secondary quartz or stockwork; 2-3% fresh pyrite as fine-coarse (< ½ mm) euhedral – anhedral granular blebs and cubes; bronzy color of pyrite.
33.0	40.0	SLTG	70:30 SHG S1 TrP0 Dark grey to black, fine, graphitic siltstone?, weakly interbedded with graphitic shale near upper contact; fragments are harder, less fissile, and shale-looking, still weak bedding laminations; excellent greasy graphitic lustre; no limonite

			alteration; non-calcareous; weak milky S1 quartz veinlets and micro-veinlets, not stockwork; trace pyrite as fine (< ¼ mm) disseminated and concentrated fresh cubic pyrite; trace fragments near upper contact, more medium to dark grey – bleached from intrusive?
40.0	48.8	AQM	70:30 LAQM C2 2P1 Predominantly whitish – light grey altered quartz monzonite; moderate preservation of texture with biotite altering to fairly defined beige/brown/silvery, sericitic pseudomorphs; k-spars not too defined, rather faint milky-creamy and/or sericite altered sub-anhedral phenocrysts, not easily visible; trace small < 1 mm clear sub-angular lumpy in situ quartz eyes; opaque feldspar-sericite rich groundmass; 20-30% of fragments (more 30% from 42-46 m), 10-20% along upper and lower contacts) of tan/orange weak to moderate pervasive limonitic altered quartz monzonite; most likely limonite staining of rock close to a large fracture set; biotite altering to limonite, soft, orange patches; moderately calcareous, C2, a bit slow to start; not really any secondary quartz or stockwork , but very trace fragments of milky limonite stained quartz found in 42-44 m and 46-48 m; very trace green roscolite; ~2-3% pyrite, oxidized quite variable with both AQM and LAQM; occurs as 1) fine to coarse (< ½ mm) disseminated anhedral blebs of pyrite, these specks and blebs are usually P2 alteration to manganese oxide 2) fine to coarse (up to 1 mm) disseminated sub-euhedral cubes, these usually P0-P1 slightly tarnished; so overall average P1?
48.8	50.2	ARGG	C1 S1 Sk P0 Very black, hard, angular fragments of fine, graphitic argillite; fairly equant; jaggedy fragments; fairly good graphitic lustre; weak milky to sometimes cloudy, S1 quartz micro-veinlet stockwork; weakly calcareous, C1; trace disseminated and fresh cubic pyrite.
50.2	55.8	AQM	C2 2P0 Whitish altered monzonite; a bit more altered than above AQM unit, with less preservation of texture; almost all biotite pseudomorphs appear to be destroyed, trace silvery-beige remnants; k-spar a bit more noticeable, but still quite faint milky, fairly soft, sericitic altered sub-anhedral phenocrysts; no visible quartz eyes; opaque, very sugary (recrystallized-looking) sericite-feldspar rich matrix; moderately calcareous, C2; 1-3% pyrite, pyrite tends to decrease downhole; moistly occurs as fine < 1/3 mm, bronzy, sub-euhedral, and/or striated cubic fresh pyrite, some coarser < ¾ mm more granular – massive blebs, P0, but some, not many fine to coarse anhedral blebs P1-P2 oxidized to manganese oxide.
55.8	57.9	ARGG	C1 S1 Sk P0 Very black, hard, angular fragments of extremely graphitic argillite; exactly the same as 48.8-50.2 m, see above description;
57.9	60.0	AQM	C1 4P2 Whitish altered monzonite, same as 50.2-55.8, see above description for textural details; changes: weakly calcareous, C2, nature of pyrite – not fresh, ~4% fine < ¼ mm disseminated anhedral blebs, oxidized P2, to manganese oxide; trace argillite xenolith.
E.O.H.			

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2250

NORTHING : 19215.705 EASTING : 23472.141 ELEVATION : 865.532

MAXDEPTH : 74 AZIMUTH : 180 DIP : -55

ZONE : BOHEMIAN PURPOSE : EXPLORATION LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	4.00	OB	=>LAQM C2 4P4
4.00	10.00	LQM	C3
10.00	12.00	LAQM	C3 3P4 Ft*
12.00	17.00	LAQM	C3 1P4
17.00	18.50	AQM	C3 4P2
18.50	20.10	LAQM	C3
20.10	21.50	LAQM	C3 1P4
21.50	22.80	ARG	70:30 SH C1
22.80	26.80	LAQM	C3 2P4
26.80	29.50	ARGG	C1 S1 Sk
29.50	35.90	LAQM	C1 2P3
35.90	40.00	ARGG	C1 S1 Sk
40.00	42.00	ARGG	C4
42.00	55.20	ARGG	C1 S1 Sk P0
55.20	67.50	AQM	C3 TRP2 Qe
67.50	74.00	SLTG	70:30 ARGG C1 S1 Sk 2P0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2250

NORTHING : 19215.705 EASTING : 23472.141 ELEVATION : 865.532

MAXDEPTH : 74 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.08	P4	C2	S0	WET
2.00	4.00	.03	P4	C2	S0	WET
4.00	6.00	.08	P4	C3	S0	DRY
6.00	8.00	.02	-1	C3	S0	DRY
8.00	10.00	.04	P4	C3	S0	DRY
10.00	12.00	.07	P4	C3	S0	DRY
12.00	14.00	.05	P4	C3	S0	DRY
14.00	16.00	.02	P4	C3	S0	DRY
16.00	18.00	.02	P3	C3	S0	DRY
18.00	20.00	.03	P2	C3	S0	DRY
20.00	22.00	.01	P4	C3	S0	DRY
22.00	24.00	.01	P4	C3	S0	DRY
24.00	26.00	.02	P4	C3	S0	DRY
26.00	28.00	.06	P4	C1	S1	DRY
28.00	30.00	.03	P4	C0	S0	DRY
30.00	32.00	.02	P3	C1	S0	DRY
32.00	34.00	.03	P3	C1	S0	DRY
34.00	36.00	.01	P3	C1	S0	DRY
36.00	38.00	.03	-1	C1	S1	DRY
38.00	40.00	.01	-1	C1	S0	DRY
40.00	42.00	.06	-1	C3	S1	DRY
42.00	44.00	.02	-1	C1	S1	DRY
44.00	46.00	.02	-1	C1	S1	DRY
46.00	48.00	.02	-1	C1	S1	DRY
48.00	50.00	.04	P0	C1	S1	DRY
50.00	52.00	.02	P0	C1	S2	DRY
52.00	54.00	.04	-1	C1	S1	DRY
54.00	56.00	.04	P0	C1	S1	DRY
56.00	58.00	.04	P2	C2	S0	DRY
58.00	60.00	.04	-1	C3	S0	DRY
60.00	62.00	.03	P2	C3	S0	DRY
62.00	64.00	.02	P1	C3	S0	DRY
64.00	66.00	.08	P1	C3	S0	DRY
66.00	68.00	.03	P2	C3	S0	DRY
68.00	70.00	.03	P0	C1	S1	DRY
70.00	72.00	.04	P0	C1	S1	DRY
72.00	74.00	.05	P0	C1	S1	DRY

0.0	4.0	OB	=>LAQM C2 4P4 1.0 m of overburden determined by drill technician, actually probably about 4.0 m?; 0.0-4.0 m of unwashed tray wet and muddy; no particularly large fragments which are typical of fractured OVB; no organics; fragments seem to be coated with orange sandy mud; abrupt change of lithology at 4.0 m, therefore, most likely bedrock; one lithology, LAQM. LAQM: orangy-tan mud pervasive limonite altered monzonite; fairly uniform even staining of opaque feldspar-rich matrix; limonite staining of phenocrysts, more patchy and mottled; most biotite has altered to orange to dark orange limonitic anhedral blebs, a few silvery-cream sericitic pseudomorphs; k-spar seen as creamy limonite stained soft clay altered anhedral phenocrysts; no quartz eyes; moderately calcareous, C2; a few dark reddish limonitic fracture coatings; no secondary quartz or stockwork; 3-4% pyrite occurring as 1) fine (< ¼ mm) to coarse (< ½ mm) disseminated sub-anhedral cubes and blebs 2) minor fracture coatings; P4, completely oxidized to limonite.
4.0	10.0	LQM	C3 Borderline LQM-LAQM; orange to browny-orange; moderate to strongly pervasive limonitic monzonite; pretty good preservation of texture with brown/black flakes and books of biotite, dispersed throughout matrix; many of the biotite has altered to soft orange limonite anhedral blebs and silvery pseudomorphs; biotite altering to and/or limonite and sericite altering to and/or manganese oxide coatings; k-spar not at all common, very trace as faint, limonite stained, creamy phenocrysts; no quartz eye; opaque feldspar-sericitic matrix; strongly calcareous, C3; no secondary quartz or stockwork; not really any pyrite, trace –1% disseminated manganese oxide coatings on fracture could have been pyrite, P4.
10.0	12.0	LAQM	C3 3P4 Ft* Orange, moderately pervasive limonitic altered monzonite; good, even, limonite staining of groundmass, weak to moderate preservation of texture; biotite has altered to soft, orange, limonitic shreds and anhedral patches; very minor silvery sericitic biotite pseudomorphs, which are altering to limonite; k-spar? very rare, faint altered to limonite; sugary-opaque feldspar-sericite rich matrix; no quartz eyes; strongly calcareous, C3; no secondary quartz or stockwork; very, very trace brown/black remnant biotite; ~3% pyrite occurring as fine (< ¼ mm) to coarser (< ½ mm) disseminated anhedral blebs, P4, oxidized to manganese oxide with lesser limonite; most likely a fault due to poor recovery (~ ¼ of tray full) and trace large fragments in unwashed tray (with powder), no gougy material at all.
12.0	17.0	LAQM	C3 1P4 Orange-tan, moderately pervasive limonite altered monzonite; moderate preservation of texture with dark orange limonite altered biotite shreds and laths staining out in a tan-orange, less limonitic, even, stained opaque milky-like feldspar-rich groundmass; minor silvery sericitic biotite pseudomorphs; k-spar, not common, seen as faint, milky and/or limonite stained anhedral phenocrysts; no quartz eyes; strongly calcareous, C3; a few dark red limonite fracture coatings; ≤ 1% oxidized pyrite, P4, alteration mostly to dark red limonite; occurs as 1) fine to coarse (≤ ½ mm) mostly fine disseminated sub- to anhedral blebs and cubes 2) thin oxidized pyrite micro-veinlets; no secondary quartz or stockwork apparent.
17.0	18.5	AQM	C3 4P2 Light bluish-grey, altered monzonite; moderate preservation of texture with biotite altering to silver and beige/brown, fairly well defined, sericitic sub-anhedral pseudomorphs; trace brown/black remnants of fresh biotite; k-spar appears as white milky-shimmery, soft, moderately faint anhedral sericite/clay altered phenocrysts; no quartz eyes; cloudy-opaque sericite-rich matrix; strongly calcareous, C3; no secondary quartz or stockwork; trace green roscolite,

			alteration of k-spar; 4-5% very fine to fine (1/8 - ¼ mm) disseminated pyrite as specks, sub-euhedral cubes and anhedral blebs; copper-like colour; P2 alteration to limonite; no stockwork quartz or stockwork.
18.5	20.1	LAQM	C3 Orange, moderate pervasive limonite altered monzonite, same as 12.0-17.0 m, see previous description; changes: trace brown, black biotite remnants and very, very trace oxidized specks of pyrite – not worth noting.
20.1	21.5	LAQM	C3 1P4 Creamy – pale orange, milky pervasive limonite altered monzonite; even to patchy, weak limonite staining of milky, smooth-looking, opaque, feldspar-rich groundmass; fairly moderate preservation of texture with dark orange/brown limonite altered biotite laths and patchy anhedral pseudomorphs, stand out in pale orange matrix; no quartz eyes; very rare visible k-spar as very faint creamy-milky phenocrysts – blend in with groundmass; surfaces of fragments moderately pitted and corroded, leached out k-spar?; strongly calcareous, C3; no secondary quartz or stockwork; ≤ 1% pyrite mostly as disseminated manganese oxide fracture.
21.5	22.8	ARG	70:30 SH C1 Dark grey to brown-black hard angular fragments of argillite weakly interbedded with approximately 30% soft platy shale; argillite weakly graphitic, equant hard fragments; SH smooth surfaces and rounded edges; weak patchy dark orange limonite fracture coatings; no secondary quartz or stockwork; no sulfides.
22.8	26.8	LAQM	C3 2P4 Quite similar to 20.1-21.5 m, pale orange weak to moderate pervasive limonitic altered monzonite; looks as if it were once bleached; opaque, more sugary groundmass, limonite altered biotite and milky-cream limonite stained k-spar phenocrysts; no quartz eyes; strongly calcareous, C3; no secondary quartz or stockwork; 2-3% oxidized pyrite occurring as fine ≤ ¼ mm disseminated sub-anhedral cubes and blebs of pyrite, P4, oxidized to dark red limonite flecks and lesser manganese oxide.
26.8	29.5	ARGG	C1 S1 Sk Black, hard, angular fragments of fine, graphitic, weakly calcareous argillite; weak orange patchy limonite coatings; minor interbedded shale towards lower contact; weak-moderate milky S1 quartz veinlet/micro-veinlet stockwork; weak to moderate graphitic lustre; weakly calcareous, C1; no sulfides.
29.5	35.9	LAQM	C1 2P3 Orange, moderately pervasive limonite altered monzonite; limonite staining kind of patchy and mottled with dark orange limonite alteration of biotite, seen as limonitic shreds and anhedral patches; k-spar as creamy-beige and/or limonite stained faint, anhedral phenocrysts; no quartz eyes; opaque, dull, feldspar-sericite rich groundmass; weakly calcareous, C1; no secondary quartz or stockwork; approximately 2% pyrite as 1) fine (≤ ¼ mm) and coarse (≤ ½ mm) disseminated anhedral blebs 2) fine thin pyrite micro-veinlets 3) fracture coatings; P4, oxidized to dark red limonite and lesser manganese oxide; < 2% light grey-beige fragments of AQM, towards upper and lower contacts.
35.9	40.0	ARGG	C1 S1 Sk P0 Very black, hard, angular fragments of fine, graphitic argillite; excellent graphitic, slightly greasy luster; fragments equant in shape with sharp, jaggedy edges; very minor yellow altering to dark orange patchy limonite fracture; moderate milky S1 quartz veinlet/micro-veinlet stockwork along upper contact with LAQM, pretty much absent downhole from 38.0-40.0 m; very, very weak calcareous reaction with HCl after a few seconds; very, very trace pyrite as coarse cubic tarnished pyrite.

40.0	42.0	ARGG	C4 Intensely calcareous, fine graphitic argillite? or black, fine limestone?; instantaneous reaction with HCl application, reaction over within seconds; quite noticeable in both washed and unwashed sample; no fine veining at all which would be typical of the limestone; strongly graphitic, can even see dark grey flecks of graphite; odd – since units above and below, only very weakly calcareous; can actually see little blebs of white calcite in matrix; no bedding laminations; very, very trace milky and/or segmented quartz micro-veinlets; no sulfides.
42.0	55.2	ARGG	C1 S1 Sk P0 Very black, hard, fine, graphitic argillite; same as 35.9-40.0 m; extremely graphitic, good greasy lustre; angular, jaggedy fragments, a few kind of blocky fragments where can see very weak bedding laminations; moderate to strong milky-cloudy S1 quartz veinlet/micro-veinlet stockwork; weakly calcareous, C1; no limonite alteration at all, trace LAQM contamination from above; trace negligible fresh cubic pyrite throughout.
55.2	67.5	AQM	C3 Qe TrP2 Light green-grey altered quartz monzonite; excellent preservation of texture with milky white-beige unaltered, to weakly sericitic altered, sub-euhedral k-spar phenocrysts and beige-silvery sericitic biotite pseudomorphs seen mostly as strongly defined sub-euhedral hexagons and lesser laths; trace clear, glassy sub-rounded quartz eyes; cloudy-opaque green-sericite (roscolite) rich groundmass; trace < 1% argillite fragments throughout – contamination from above; strongly calcareous, C3; monzonite more whitish-beige bleached groundmass along lower contact (66-68 m) with argillite; no secondary quartz or stockwork; trace pyrite, variably oxidized *borderline P1-P2, oxidized to manganese oxide; occurs as 1) fine (≤ ¼ mm) disseminated anhedral blebs, kinda greyish-looking, more P2 2) coarser (≤ ½ mm) disseminated fine massive pyrite blebs, more P1 oxidized rim and unaltered core 3) very minor sub-euhedral cubic pyrite, P.
67.5	74.0	SLTG	70:30 ARGG C1 S1 Sk 2P0 Mostly dark grey to black, fine, graphitic siltstone; fragments more platy with smooth surfaces and rounded edges; weak to moderate bedding laminations; softer than argillite, easily scratches, some easily squish (minor interbedded SHG?) and break; approximately 30% fragments of harder black argillite, mostly near the upper contact (at least 30%) but decreases significantly downhole; a bit more smushy in tray; extremely graphitic lustre; moderate to strong milky S1 quartz veinlet/micro-veinlet stockwork; weakly calcareous, C1; 1-3% fresh pyrite, decreases downhole as fine (≤ ¼ mm) cubic disseminations in or along selvages of quartz.

E.O.H.

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2251

NORTHING : 19668.792 EASTING : 22902.422 ELEVATION : 827.045

MAXDEPTH : 50 AZIMUTH : 0 DIP : -55

ZONE : LUCKY PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	1.80	OB	=>LAQM C1 3P4
1.80	4.00	OB	=>SHG S1
4.00	10.10	SHG	S1 FT*
10.10	10.50	ARGG	S1 Sk Ft*
10.50	13.00	LAQM	S1 Sk 2P4
13.00	22.10	LAQM	C1 1P4
22.10	32.00	AQM	80:20 LAQM C2 TrP3
32.00	34.00	LAQM	70:30 AQM C2 1P3
34.00	41.50	AQM	90:10 LAQM C1 1P3
41.50	44.00	LAQM	70:30 AQM C1 1P3
44.00	49.50	AQM	+Lm C2 TrP3
49.50	50.00	SST	C1 TrP0

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2251

NORTHING : 19668.792 EASTING : 22902.422 ELEVATION : 827.045

MAXDEPTH : 50 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	1.34	P4	C1	S0	DRY
2.00	4.00	.04	-1	0	1	WET
4.00	6.00	.03	-1	0	1	WET
6.00	8.00	.10	-1	0	1	DRY
8.00	10.00	.03	-1	0	1	DRY
10.00	12.00	7.49	4	0	2	DRY
12.00	14.00	11.19	4	1	1	DRY
14.00	16.00	1.70	4	2	0	DRY
16.00	18.00	.99	4	2	0	DRY
18.00	20.00	1.99	4	1	0	DRY
20.00	22.00	1.22	4	1	0	DRY
22.00	24.00	2.72	3	1	0	DRY
24.00	26.00	.13	3	1	0	DRY
26.00	28.00	.08	3	2	0	DRY
28.00	30.00	.06	3	2	0	DRY
30.00	32.00	.05	3	2	0	DRY
32.00	34.00	.26	3	2	0	DRY
34.00	36.00	.04	3	1	0	DRY
36.00	38.00	.13	3	1	0	DRY
38.00	40.00	.03	3	2	0	DRY
40.00	42.00	.62	3	2	0	DRY
42.00	44.00	.11	3	1	0	DRY
44.00	46.00	.03	3	2	0	DRY
46.00	48.00	.14	3	2	0	DRY
48.00	50.00	.54	3	2	0	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2252

NORTHING : 19695.717 EASTING : 22902.376 ELEVATION : 827.235

MAXDEPTH : 54 AZIMUTH : 0 DIP : -55

ZONE : LUCKY PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	.50	OB	=>LAQM+AQM+SH
.50	5.00	LAQM	C3 S1 2P4
5.00	12.00	LAQM	C1 1P4
12.00	20.20	LAQM	C2 TP4
20.20	22.50	LAQM	C1 S2 Sk 4P4
22.50	28.20	LAQM	C1 1P4
28.20	34.00	LAQM	C2 TP3
34.00	38.30	LAQM	C1 2P4
38.30	42.10	AQM	60:40 LAQM C2 TP3
42.10	45.50	QM	70:30 AQM C3
45.50	48.10	QM	C3
48.10	54.00	AQM	+Lm C2 TrP2

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2252

NORTHING : 19695.717 EASTING : 22902.376 ELEVATION : 827.235

MAXDEPTH : 54 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.60	4	3	1	DRY
2.00	4.00	4.59	4	3	1	DRY
4.00	6.00	.54	4	3	0	DRY
6.00	8.00	.21	4	1	0	DRY
8.00	10.00	.05	4	1	0	DRY
10.00	12.00	.05	4	1	0	DRY
12.00	14.00	.03	4	3	0	DRY
14.00	16.00	.07	4	2	0	DRY
16.00	18.00	.06	4	2	0	DRY
18.00	20.00	.97	4	2	0	DRY
20.00	22.00	13.94	4	1	2	DRY
22.00	24.00	.94	3	1	1	DRY
24.00	26.00	1.09	4	1	0	DRY
26.00	28.00	1.04	4	2	0	DRY
28.00	30.00	.38	3	2	0	DRY
30.00	32.00	.33	3	20	-1	DRY
32.00	34.00	.35	3	2	0	DRY
34.00	36.00	.07	4	1	0	DRY
36.00	38.00	.24	4	1	1	DRY
38.00	40.00	.31	3	1	0	DRY
40.00	42.00	.04	3	2	0	DRY
42.00	44.00	.04	-1	3	0	DRY
44.00	46.00	.03	-1	3	0	DRY
46.00	48.00	.26	-1	3	1	DRY
48.00	50.00	.03	2	2	0	DRY
50.00	52.00	1.78	2	2	0	DRY
52.00	54.00	.10	2	2	0	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2253

NORTHING : 19772.844 EASTING : 22955.91 ELEVATION : 809.023

MAXDEPTH : 50 AZIMUTH : 180 DIP : -55

ZONE : LUCKY PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	3.50	OB	=>LAQM C3 S1 2P4
3.50	4.10	OB	=>ARG
4.10	10.10	OB	=>QM+ARG+LAQM C1 S1
10.10	15.00	OB	=>LAQM+ARG+SH C1
15.00	18.00	SH	+Lm
18.00	22.00	SHG	80:20 ARGG S1 Ft*
22.00	26.00	SHG	
26.00	28.00	SHG	70:30 ARGG S1 Ft*
28.00	43.00	SHG	
43.00	46.00	SHG	70:30 SLTG S1
46.00	50.00	SHG	

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2253

NORTHING : 19772.844 EASTING : 22955.91 ELEVATION : 809.023

MAXDEPTH : 50 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.78	4	3	1	DRY
2.00	4.00	.60	4	1	1	DRY
4.00	6.00	.10	-1	1	1	WET
6.00	8.00	.10	-1	1	0	WET
8.00	10.00	.12	-1	0	1	WET
10.00	12.00	.10	-1	1	0	WET
12.00	14.00	.03	-1	1	0	WET
14.00	16.00	.03	-1	1	1	WET
16.00	18.00	.01	-1	0	0	DRY
18.00	20.00	.03	-1	0	1	WET
20.00	22.00	.01	-1	0	0	DRY
22.00	24.00	.04	-1	0	0	DRY
24.00	26.00	.02	-1	0	0	DRY
26.00	28.00	.17	-1	0	1	DRY
28.00	30.00	.06	4	0	0	DRY
30.00	32.00	.01	-1	0	1	DRY
32.00	34.00	.01	-1	0	0	DRY
34.00	36.00	.01	-1	0	0	DRY
36.00	38.00	.01	-1	0	0	DRY
38.00	40.00	.01	-1	0	1	DRY
40.00	42.00	.02	-1	0	1	DRY
42.00	44.00	.01	-1	0	0	DRY
44.00	46.00	.01	-1	0	1	DRY
46.00	50.00					
46.00	48.00	.02	-1	0	0	DRY
48.00	50.00	.03	0	0	1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2254

NORTHING : 19740.299 EASTING : 22959.637 ELEVATION : 805.844

MAXDEPTH : 50 AZIMUTH : 180 DIP : -55

ZONE : LUCKY PURPOSE : INFILL LOGGED_BY : A. Samuels

FROM	TO	LITHOLOGY	MODIFIERS
.00	8.00	OB	
8.00	12.00	LAQM	C1 S1 1P4
12.00	15.50	LAQM	C2 S1 TrP4
15.50	15.70	ARGG	
15.70	24.50	SHG	+Lm S1
24.50	28.20	SLTG	90:10 SHG S1
28.20	50.00	SHG	S1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2254

NORTHING : 19740.299 EASTING : 22959.637 ELEVATION : 805.844

MAXDEPTH : 50 AZIMUTH : 180 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	-1.00	-1	-1	-1	-1
2.00	4.00	-1.00	-1	-1	-1	-1
4.00	6.00	-1.00	-1	-1	-1	-1
6.00	8.00	-1.00	-1	-1	-1	-1
8.00	10.00	.09	4	1	1	DRY
10.00	12.00	.04	4	1	1	DRY
12.00	14.00	.06	4	2	1	DRY
14.00	16.00	.04	4	2	1	DRY
16.00	18.00	.04	-1	0	1	DRY
18.00	20.00	.01	-1	0	1	DRY
20.00	22.00	.01	-1	0	1	DRY
22.00	24.00	.01	-1	0	0	DRY
24.00	26.00	.01	-1	0	1	DRY
26.00	28.00	.02	-1	0	1	DRY
28.00	30.00	.02	-1	0	0	DRY
30.00	32.00	.02	-1	0	0	DRY
32.00	34.00	.02	-1	0	1	DRY
34.00	36.00	.03	-1	0	0	DRY
36.00	38.00	.02	-1	0	0	DRY
38.00	40.00	.05	-1	0	1	DRY
40.00	42.00	.03	-1	0	0	DRY
42.00	44.00	.04	-1	0	1	DRY
44.00	46.00	.02	-1	0	1	DRY
46.00	48.00	.02	-1	0	1	DRY
48.00	50.00	.02	-1	0	1	DRY

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2255

NORTHING : 19600.953 EASTING : 22212.301 ELEVATION : 855.229

MAXDEPTH : 50 AZIMUTH : 0 DIP : -55

ZONE : GOLDEN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2255

NORTHING : 19600.953 EASTING : 22212.301 ELEVATION : 855.229

MAXDEPTH : 50 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	-1.00	-1	-1	-1	-1
2.00	4.00	-1.00	-1	-1	-1	-1
4.00	6.00	-1.00	-1	-1	-1	-1
6.00	8.00	-1.00	-1	-1	-1	-1
8.00	10.00	.22	-1	-1	-1	-1
10.00	12.00	.13	-1	-1	-1	-1
12.00	14.00	.11	-1	-1	-1	-1
14.00	16.00	.22	-1	-1	-1	-1
16.00	18.00	.22	-1	-1	-1	-1
18.00	20.00	.19	-1	-1	-1	-1
20.00	22.00	.04	-1	-1	-1	-1
22.00	24.00	.02	-1	-1	-1	-1
24.00	26.00	.03	-1	-1	-1	-1
26.00	28.00	.03	-1	-1	-1	-1
28.00	30.00	.02	-1	-1	-1	-1
30.00	32.00	.04	-1	-1	-1	-1
32.00	34.00	.03	-1	-1	-1	-1
34.00	36.00	.04	-1	-1	-1	-1
36.00	38.00	.04	-1	-1	-1	-1
38.00	40.00	.06	-1	-1	-1	-1
40.00	42.00	.05	-1	-1	-1	-1
42.00	44.00	.04	-1	-1	-1	-1
44.00	46.00	.03	-1	-1	-1	-1
46.00	48.00	.02	-1	-1	-1	-1
48.00	50.00	.02	-1	-1	-1	-1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2256

NORTHING : 19580.91 EASTING : 22229.794 ELEVATION : 854.606

MAXDEPTH : 32 AZIMUTH : 0 DIP : -55

ZONE : GOLDEN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2256

NORTHING : 19580.91 EASTING : 22229.794 ELEVATION : 854.606

MAXDEPTH : 32 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.06	-1	-1	-1	-1
2.00	4.00	.04	-1	-1	-1	-1
4.00	6.00	.05	-1	-1	-1	-1
6.00	8.00	.02	-1	-1	-1	-1
8.00	10.00	.01	-1	-1	-1	-1
10.00	12.00	.02	-1	-1	-1	-1
12.00	14.00	.01	-1	-1	-1	-1
14.00	16.00	.02	-1	-1	-1	-1
16.00	18.00	.01	-1	-1	-1	-1
18.00	20.00	.02	-1	-1	-1	-1
20.00	22.00	.01	-1	-1	-1	-1
22.00	24.00	.03	-1	-1	-1	-1
24.00	26.00	.05	-1	-1	-1	-1
26.00	28.00	.10	-1	-1	-1	-1
28.00	30.00	.02	-1	-1	-1	-1
30.00	32.00	.03	-1	-1	-1	-1

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2257

NORTHING : 19607.054 EASTING : 22172.525 ELEVATION : 865.173

MAXDEPTH : 20 AZIMUTH : 0 DIP : -55

ZONE : GOLDEN PURPOSE : EXPLORATION LOGGED_BY : V. Park

FROM	TO	LITHOLOGY	MODIFIERS

SURPAC DRILL HOLE LOG Date : 13-Jan-99

HOLE ID : RC98-2257

NORTHING : 19607.054 EASTING : 22172.525 ELEVATION : 865.173

MAXDEPTH : 20 AZIMUTH : 0 DIP : -55

FROM	TO	AU_GPT	PX	CA	SI	WET_DRY
.00	2.00	.18	-1	-1	-1	-1
2.00	4.00	.26	-1	-1	-1	-1
4.00	6.00	.16	-1	-1	-1	-1
6.00	8.00	.16	-1	-1	-1	-1
8.00	10.00	.28	-1	-1	-1	-1
10.00	12.00	.09	-1	-1	-1	-1
12.00	14.00	.06	-1	-1	-1	-1
14.00	16.00	.04	-1	-1	-1	-1
16.00	18.00	.02	-1	-1	-1	-1
18.00	20.00	.05	-1	-1	-1	-1

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Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	Comments
RC 98 2039	1				No sample
	2	2	4	0.06	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.02	
	6	10	12	0.04	
	7	12	14	0.09	
	8	14	16	0.02	
	9	16	18	0.06	
	10	18	20	0.36	
	11	20	22	0.61	
	12	22	24	0.17	
	13	24	26	0.25	
	14	26	28	0.06	
	15	28	30	0.03	
	16	30	32	0.01	
	17	32	34	0.03	
	18	34	36	0.03	
	19	36	38	0.61	
	20	38	40	3.14	
	21	40	42	0.8	
	22	42	44	0.17	
	23	44	46	0.63	
	24	46	48	0.19	
	25	48	50	0.02	
	26	50	52	0.01	
	27	52	54	0.02	
	28	54	56	0.02	
	29	56	58	0.02	
	30	58	60	0.03	
	31	60	62	0.09	
	32	62	64	0.02	
	33	64	66	0.02	EOH

	BLANK	COMP	1st/last	Blind duplicate
QC/QA	0.01	1.39	.06/.06	0.14

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Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	Comments
2040	1	0	2	NO SAMPLE	NO SAMPLE
	2	2	4	NO SAMPLE	NO SAMPLE
	3	4	6	1.76	
	4	6	8	2.61	
	5	8	10	0.47	
	6	10	12	3.05	
	7	12	14	0.15	
	8	14	16	0.06	<.02
	9	16	18	0.04	
	10	18	20	0.09	
	11	20	22	0.03	
	12	22	24	0.04	
	13	24	26	0.07	
	14	26	28	0.09	
	15	28	30	0.08	
	16	30	32	0.11	
	17	32	34	0.02	
	18	34	36	0.09	
	19	36	38	0.11	
	20	38	40	0.09	
	21	40	42	0.1	
	22	42	44	0.2	
	23	44	46	0.63	
	24	46	48	0.09	
	25	48	50	0.72	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.51	.04/.04	0.06

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2041	1	0	2	1.21	7.03
	2	2	4	0.26	
	3	4	6	0.51	
	4	6	8	0.35	
	5	8	10	0.13	
	6	10	12	0.06	
	7	12	14	0.43	
	8	14	16	0.11	
	9	16	18	0.75	
	10	18	20	0.35	
	11	20	22	0.41	8.08
	12	22	24	1.70	
	13	24	26	0.05	
	14	26	28	0.53	
	15	28	30	0.08	
	16	30	32	0.04	
	17	32	34	0.10	
	18	34	36	0.77	
	19	36	38	0.12	
	20	38	40	0.02	
	21	40	42	0.51	8.24
	22	42	44	0.06	
	23	44	46	0.01	
	24	46	48	0.01	
	25	48	50	0.04	
	26	50	52	0.01	8.28
	27	52	54	0.01	
	28	54	56	0.02	
	29	56	58	0.02	
	30	58	60	0.01	
	31	60	62	0.04	8.08
	32	62	64	0.01	
	33	64	66	0.01	
	34	66	68	0.02	
	35	68	70	0.06	
	36	70	72	0.04	8.72
	37	72	74	0.05	
	38	74	76	0.05	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.94	.12/.13	0.73

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2042	1	0	2	0.06	8.5
	2	2	4	0.06	
	3	4	6	0.02	
	4	6	8	0.01	
	5	8	10	0.01	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20	0.01	
	11	20	22	0.01	8.47
	12	22	24	0.11	
	13	24	26	0.05	
	14	26	28	0.57	
	15	28	30	0.39	
	16	30	32	0.25	
	17	32	34	0.07	
	18	34	36	2.19	
	19	36	38	0.86	
	20	38	40	0.57	
	21	40	42	0.44	8.04
	22	42	44	0.29	
	23	44	46	0.01	
	24	46	48	0.01	
	25	48	50	0.06	
	26	50	52	0.02	8.64
	27	52	54	0.01	
	28	54	56	0.01	
	29	56	58	0.02	
	30	58	60	0.04	
	31	60	62	0.01	
	32	62	64	0.01	
	33	64	66	0.05	
	34	66	68	0.04	
	35	68	70	0.19	
	36	70	72	0.15	
	37	72	74	0.50	
	38	74	76	0.43	
	39	76	78	3.97	
	40	78	80	1.71	
	41	80	82	0.08	8.35
	42	82	84	0.01	EOH

QC/QA		-0.01	0.55	.06/.04	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2043	1	0	2	n/s	
	2	2	4	0.01	
	3	4	6	0.01	
	4	6	8	0.01	
	5	8	10	0.01	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20	0.02	
	11	20	22	0.01	8.35
	12	22	24	0.01	
	13	24	26	0.01	
	14	26	28	0.03	
	15	28	30	0.01	
	16	30	32	0.07	
	17	32	34	0.02	
	18	34	36	0.03	
	19	36	38	0.04	
	20	38	40	0.18	
	21	40	42	0.03	8.63
	22	42	44	0.05	
	23	44	46	0.26	
	24	46	48	0.3	
	25	48	50	0.04	
	26	50	52	0.05	
	27	52	54	0.04	
	28	54	56	0.03	
	29	56	58	0.05	
	30	58	60	0.05	
	31	60	62	0.04	8.19
	32	62	64	0.09	
	33	64	66	0.15	
	34	66	68	0.07	
	35	68	70	0.03	
	36	70	72	0.1	
	37	72	74	0.81	
	38	74	76	3.79	
	39	76	78	2.81	
	40	78	80	2.01	EOH
		BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA		0.00	0.51	.07/.08	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2044	1	0	2	0.02	7.92
	2	2	4	0.02	
	3	4	6	0.03	
	4	6	8	0.36	
	5	8	10	0.09	
	6	10	12	0.27	
	7	12	14	0.11	
	8	14	16	0.09	
	9	16	18	0.14	
	10	18	20	0.11	
	11	20	22	0.01	8.05
	12	22	24	0.02	
	13	24	26	0.02	
	14	26	28	0.02	
	15	28	30	0.02	
	16	30	32	0.18	
	17	32	34	3.95	
	18	34	36	0.99	
	19	36	38	0.03	
	20	38	40	2.22	
	21	40	42	0.71	8.23
	22	42	44	0.11	
	23	44	46	0.13	
	24	46	48	1.51	
	25	48	50	2.22	
	26	50	52	0.45	
	27	52	54	0.01	
	28	54	56	0.86	
	29	56	58	0.03	
	30	58	60	0.02	
	31	60	62	0.01	8.14
	32	62	64	0.01	
	33	64	66	0.01	
	34	66	68	0.02	
	35	68	70	0.04	EOH

	BLANK	COMP	BLIND DUPLICATE
QC/QA	0.00	0.55	0.09

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2045	1	0	2	0.07	6.98
	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.02	
	10	18	20	0.01	
	11	20	22	0.02	7.92
	12	22	24	0.01	
	13	24	26	0.01	
	14	26	28	0.01	
	15	28	30	0.11	
	16	30	32	0.28	
	17	32	34	1.05	
	18	34	36	2.55	
	19	36	38	0.08	
	20	38	40	0.02	
	21	40	42	0.03	8.07
	22	42	44	0.01	
	23	44	46	0.03	
	24	46	48	0.05	
	25	48	50	0.12	
	26	50	52	0.05	
	27	52	54	0.26	
	28	54	56	0.21	EOH

BLANK	COMP	1st/last	BLIND DUPLICATE
0.02	1.34	BO/RA	0.03

QC/QA

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2046	1	0	2	0	7.06
	2	2	4	0	
	3	4	6	0.15	
	4	6	8	0.01	
	5	8	10	0.02	
	6	10	12	0.12	
	7	12	14	0	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20	0	
	11	20	22	0	8.27
	12	22	24	-0.01	
	13	24	26	0	
	14	26	28	-0.01	
	15	28	30	-0.01	
	16	30	32	0.02	
	17	32	34	0.01	
	18	34	36	0	
	19	36	38	0.01	
	20	38	40	0.02	
	21	40	42	0.02	7.76
	22	42	44	0.02	
	23	44	46	0.01	
	24	46	48	0	
	25	48	50	0.01	
	26	50	52	0.01	
	27	52	54	0.01	
	28	54	56	0.01	
	29	56	58	0	
	30	58	60	0	EOH
		BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA		0.00	0.51	0/.01	0.14

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2047	1	0	2	0.05	7.53
	2	2	4	0.04	
	3	4	6	0.77	
	4	6	8	0.05	
	5	8	10	0.03	
	6	10	12	0.02	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.82	
	10	18	20	0.01	
	11	20	22	0.4	7.7
	12	22	24	0.05	
	13	24	26	0.02	
	14	26	28	0.02	
	15	28	30	0.01	
	16	30	32	0.96	
	17	32	34	0.06	
	18	34	36	0.03	
	19	36	38	0.04	
	20	38	40	0.01	
	21	40	42	0.02	8.6
	22	42	44	0.02	
	23	44	46	0.01	
	24	46	48	0.01	
	25	48	50	0.01	
	26	50	52	0.01	
	27	52	54	0.01	
	28	54	56	0.01	
	29	56	58	0.01	
	30	58	60	0.01	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.52	.02/.02	0.02

Viceroy Minerals Corporation

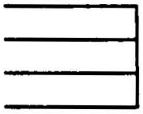
Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2048	1	0	2	0.1	8.45
	2	2	4	0.02	
	3	4	6	0.03	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	0.02	8.83
	7	12	14	0.04	
	8	14	16	0.03	
	9	16	18	0.02	
	10	18	20	0.01	
	11	20	22	0.01	8.41
	12	22	24	0.03	
	13	24	26	0.05	
	14	26	28	0.02	
	15	28	30	0.02	
	16	30	32	0.01	7.91
	17	32	34	0.02	
	18	34	36	0.01	
	19	36	38	0.01	
	20	38	40	0.01	
	21	40	42	0.04	8.51
	22	42	44	0	
	23	44	46	0	
	24	46	48	0	
	25	48	50	-0.01	
	26	50	52	0	7.24
	27	52	54	-0.01	
	28	54	56	0	
	29	56	58	0	
	30	58	60	0	
	31	60	62	0.07	5.7
	32	62	64	0.26	
	33	64	66	0.14	
	34	66	68	0.06	
	35	68	70	0.06	
	36	70	72	0.02	8.25
	37	72	74	0.01	
	38	74	76	0.02	
	39	76	78	0.18	
	40	78	80	0	
	41	80	82	0.02	8.55
	42	82	84	0.01	
	43	84	86	0.03	EOH

BLANK INFILL holes 98.1 to last BLIND DUPLICATE

QC/QA	0.00	0.55	0/.01	0.02	



Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2049	1	0	2	0.19	7.9
	2	2	4	0.07	
	3	4	6	0.09	
	4	6	8	0.35	
	5	8	10	0.15	
	6	10	12	0.06	
	7	12	14	<.02	
	8	14	16	0.03	
	9	16	18	0.03	
	10	18	20	0.04	
	11	20	22	<.02	7.6
	12	22	24	0.04	
	13	24	26	0.26	
	14	26	28	0.08	
	15	28	30	0.04	
	16	30	32	0.03	
	17	32	34	<.02	
	18	34	36	0.02	
	19	36	38	<.02	
	20	38	40	0.04	
	21	40	42	0.07	7.63
	22	42	44	0.06	
	23	44	46	0.04	
	24	46	48	<.02	
	25	48	50	0.15	
	26	50	52	0.03	
	27	52	54	<.02	EOH

QC/QA	BLANK	COMP	1st/last	BLIND DUPLICATE
	0.01	0.94	.02/.02	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	Comments
2050	1	0	2	0.05	7.15
	2	2	4	0.01	
	3	4	6	0.34	
	4	6	8	1.22	
	5	8	10	0.5	
	6	10	12	0.17	
	7	12	14	0.06	
	8	14	16	0.04	
	9	16	18	0	
	10	18	20	0.01	
	11	20	22	0.11	7.57
	12	22	24	0.03	
	13	24	26	0.02	
	14	26	28	0.03	
	15	28	30	0.03	
	16	30	32	0.05	
	17	32	34	0.02	
	18	34	36	0.04	
	19	36	38	0.01	
	20	38	40	0.05	
	21	40	42	0.03	
	22	42	44	0.01	
	23	44	46	0.21	
	24	46	48	0.18	
	25	48	50	0.02	EOH

BLANK	COMP	1st/last	BLIND DUPLICATE
.01/.02	1.51	.05/.06	0.05

QC/QA

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2051	1	0	2	0.08	7.3
	2	2	4	0.05	
	3	4	6	0.04	
	4	6	8	.04.	
	5	8	10	0.04	
	6	10	12	0.03	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.02	
	10	18	20	0.02	
	11	20	22	0.02	7.56
	12	22	24	0.01	
	13	24	26	0.04	
	14	26	28	0.03	
	15	28	30	0.02	
	16	30	32	0.01	
	17	32	34	0.03	
	18	34	36	0.02	
	19	36	38	0.01	
	20	38	40	0.13	
	21	40	42	0.27	7.33
	22	42	44	0.05	
	23	44	46	1.1	
	24	46	48	0.06	
	25	48	50	0.07	
	26	50	52	0.07	
	27	52	54	0.04	
	28	54	56	0.02	
	29	56	58	0.02	
	30	58	60	0.02	
	31	60	62	0.06	8.07
	32	62	64	0.09	EOH

BLANK	COMP	1st/last	BLIND DUPLICATE
-0.02	0.91	1.28/1.28	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2052	1	0	2	0.05	8.47
	2	2	4	0.45	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.1	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20	0.06	
	11	20	22	0.03	7.68
	12	22	24	0.07	
	13	24	26	0.13	
	14	26	28	0.04	
	15	28	30	0.16	
	16	30	32	1.67	
	17	32	34	0.03	
	18	34	36	0.01	
	19	36	38	0.01	
	20	38	40	0.01	
	21	40	42	0.01	8.45
	22	42	44	0.01	
	23	44	46	0.01	
	24	46	48	0.03	
	25	48	50	0.01	
	26	50	52	0.68	
	27	52	54	0.06	
	28	54	56	0.01	EOH
	29	56	58		
	30	58	60		
	31	60	62		
	32	62	64		
	33	64	66		
	34	66	68		
	35	68	70		
	36	70	72		
	37	72	74		
	38	74	76		
	39	76	78		
	40	78	80		
	41	80	82		
	42	82	84		EOH

QC/QA		0	0.62	.02/.02	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2053	1	0	2	0.58	7.88
	2	2	4	1.02	
	3	4	6	0.10	
	4	6	8	0.11	
	5	8	10	0.16	
	6	10	12	0.54	
	7	12	14	0.38	
	8	14	16	0.43	
	9	16	18	0.95	
	10	18	20	1.63	
	11	20	22	0.05	8.19
	12	22	24	0.12	
	13	24	26	0.12	
	14	26	28	0.02	
	15	28	30	0.08	
	16	30	32	0.06	
	17	32	34	0.05	
	18	34	36	0.01	
	19	36	38	0.01	
	20	38	40	0.02	
	21	40	42	0.12	8.43
	22	42	44	0.11	
	23	44	46	0.02	
	24	46	48	0.25	
	25	48	50	0.30	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.99	1.68/1.47	1.63

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2054	1	0	2	1.33	7.67
	2	2	4	0.75	
	3	4	6	1.04	
	4	6	8	1.3	
	5	8	10	0.12	
	6	10	12	0.1	
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.08	
	10	18	20	0.05	
	11	20	22	0.02	8.35
	12	22	24	0.02	
	13	24	26	0.29	
	14	26	28	0.05	
	15	28	30	0.01	
	16	30	32	0.03	
	17	32	34	0.01	
	18	34	36	0.01	
	19	36	38	0.03	
	20	38	40	0.18	
	21	40	42	0.21	8.55
	22	42	44	0.02	
	23	44	46	0.01	
	24	46	48	0.01	
	25	48	50	0.01	EOH

BLANK	COMP	1st/last	BLIND DUPLICATE
0	1.42	BO/.29	0.08

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2055	1	0	2	0.03	7.49
	2	2	4	0.04	
	3	4	6	0.01	
	4	6	8	0.03	
	5	8	10	0.02	
	6	10	12	0.02	
	7	12	14	0.03	
	8	14	16	0.01	
	9	16	18	0.02	
	10	18	20	0.01	
	11	20	22	0.02	6.22/5.94
	12	22	24	0.02	
	13	24	26	0.02	
	14	26	28	0.03	
	15	28	30	0.02	
	16	30	32	0.02	
	17	32	34	0.03	
	18	34	36	0.02	
	19	36	38	0.02	
	20	38	40	0.02	
	21	40	42	0.02	7.02
	22	42	44	0.03	
	23	44	46	0.03	
	24	46	48	0.02	
	25	48	50	0.01	
	26	50	52	0.03	
	27	52	54	0.06	
	28	54	56	0.25	
	29	56	58	0.38	
	30	58	60	0.08	
	31	60	62	0.15	7.97
	32	62	64	0.48	
	33	64	66	0.83	
	34	66	68	1.84	
	35	68	70	0.36	
	36	70	72	0.52	
	37	72	74	0.71	
	38	74	76	0.09	
	39	76	78	0.07	
	40	78	80	0.05	EOH
	41	80	82		
	42	82	84		EOH

QC/QA		0.01	1.53	.02/.03	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2056	1	0	2	0.22	7.45
	2	2	4	0.22	
	3	4	6	0.19	
	4	6	8	0.18	
	5	8	10	0.43	
	6	10	12	0.62	
	7	12	14	0.23	
	8	14	16	0.13	
	9	16	18	0.17	
	10	18	20	0.31	
	11	20	22	0.34	8.11/8.19
	12	22	24	0.54	
	13	24	26	0.21	
	14	26	28	0.29	
	15	28	30	1.65	
	16	30	32	2.97	
	17	32	34	2.52	
	18	34	36	0.85	
	19	36	38	1.14	
	20	38	40	0.45	
	21	40	42	0.13	8.27
	22	42	44	0.55	
	23	44	46	0.31	
	24	46	48	1.12	
	25	48	50	0.56	
	26	50	52	0.26	
	27	52	54	0.19	
	28	54	56	0.19	
	29	56	58	0.15	
	30	58	60	0.31	
	31	60	62	0.29	8.26
	32	62	64	0.67	
	33	64	66	0.28	
	34	66	68	0.15	
	35	68	70	0.11	EOH
	36	70	72		
	37	72	74		
	38	74	76		
	39	76	78		
	40	78	80		
	41	80	82		
	42	82	84		EOH

QC/QA	0.02	0.94	n/a	N/S

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2057	1	0	2	0.02	8.42
	2	2	4	0.03	
	3	4	6	0.03	
	4	6	8	0.04	
	5	8	10	0.02	
	6	10	12	0.03	7.67
	7	12	14	0.13	
	8	14	16	0.02	
	9	16	18	1.00	
	10	18	20	0.02	
	11	20	22	0.47	7.28
	12	22	24	0.23	
	13	24	26	4.99	
	14	26	28	3.11	
	15	28	30	0.49	
	16	30	32	0.09	7.93
	17	32	34	0.06	
	18	34	36	0.53	
	19	36	38	0.09	
	20	38	40	0.35	
	21	40	42	1.67	7.97
	22	42	44	0.11	
	23	44	46	0.02	
	24	46	48	0.01	
	25	48	50	0.05	
	26	50	52	0.03	7.5
	27	52	54	0.02	
	28	54	56	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.03	1.36	.09/.10	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2058	1	0	2	7.03	7.09
	2	2	4	5.38	
	3	4	6	10.3	
	4	6	8	1.9	
	5	8	10	1.59	
	6	10	12	2.93	
	7	12	14	0.36	
	8	14	16	0.51	
	9	16	18	0.1	
	10	18	20	0.43	
	11	20	22	1.4	6.55
	12	22	24	1.24	
	13	24	26	0.05	
	14	26	28	0.21	
	15	28	30	0.02	
	16	30	32	0.02	
	17	32	34	0.03	
	18	34	36	0.43	
	19	36	38	0.03	
	20	38	40	0.19	
	21	40	42	0.17	8.28
	22	42	44	0.4	
	23	44	46	0.09	
	24	46	48	0.05	
	25	48	50	0.15	
	26	50	52	0.66	7.89
	27	52	54	0.39	
	28	54	56	0.09	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.52	.02/.02	2.93

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2059	1	0	2	0.28	7.92/7.79
	2	2	4	0.13	
	3	4	6	0.29	
	4	6	8	0.3	
	5	8	10	0.06	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	0.06	
	9	16	18	0.04	
	10	18	20	0.03	
	11	20	22	0.01	8.53
	12	22	24	0.02	
	13	24	26	0.02	
	14	26	28	0.02	
	15	28	30	0.01	
	16	30	32	0.48	
	17	32	34	0.54	
	18	34	36	0.6	
	19	36	38	0.49	
	20	38	40	0.13	
	21	40	42	0.04	6.8
	22	42	44	0.05	
	23	44	46	0.03	
	24	46	48	0.04	
	25	48	50	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	0.53	.28/.27	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2060	1	0	2	1.87	6.9
	2	2	4	1.52	
	3	4	6	0.14	
	4	6	8	0.03	
	5	8	10	0.05	
	6	10	12	1.55	
	7	12	14	1.55	
	8	14	16	0.41	
	9	16	18	1.57	
	10	18	20	0.08	
	11	20	22	0.05	5.41
	12	22	24	0.01	
	13	24	26	0.04	
	14	26	28	0.01	
	15	28	30	0.03	EOH

BLANK	COMP	1st/last	BLIND DUPLICATE
.02/.01	0.54	.04/.05	0.45

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2061	1	0	2	0.08	
	2	2	4	0.04	
	3	4	6	0.04	
	4	6	8	0.05	
	5	8	10	0.03	
	6	10	12	0.02	8.73
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	0.02	
	10	18	20	0.02	
	11	20	22 A	0.05	8.64
	12	20	22 B	0.04	
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.03	8.21
	18	32	34	0.03	
	19	34	36	0.04	
	20	36	38	0.02	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	0.02	7.49
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.02	6.64
	29	52	54	0.02	
	30	54	56	0.02	
	31	56	58	0.12	
	32	58	60 A	0.16	
	33	58	60 B	0.16	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02			0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2062	1	0	2	0.51	7.23
	2	2	4	0.03	
	3	4	6	0.12	
	4	6	8	0.07	
	5	8	10	0.01	
	6	10	12	0.29	
	7	12	14	0.11	
	8	14	16	0.13	
	9	16	18	0.02	
	10	18	20	.07/.06	
	11	20	22	0.07	7.86
	12	22	24	0.01	
	13	24	26	0.08	
	14	26	28	0.52	
	15	28	30	0.07	
	16	30	32	0.32	
	17	32	34	0.39	
	18	34	36	0.01	
	19	36	38	0.01	
	20	38	40	.02/.05	
	21	40	42	0.03	8.23/8.41
	22	42	44	0.01	
	23	44	46	0.01	
	24	46	48	2.80	
	25	48	50	3.00	
	26	50	52	2.35	
	27	52	54	0.34	
	28	54	56	0.97	
	29	56	58	0.24	
	30	58	60	.01/.01	
	31	60	62		
	32	62	64		
	33	64	66		
	34	66	68		
	35	68	70		
	36	70	72		
	37	72	74		
	38	74	76		
	39	76	78		
	40	78	80		
	41	80	82		
	42	82	84		EOH

QC/QA		-0.01	0.53	.07/.07	0.07

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2063	1	0	2	0.03	7.34
	2	2	4	0.03	
	3	4	6	0.02	
	4	6	8	0.03	
	5	8	10	0.02	
	6	10	12	0.02	8.47
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.01	
	12	20	22	0.01	5.85/5.60
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.01	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.03	1.37	.03/.01	0.01

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2064	1	0	2	0.04	7.22
	2	2	4	0.04	
	3	4	6	0.01	
	4	6	8	0.02	
	5	8	10	0.01	
	6	10	12	0.01	8.23
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.05	
	10	18	20 A	0.03	7.90
	11	18	20 B	0.02	
	12	20	22	0.04	
	13	22	24	0.07	
	14	24	26	0.32	
	15	26	28	2.09	
	16	28	30	1.03	
	17	30	32	0.04	
	18	32	34	0.02	
	19	34	36	0.01	
	20	36	38	0.13	
	21	38	40 A	0.02	7.91
	22	38	40 B	0.02	
	23	40	42	0.04	
	24	42	44	0.01	
	25	44	46	0.09	
	26	46	48	0.07	
	27	48	50	0.01	
	28	50	52	0.03	
	29	52	54	0.02	
	30	54	56	0.02	
	31	56	58	0.02	
	32	58	60 A	0.02	7.77
	33	58	60 B	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.58	.02/.01	0.01

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2065	1	0	2	0.09	8.02
	2	2	4	0.08	
	3	4	6	0.21	
	4	6	8	0.15	
	5	8	10	0.1	
	6	10	12	0.01	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.01	
	10	18	20 A	0.01	
Marternity	11	18	20 B	0.01	
	12	20	22	0.02	4.98
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.014	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.04	
	23	40	42	0.04	5.76
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.12	
	28	50	52	0.01	
	29	52	54	0.01	
	30	54	56	0.01	
	31	56	58	0.01	
	32	58	60	0.01	
	33	60	62	0.05	7.39
	34	62	64	0.05	
	35	64	66	0.02	
	36	66	68	0.04	
	37	68	70	0.02	
	38	70	72	0.06	
	39	72	74	0.02	
	40	74	76	0.03	
	41	76	78	0.72	
	42	78	80 A	0.13	
	43	78	80 B	0.13	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA				0.01

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2066	1	0	2	0.02	
	2	2	4	0.03	
	3	4	6	0.01	
	4	6	8	0.02	
	5	8	10	0.03	
	6	10	12	0.02	7.53
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.01	
	10	18	20 A	0.02	
	11	18	20 B	0.03	
	12	20	22	0.05	6.85
	13	22	24	0.01	
	14	24	26	0.02	

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.01	0.55		0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	Comments
2067	1	0	2	0.16	7.38
	2	2	4	0.06	
	3	4	6	0.21	
	4	6	8	0.22	
	5	8	10	0.17	
	6	10	12	0.07	
	7	12	14	0.31	
	8	14	16	0.18	
	9	16	18	0.02	
	10	18	20 A	0.03	
	11	18	20 B	0.01	
	12	20	22	0.03	8.17
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.43	
	16	28	30	0.32	
	17	30	32	0.23	
	18	32	34	0.06	
	19	34	36	0.01	
	20	36	38	0.03	
	21	38	40	0.07	
	22	40	42	0.02	7.45/7.44
	23	42	44	0.02	
	24	44	46	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	0.98		0.09

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2068	1	0	2	0.11	7.89
	2	2	4	0.02	
	3	4	6	0.03	
	4	6	8	0.01	
	5	8	10	0.02	
	6	10	12	0.11	8.22
	7	12	14	0.17	
	8	14	16	0.53	
	9	16	18	0.08	
	10	18	20 A	0.20	
	11	18	20 B	0.20	
	12	20	22	0.57	8.32
	13	22	24	0.08	
	14	24	26	0.04	
	15	26	28	0.01	
	16	28	30	0.01	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.56	.20/.20	0.11

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2069	1	0	2	0.71	7.45
	2	2	4	0.33	
	3	4	6	0.68	
	4	6	8	1.32	
	5	8	10	0.32	
	6	10	12	0.52	7.96
	7	12	14	0.1	
	8	14	16	0.01	
	9	16	18	0.51	
	10	18	20 A	0.14	
	11	18	20 B	0.11	
	12	20	22	0.02	7.41
	13	22	24	0.01	
	14	24	26	0.07	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	0.01	8.02
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.01	
	29	52	54	0.01	
	30	54	56	0.01	
	31	56	58	0.01	
	32	58	60	0.02	
	33	60	62	0.01	7.81
	34	62	64	0.05	
	35	64	66	0.07	
	36	66	68	0.11	
	37	68	70	0.06	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	1.42	.01/.01	0.11

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2070	1	0	2	0.36	6.99
	2	2	4	0.03	
	3	4	6	0.14	
	4	6	8	0.61	
	5	8	10	0.29	
	6	10	12	0.42	
	7	12	14	0.94	
	8	14	16	0.27	
	9	16	18	0.61	
	10	18	20 A	0.03	
	11	18	20 B	0.03	
	12	20	22	0.03	7.97
	13	22	24	0.59	
	14	24	26	0.36	
	15	26	28	0.59	
	16	28	30	0.02	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.02	
	21	38	40 A	0.01	
	22	38	40 B	0.02	
	23	40	42	0.02	8.18
	24	42	44	0.03	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.01	
	29	52	54	0.01	
	30	54	56	0.01	
	31	56	58	0.02	
	32	58	60	0.02	
	33	60	62	0.02	7.89
	34	62	64	0.01	
	35	64	66	0.04	
	36	66	68	0.01	
	37	68	70	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	1.28	.14/.14	0.25

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2071	1	0	2	0.08	7.59
	2	2	4	0.05	
	3	4	6	0.16	
	4	6	8	0.8	
	5	8	10	0.18	
	6	10	12	0.12	
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.05	
	12	20	22	0.03	8.07
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.05	
	16	28	30	0.06	
	17	30	32	0.16	
	18	32	34	0.97	
	19	34	36	1.35	
	20	36	38	0.95	
	21	38	40 A	0.56	
	22	38	40 B	0.58	
	23	40	42	0.89	8.22
	24	42	44	0.75	
	25	44	46	0.34	
	26	46	48	0.16	
	27	48	50	0.69	
	28	50	52	0.34	
	29	52	54	0.13	
	30	54	56	0.2	
	31	56	58	1.49	
	32	58	60 A	1.11	
	33	58	60 B	1.10	
	34	60	62	0.78	8.06
	35	62	64	0.74	
	36	64	66	1.00	
	37	66	68	2.51	
	38	68	70	0.40	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	0.93	.16/.17	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	Comments
2072	1	0	2	0.25	
	2	2	4	2.20	
	3	4	6	0.57	
	4	6	8	0.65	
	5	8	10	0.04	
	6	10	12	0.17	
	7	12	14	0.11	
	8	14	16	1.33	
	9	16	18	0.04	
	10	18	20 A	0.87	
	11	18	20 B	0.86	
	12	20	22	0.43	7.83
	13	22	24	0.59	
	14	24	26	0.12	
	15	26	28	0.17	
	16	28	30	0.2	
	17	30	32	0.06	
	18	32	34	0.05	
	19	34	36	0.04	
	20	36	38	0.04	
	21	38	40 A	0.05	
	22	38	40 B	0.03	
	23	40	42	0.19	8.04
	24	42	44	0.36	
	25	44	46	0.07	
	26	46	48	0.28	
	27	48	50	0.1	
	28	50	52	0.02	
	29	52	54	0.03	
	30	54	56	0.05	

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.01	1.31	.12/.12	0.86

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2073	1	0	2	0.07	7.57
	2	2	4	0.12	
	3	4	6	0.09	
	4	6	8	0.08	
	5	8	10	0.68	
	6	10	12	0.86	
	7	12	14	0.49	
	8	14	16	0.24	
	9	16	18	0.25	
	10	18	20 A	0.54	
	11	18	20 B	0.48	
	12	20	22	0.06	7.66
	13	22	24	0.07	
	14	24	26	0.29	
	15	26	28	0.33	
	16	28	30	0.17	
	17	30	32	0.02	
	18	32	34	0.07	
	19	34	36	0.09	
	20	36	38	0.07	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	0.03	8.02
	24	42	44	0.16	
	25	44	46	0.03	
	26	46	48	0.10	
	27	48	50	1.66	
	28	50	52	0.06	
	29	52	54	0.06	
	30	54	56	0.07	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	1.41	.17/.17	0.58

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2074	1	0	2	0.2	7.12
	2	2	4	0.28	
	3	4	6	0.13	
	4	6	8	0.2	
	5	8	10	0.07	
	6	10	12	0.14	
	7	12	14	0.31	
	8	14	16	0.42	
	9	16	18	0.04	
	10	18	20 A	0.05	
	11	18	20 B	0.05	
	12	20	22	0.03	7.92
	13	22	24	0.08	
	14	24	26	0.03	
	15	26	28	0.05	
	16	28	30	0.04	
	17	30	32	0.03	7.68
	18	32	34	0.28	
	19	34	36	0.63	
	20	36	38	0.71	
	21	38	40 A	0.44	
	22	38	40 B	0.38	
	23	40	42	0.19	8.04
	24	42	44	0.39	
	25	44	46	0.06	
	26	46	48	0.06	
	27	48	50	0.06	
	28	50	52	0.03	
	29	52	54	1.46	
	30	54	56	0.37	
	31	56	58	0.28	
	32	58	60 A	0.12	
	33	58	60 B	0.05	
	34	60	62	0.04	8.06
	35	62	64	0.01	
	36	64	66	0.02	
	37	66	68	0.05	
	38	68	70	0.14	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.59	.01/.02	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	Comments
2075	1	0	2	0.05	7.53
	2	2	4	0.04	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.03	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.07	
	10	18	20 A	0.32	
	11	18	20 B	0.34	
	12	20	22	0.21	8.10
	13	22	24	0.29	
	14	24	26	0.57	
	15	26	28	0.55	
	16	28	30	0.32	
	17	30	32	0.72	
	18	32	34	0.31	
	19	34	36	0.30	
	20	36	38	0.43	
	21	38	40 A	0.05	
	22	38	40 B	0.04	
	23	40	42	0.16	7.88
	24	42	44	0.13	
	25	44	46	0.13	
	26	46	48	0.34	
	27	48	50	0.02	
	28	50	52	0.01	
	29	52	54	0.02	
	30	54	56	0.01	
	31	56	58	0.04	
	32	58	60	0.01	
	33	60	62	0.01	8.22
	34	62	64	0.03	
	35	64	66	0.01	
	36	66	68	0.01	
	37	68	70	0.01	
	38	70	72	0.01	
	39	72	74	0.01	
	40	74	76	0.01	
	41	76	78	3.69	
	42	78	80 A	2.97	

43	78	80 B	2.88	
44	80	82	2.36	7.50
45	82	84	1.32	
46	84	86	0.85	
47	86	88	0.33	
48	88	90	0.09	
49	90	92	0.13	
50	92	94	0.06	
51	94	96	0.02	
52	96	98	0.07	
53	98	100	0.02	
54	100	102	0.05	7.96
55	102	104	0.02	
56	104	106	0.09	
57	106	108	0.01	
58	108	110	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	-0.01	1.39	.57/.56	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2076	1	0	2	0.03	8.30
	2	2	4	0.13	
	3	4	6	0.1	
	4	6	8	0.46	
	5	8	10	0.09	
	6	10	12	0.04	
	7	12	14	0.34	
	8	14	16	0.87	
	9	16	18	1.80	
	10	18	20 A	1.66	
	11	18	20 B	1.61	
	12	20	22	0.69	7.85
	13	22	24	0.11	
	14	24	26	0.06	
	15	26	28	0.06	
	16	28	30	0.04	
	17	30	32	0.07	
	18	32	34	0.65	
	19	34	36	0.25	
	20	36	38	0.18	
	21	38	40 A	0.06	
	22	38	40 B	0.08	
	23	40	42	0.07	8.30
	24	42	44	0.06	
	25	44	46	0.24	
	26	46	48	0.06	
	27	48	50	0.04	
	28	50	52	0.02	
	29	52	54	0.02	
	30	54	56	0.04	
	31	56	58	0.28	
	32	58	60 A	0.03	
	33	58	60 B	0.03	
	34	60	62	0.02	8.55
	35	62	64	0.03	
	36	64	66	0.99	
	37	66	68	1.00	
	38	68	70	0.31	
	39	70	72	0.10	
	40	72	74	0.12	EOH

BLANK COMP 1st/last BLIND DUPLICATE

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2077	1	0	2	0.33	8.04
	2	2	4	0.26	
	3	4	6	0.54	
	4	6	8	0.11	
	5	8	10	0.13	
	6	10	12	0.41	8.29
	7	12	14	0.33	
	8	14	16	0.15	
	9	16	18	0.28	
	10	18	20 A	0.1	
	11	18	20 B	0.09	
	12	20	22	0.95	8.22
	13	22	24	0.82	
	14	24	26	0.77	
	15	26	28	1.46	
	16	28	30	1.13	
	17	30	32	2.24	8.23
	18	32	34	0.48	
	19	34	36	0.11	
	20	36	38	0.05	
	21	38	40 A	0.06	
	22	38	40 B	0.07	
	23	40	42	0.04	8.22
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.03	
	27	48	50	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	1.36	.11/.12	0.43

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

DATE 2-Jun-98

HOLE		TO	FROM	Au g/t	pH
2078	1	0	2	0.31	
	2	2	4	0.05	
	3	4	6	0.05	
	4	6	8	0.31	
	5	8	10	0.17	
	6	10	12	0.03	
	7	12	14	0.04	
	8	14	16	0.39	
	9	16	18	0.02	
	10	18	20 A	0.03	
	11	18	20 B	0.02	
	12	20	22	0.03	
	13	22	24	0.07	
	14	24	26	0	
	15	26	28	0.02	
	16	28	30	0.11	
	17	30	32	0.3	
	18	32	34	0.39	
	19	34	36	0.55	
	20	36	38	0.48	
	21	38	40 A	0.42	
	22	38	40 B	0.46	
	23	40	42	0.21	
	24	42	44	0.12	
	25	44	46	0.02	
	26	46	48	0.03	
	27	48	50	0.07	
	28	50	52	0.06	
	29	52	54	0.16	
	30	54	54.5	0.12	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA				0.43

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2079	1	0	2	0.03	7.43
6/3/98	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.03	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	0.04	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	0.02	8.53
	13	22	24	0.03	
	14	24	26	0.03	
	15	26	28	0.03	
	16	28	30	0.02	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.02	
	20	36	38	0.01	
	21	38	40 A	0.05	
	22	38	40 B	0.04	
	23	40	42	0.03	7.97
	24	42	44	0.03	
	25	44	46	0.05	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.01	0.54	.03/.02	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2080	1	0	2	0.15	8.05
	2	2	4	0.06	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.03	
	6	10	12	0.02	
	7	12	14	1.16	
	8	14	16	2.04	
	9	16	18	1.03	
	10	18	20 A	0.48	
	11	18	20 B	0.48	
	12	20	22	0.93	8.21
	13	22	24	0.47	
	14	24	26	0.28	
	15	26	28	0.01	
	16	28	30	0.11	
	17	30	32	0.01	
	18	32	34	0.59	
	19	34	36	0.32	
	20	36	38	1.16	
	21	38	40 A	0.83	
	22	38	40 B	0.67	
	23	40	42	0.03	8.50
	24	42	44	0.01	
	25	44	46	0.03	
	26	46	48	0.05	
	27	48	50	0.04	
	28	50	52	0.01	
	29	52	54	0.04	
	30	54	56	0.04	
	31	56	58	0.01	
	32	58	60 A	0.08	
	33	58	60 B	0.09	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA				2.01

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2081	1	0	2	0.75	
	2	2	4	0.08	
	3	4	6	0.04	
	4	6	8	0.01	
	5	8	10	2.82	
	6	10	12	2.78	8.19
	7	12	14	1.70	
	8	14	16	2.12	
	9	16	18		
	10	18	20 A	0.52	
	11	18	20 B	0.5	
	12	20	22	0.64	8.26
	13	22	24	0.87	
	14	24	26	0.37	
	15	26	28	0.95	
	16	28	30	1.01	
	17	30	32	0.14	
	18	32	34	0.09	
	19	34	36	0.04	
	20	36	38	0.24	
	21	38	40 A	0.02	
	22	38	40 B	0.02	
	23	40	42	0.02	8.33
	24	42	44	0.03	
	25	44	46	3.91	
	26	46	48	1.35	
	27	48	50	0.11	
	28	50	52	0.06	8.30
	29	52	54	0.13	
	30	54	56	0.01	
	31	56	58	0.02	
	32	58	60 A	0.73	
	33	58	60 B	0.78	EOH

QC/QA

BLANK COMP 1st/last BLIND DUPLICATE

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2082	1	0	2	0.08	7.74
	2	2	4	0.06	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.01	
	6	10	12	0.02	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.03	
	11	18	20 B	0.01	
	12	20	22	0.01	8.27
	13	22	24	0.15	
	14	24	26	1.45	
	15	26	28	3.22	
	16	28	30	3.26	
	17	30	32	0.99	
	18	32	34	1.05	
	19	34	36	0.55	
	20	36	38	1.62	
	21	38	40 A	1.51	
	22	38	40 B	1.50	
	23	40	42	1.63	8.41
	24	42	44	1.87	
	25	44	46	0.56	
	26	46	48	0.66	
	27	48	50	2.16	
	28	50	52	0.30	
	29	52	54	1.28	
	30	54	56	0.63	
	31	56	58	0.73	
	32	58	60 A	0.53	
	33	58	60 B	0.45	
	34	60	62	0.79	8.16
	35	62	64	0.07	
	36	64	66	1.57	
	37	66	68	0.35	
	38	68	70	0.07	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.02	1.44	.01/.01	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2083	1	0	2	0.39	7.95
	2	2	4	0.82	
	3	4	6	0.71	
	4	6	8	0.22	
	5	8	10	0.14	
	6	10	12	0.68	8.01
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.03	
	12	20	22	0.02	8.44
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.03	
	16	28	30	0.02	
	17	30	32	0.02	7.28
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	0.07	8.38
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.01	
	27	48	50	0.03	
	28	50	52	0.01	7.99
	29	52	54	0.01	
	30	54	56	0.03	
	31	56	58	0.02	
	32	58	60 A	0.02	
	33	58	60 B	0.04	
	34	60	62	0.01	8.27
	35	62	64	0.25	
	36	64	66	0.01	
	37	66	68	<0.02	
	38	68	70	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	1.26	.68/.63	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2084	1	0	2	0.4	7.81
	2	2	4	0.08	
	3	4	6	0.06	
	4	6	8	0.06	
	5	8	10	-0.02	
	6	10	12	0.04	
	7	12	14	0.61	
	8	14	16	1.57	
	9	16	18	0.6	
	10	18	20 A	1.01	
	11	18	20 B	1.1	
	12	20	22	0.4	8.00
	13	22	24	0.03	
	14	24	26	0.1	
	15	26	28	0.14	
	16	28	30	1.03	
	17	30	32	1.01	
	18	32	34	0.93	
	19	34	36	1.07	
	20	36	38	0.77	
	21	38	40 A	0.14	
	22	38	40 B	0.13	
	23	40	42	0.02	8.01
	24	42	44	0.09	
	25	44	46	0.22	
	26	46	48	0.12	
	27	48	50	0.23	
	28	50	52	0.65	
	29	52	54	0.52	
	30	54	56	0.62	
	31	56	58	0.59	
	32	58	60 A	0.44	
	33	58	60 B	0.46	
	34	60	62	0.32	
	35	62	64	0.08	
	36	64	66	0.15	
	37	66	68	0.08	
	38	68	70	0.07	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	0.88	.03/.06	0.57

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2085	1	0	2	0.07	7.88
	2	2	4	0.03	
	3	4	6	0.12	
	4	6	8	0.61	
	5	8	10	0.30	
	6	10	12	0.41	
	7	12	14	0.29	
	8	14	16	1.83	
	9	16	18	1.98	
	10	18	20 A	0.55	
	11	18	20 B	0.58	
	12	20	22	0.57	
	13	22	24	1.43	
	14	24	26	1.62	
	15	26	28	0.93	
	16	28	30	0.54	
	17	30	32	0.94	
	18	32	34	0.03	
	19	34	36	0.03	
	20	36	38	0.05	
	21	38	40 A	0.11	
	22	38	40 B	0.07	
	23	40	42	0.04	7.35
	24	42	44	0.04	
	25	44	46	0.05	
	26	46	48	0.03	
	27	48	50	0.06	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	1.39	.07/.07	1.76

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2086	1	0	2	0.99	7.45
	2	2	4	1.45	
	3	4	6	0.10	
	4	6	8	0.16	
	5	8	10	0.48	
	6	10	12	0.03	
	7	12	14	0.05	
	8	14	16	0.02	
	9	16	18	0.05	
	10	18	20 A	0.07	
	11	18	20 B	0.03	
	12	20	22	0.03	7.92
	13	22	24	0.04	
	14	24	26	0.05	
	15	26	28	1.15	
	16	28	30	2.08	
	17	30	32	1.52	
	18	32	34	0.23	
	19	34	36	0.14	
	20	36	38	0.06	
	21	38	40 A	0.52	
	22	38	40 B	0.49	
	23	40	42	0.45	8.12
	24	42	44	0.67	
	25	44	46	1.72	
	26	46	48	0.63	
	27	48	50	0.81	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	1.05	.05/.05	0.06

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2087	1	0	2	0.06	7.98
	2	2	4	<0.02	
	3	4	6	0.04	
	4	6	8	0.05	
	5	8	10	0.29	
	6	10	12	1.14	
	7	12	14	0.09	
	8	14	16	<0.02	
	9	16	18	0.09	
	10	18	20 A	0.10	
	11	18	20B	0.12	
	12	20	22	0.06	6.21
	13	22	24	<0.02	
	14	24	26	0.03	
	15	26	28	0.03	
	16	28	30	0.10	
	17	30	32	0.18	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40 A	0.02	
	22	38	40 B	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	1.28	.06/.06	1.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2088	1	0	2	0.24	7.79
	2	2	4	1.13	
	3	4	6	0.46	
	4	6	8	1.63	
	5	8	10	2.22	
	6	10	12	1.91	
	7	12	14	0.4	
	8	14	16	0.19	
	9	16	18	0.14	
	10	18	20 A	0.04	
	11	18	20 B	0.02	
	12	20	22	0.03	7.30
	13	22	24	0.01	
	14	24	26	0.03	
	15	26	28	0.04	
	16	28	30	0.03	
	17	30	32	0.03	
	18	32	34	0.84	
	19	34	36	0.23	
	20	36	38	0.22	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	<0.02	7.35
	24	42	44	<0.02	
	25	44	46	<0.02	
	26	46	48	<0.02	
	27	48	50	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.94	.22/.22	1.87

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2089	1	0	2	0.03	7.35
	2	2	4	<0.02	
	3	4	6	<0.02	
	4	6	8	<0.02	
	5	8	10	0.7	
	6	10	12	1.99	
	7	12	14	1.19	
	8	14	16	0.54	
	9	16	18	0.18	
	10	18	20 A	<0.02	
	11	18	20 B	<0.02	
	12	20	22	0.03	7.97
	13	22	24	0.17	
	14	24	26	0.31	
	15	26	28	0.69	
	16	28	30	0.32	
	17	30	32	1.43	
	18	32	34	0.02	
	19	34	36	-0.02	
	20	36	38	0.04	
	21	38	40 A	0.02	
	22	38	40 B	0.05	
	23	40	42	-0.02	6.86
	24	42	44	-0.02	
	25	44	46	0.04	
	26	46	48	0.67	
	27	48	50	0.35	EOH
					EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	1.25	n/a	1.12

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	AU	pH
2090	1	0	2	0.3	6.99
	2	2	4	0.09	
	3	4	6	0.88	
	4	6	8	2.24	
	5	8	10	2.14	
	6	10	12	1.69	
	7	12	14	0.91	
	8	14	16	2.32	
	9	16	18	1.36	
	10	18	20 A	0.33	
	11	18	20 B	0.36	
	12	20	22	1.6	7.95
	13	22	24	2	
	14	24	26	0.6	
	15	26	28	0.11	
	16	28	30	0.22	
	17	30	32	0.19	
	18	32	34	0.7	
	19	34	36	1.22	
	20	36	38	1.06	
	21	38	40 A	0.99	
	22	38	40 B	1.13	
	23	40	42	0.29	8.19
	24	42	44	0.53	
	25	44	46	1.64	
	26	46	48	1.28	
	27	48	50	0.07	
	28	50	52	0.06	
	29	52	54	0.14	
	30	54	56	0.03	
	31	56	58	0.02	
	32	58	60 A	0.02	
	33	58	60 B	0.03	
	34	60	62	0.06	
	35	62	64	0.02	
	36	64	66	0.02	
	37	66	68	0.04	
	38	68	70	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.52	.3/.03	2.1

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	AU	pH
2091	1	0	2	0.14	7.91
June 15 98	2	2	4	0.05	
	3	4	6	0.03	
	4	6	8	0.02	
	5	8	10	0.05	
	6	10	12	-0.02	
	7	12	14	0.11	
	8	14	16	0.04	
	9	16	18	0.05	
	10	18	20 A	0.03	
	11	18	20 B	0.05	
	12	20	22	0.04	8.17
	13	22	24	-0.02	
	14	24	26	0.5	
	15	26	28	1.49	
	16	28	30	1.46	
	17	30	32	2.39	
	18	32	34	0.64	
	19	34	36	0.22	
	20	36	38	0.03	
	21	38	40 A	0.21	
	22	38	40 B	0.20	
	23	40	42	0.3	8.10
	24	42	44	0.03	
	25	44	46	-0.02	
	26	46	48	0.11	
	27	48	50	0.11	
	28	50	52	0.18	
	29	52	54	0.06	
	30	54	56	0.04	
	31	56	58	0.04	
	32	58	60 A	0.07	
	33	58	60 B	0.06	
	34	60	62	0.39	7.43
	35	62	64	0.20	
	36	64	66	0.43	
	37	66	68	0.02	
	38	68	70	0.09	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.52		0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	AU	pH
2092	1	0	2	<.02	
June 15 98	2	2	4	0.02	
	3	4	6	<.02	
	4	6	8	<.02	
	5	8	10	<.02	
	6	10	12	<.02	
	7	12	14	<.02	
	8	14	16	<.02	
	9	16	18	0.26	
	10	18	20 A	0.24	
	11	18	20 B	0.25	
	12	20	22	0.65	7.56
	13	22	24	0.9	
	14	24	26	1.6	
	15	26	28	1.55	
	16	28	30	1.03	
	17	30	32	0.23	
	18	32	34	0.27	
	19	34	36	0.25	
	20	36	38	1.19	
	21	38	40 A	1.01	
	22	38	40 B	1.05	
	23	40	42	0.72	7.91
	24	42	44	0.35	
	25	44	46	0.06	
	26	46	48	0.04	
	27	48	50	0.44	
	28	50	52	0.10	
	29	52	54	0.11	
	30	54	56	0.03	
	31	56	58	0.05	
	32	58	60 A	0.05	
	33	58	60 B	0.13	
	34	60	62	0.02	7.63
	35	62	64	-0.02	
	36	64	66	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.89		0.23

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	AU	pH
2093	1	0	2	0.05	7.75
June 15 98	2	2	4	0.03	
	3	4	6	-0.02	
	4	6	8	0.02	
	5	8	10	-0.02	
	6	10	12	-0.02	
	7	12	14	0.06	
	8	14	16	0.11	
	9	16	18	0.11	
	10	18	20	.04/.05	
	11	20	22	1.17	7.75
	12	22	24	0.39	
	13	24	26	0.22	
	14	26	28	-0.02	
	15	28	30	-0.02	
	16	30	32	-0.02	
	17	32	34	0.02	
	18	34	36	-0.02	
	19	36	38	0.02	
	20	38	40	.36/.28	
	21	40	42	-0.02	8.08
	22	42	44	0.02	
	23	44	46	0.4	
	24	46	48	-0.02	
	25	48	50	0.02	
	26	50	52	0.02	
	27	52	54	0.05	
	28	54	56	0.02	
	29	56	58	1.8	
	30	58	60	.9/.82	
	31	60	62	0.31	8.01
	32	62	64	1.4	
	33	64	66	1.38	
	34	66	68	0.62	
	35	68	70	0.43	
	36	70	72	0.19	
	37	72	74	0.32	
	38	74	76	0.27	
	39	76	78	1.36	
	40	78	80A	0.53	
	41	78	80B	0.53	EOH

QC/QA		0	0.93	.05/.53	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2094	1	0	2	0.25	7.86
June 15 98	2	2	4	0.08	
	3	4	6	0.06	
	4	6	8	0.05	
	5	8	10	0.04	
	6	10	12	0.05	
	7	12	14	0.05	
	8	14	16	0.05	
	9	16	18	0.02	
	10	18	20 A	0.04	
	11	18	20 B	0.02	
	12	20	22	0.02	8.09
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	0.33	
	17	30	32	0.6	
	18	32	34	0.85	
	19	34	36	1.28	
	20	36	38	0.67	
	21	38	40 A	0.6	
	22	38	40 B	0.64	
	23	40	42	1.19	8.10
	24	42	44	0.79	
	25	44	46	0.64	
	26	46	48	0.84	
	27	48	50	0.24	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.04	1.37	.25/.24	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2095	1	0	2	0.06	7.72
June 15 98	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	<0.02	
	5	8	10	0.02	
	6	10	12	<0.02	
	7	12	14	0.02	
	8	14	16	0.21	
	9	16	18	0.08	
	10	18	20 A	0.04	
	11	18	20 B	0.04	
	12	20	22	0.11	7.96
	13	22	24	0.04	
	14	24	26	0.32	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.27	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	0.48	
	23	40	42	<0.02	7.33
	24	42	44	0.03	
	25	44	46	<0.02	
	26	46	48	0.07	
	27	48	50	<0.02	
	28	50	52	0.02	
	29	52	54	<0.02	
	30	54.00	56	0.02	
	31	56	58	0.03	
	32	58	60A	<0.02	
	33	58	60B	<0.02	EOH

comp	1st/last	blind dup
0.52	.06/-.02	0.17

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2096	1	0	2	0.05	
June 15 98	2	2	4	0.02	
	3	4	6	0.03	
	4	6	8	0.1	
	5	8	10	0.03	
	6	10	12	<0.02	
	7	12	14	0.1	
	8	14	16	<0.02	
	9	16	18	0.02	
	10	18	20 A	0.03	
	11	18	20 B	0.02	
	12	20	22	0.03	5.29
	13	22	24	0.02	
	14	24	26	0.03	
	15	26	28	<0.02	
	16	28	30	0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.02	
	20	36	38	<0.02	EOH

	BLANK	COMP	1/last	BLIND DUPLICATE
QC/QA	0.00	0.53		-0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2097	1	0	2	0.11	6.18
June 15 98	2	2	4	0.37	
	3	4	6	0.87	
	4	6	8	1.08	
	5	8	10	0.49	
	6	10	12	1.44	
	7	12	14	1.4	
	8	14	16	1.99	
	9	16	18	0.97	
	10	18	20 A	2.71	
	11	18	20 B	2.51	
	12	20	22	3.12	8.07
	13	22	24	3.58	
	14	24	26	1.41	
	15	26	28	<0.02	
	16	28	30	1.24	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	1.75	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	0.11	
	23	40	42	<0.02	7.61
	24	42	44	0.08	
	25	44	46	<0.02	
	26	46	48	0.03	
	27	48	50	0.02	EOH

	BLANK	COMP	1/last	BLIND DUPLICATE
QC/QA	<.02	0.5	.11/.02	1.18

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2098	1	0	2	0.13	6.92
June 15 98	2	2	4	0.06	
	3	4	6	0.09	
	4	6	8	0.61	
	5	8	10	0.48	
	6	10	12	0.23	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20	.03/.02	
	11	20	22	0.02	7.36
	12	22	24	0.02	
	13	24	26	0.03	
	14	26	28	0.02	
	15	28	30	<0.02	
	16	30	32	0.02	
	17	32	34	<0.02	
	18	34	36	<0.02	
	19	36	38	0.05	
	20	38	40	<0.02	
	21	40	42	<0.02	7.97
	22	42	44	0.02	
	23	44	46	<0.02	
	24	46	48	0.03	
	25	48	50	<0.02	EOH

	BLANK			
QC/QA	0.00	1.26	.13/-.02	0.21

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au g/t	pH
2099	1	0	2	N/S	
June 15 98	2	2	4	0.87	
	3	4	6	0.49	
	4	6	8	0.04	
	5	8	10	0.35	
	6	10	12	0.25	
	7	12	14	1.42	
	8	14	16	0.33	
	9	16	18	1.25	
	10	18	20 A	0.23	
	11	18	20 B	0.19	
	12	20	22	0.28	8.17
	13	22	24	0.04	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	<0.02	7.98
	24	42	44	0.04	
	25	44	46	<0.02	
	26	46	48	0.16	
	27	48	50	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	<.02	0.52	.87/.04	1.46

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2100	1	0	2	0.73	7.54
June 15 98	2	2	4	0.42	
	3	4	6	0.1	
	4	6	8	0.08	
	5	8	10	0.07	
	6	10	12	0.1	
	7	12	14	0.08	
	8	14	16	0.14	
	9	16	18	0.07	
	10	18	20	.38/.29	
	11	20	22	2.09	6.80
	12	22	24	2.56	
	13	24	26	1.46	
	14	26	28	1.79	
	15	28	30	<0.02	
	16	30	32	4.15	
	17	32	34	<0.02	
	18	34	36	<0.02	
	19	36	38	0.08	
	20	38	40	<0.02	
	21	40	42	<0.02	4.64
	22	42	44	0.09	
	23	44	46	<0.02	
	24	46	48	0.07	
	25	48	50	<0.02	EOH

	BLANK	COMP	1st/last	Blind dup
QC/QA	0.02	1.35	.73/.07	0.14

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2101	1	0	2	0.10	6.68
June 15 98	2	2	4	0.09	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.05	
	6	10	12	0.04	
	7	12	14	0.05	
	8	14	16	0.04	
	9	16	18	0.05	
	10	18	20 A	0.93	
	11	18	20 B	1.00	
	12	20	22	1.21	6.51
	13	22	24	1.20	
	14	24	26	1.12	
	15	26	28	<0.02	
	16	28	30	1.00	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	1.14	
	20	36	38	<0.02	
	21	38	40 A	0.11	
	22	38	40 B	0.17	
	23	40	42	0.44	8.31
	24	42	44	0.08	
	25	44	46	0.17	
	26	46	48	0.06	
	27	48	50	0.06	
	28	50	52	0.07	
	29	52	54	0.07	
	30	54	56	0.06	
	31	56	58	0.07	
	32	58	60 A	0.06	
	33	58	60 B	0.06	
	34	60	62	0.10	6.98
	35	62	64	0.07	
	36	64	66	0.05	
	37	66	68	0.08	
	38	68	70	0.08	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	<.02	1.24	.10/.08	0.1

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2102	1	0	2	0.02	7.06
June 15 98	2	2	4	0.02	
	3	4	6	<.02	
	4	6	8	0.03	
	5	8	10	<.02	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	<.02	
	10	18	20 A	0.04	
	11	18	20 B	0.02	
	12	20	22	0.03	5.48
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.03	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	0.03	
	19	34	36	0.03	
	20	36	38	0.05	
	21	38	40 A	0.45	
	22	38	40 B	0.41	
	23	40	42	0.67	6.93
	24	42	44	1.11	
	25	44	46	0.21	
	26	46	48	0.74	
	27	48	50	1.50	
	28	50	52	1.90	
	29	52	54	2.16	
	30	54	56	1.43	
	31	56	58	1.13	
	32	58	60 A	1.34	
	33	58	60 B	1.39	
	34	60	62	1.06	8.08
	35	62	64	0.68	
	36	64	66	0.39	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	1.34	.04/.03	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2103	1	0	2	0.03	6.91
June 15 98	2	2	4	<0.02	
	3	4	6	<0.02	
	4	6	8	0.16	
	5	8	10	<0.02	
	6	10	12	0.02	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	<0.02	
	11	18	20 B	<0.02	
	12	20	22	0.82	
	13	22	24	0.46	
	14	24	26	0.1	
	15	26	28	1.09	
	16	28	30	0.31	
	17	30	32	0.39	
	18	32	34	0.1	
	19	34	36	2.2	
	20	36	38	0.07	
	21	38	40 A	0.43	
	22	38	40 B	0.36	
	23	40	42	4.8	
	24	42	44	3.57	
	25	44	46	0.67	
	26	46	48	0.37	
	27	48	50	0.63	
	28	50	52	0.57	
	29	52	54	0.39	
	30	54	56	0.23	
	31	56	58	0.06	
	32	58	60 A	0.06	
	33	58	60 B	0.10	
	34	60	62		
	35	62	64		
	36	64	66		EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	1.32	.02/.02	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2104	1	0	2	0.28	7.19
June 15 98	2	2	4	0.64	
	3	4	6	0.92	
	4	6	8	1.64	
	5	8	10	0.86	
	6	10	12	0.85	
	7	12	14	0.27	
	8	14	16	0.82	
	9	16	18	0.45	
	10	18	20 A	0.07	
	11	18	20 B	0.07	
	12	20	22	0.04	7.76
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	<0.02	
	16	28	30	0.03	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40	<0.02	
	22	40	42	<0.02	7.38
	23	42	44	<0.02	
	24	44	46	<0.02	
	25	46	48	<0.02	
	26	48	50	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.51	.28/.27	0.43

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2105	1	0	2	<0.02	6.52
June 15 98	2	2	4	0.02	
	3	4	6	<0.02	
	4	6	8	0.68	
	5	8	10	<0.02	
	6	10	12	0.15	
	7	12	14	0.04	
	8	14	16	<0.02	
	9	16	18	0.03	
	10	18	20 A	0.67	
	11	18	20 B	0.70	
	12	20	22	0.03	6.39
	13	22	24	0.90	
	14	24	26	0.75	
	15	26	28	<0.02	d ? 3.14
	16	28	30	3.30	
	17	30	32	<0.02	d ? .37
	18	32	34	<0.02	
	19	34	36	0.95	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	0.17	
	23	40	42	<0.02	8.01
	24	42	44	0.45	
	25	44	46	<0.02	
	26	46	48	0.13	
	27	48	50	0.25	
	28	50	52	0.61	
	29	52	54	0.25	
	30	54	56	0.06	
	31	56	58	0.32	
	32	58	60 A	0.17	
	33	58	60 B	0.14	
	34	60	62	0.22	
	35	62	64	0.15	
	36	64	66	0.04	
	37	66	68	0.07	
	38	68	70	0.11	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA				<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2106	1	0	2	NO SAMPLE	
	2	2	4	0.02	
	3	4	6	<0.02	
	4	6	8	<0.02	
	5	8	10	<0.02	
	6	10	12	0.02	
	7	12	14	0.98	
	8	14	16	0.28	
	9	16	18	<0.02	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	0.02	
	13	22	24	0.05	
	14	24	26	0.07	
	15	26	28	0.18	
	16	28	30	0.03	
	17	30	32	0.04	
	18	32	34	0.05	
	19	34	36	0.09	
	20	36	38	0.71	
	21	38	40 A	1.22	
	22	38	40 B	1.11	
	23	40	42	0.6	
	24	42	44	0.16	
	25	44	46	0.09	
	26	46	48	0.14	
	27	48	50	0.21	
	28	50	52	0.05	
	29	52	54	<0.02	
	30	54	56	0.02	
	31	56	58	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	.89/.90	0.89

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2107	1	0	2	0.06	ISS
June 15 98	2	2	4	<.02	
	3	4	6	0.03	
	4	6	8	0.30	
	5	8	10	0.04	
	6	10	12	0.38	
	7	12	14	0.23	
	8	14	16	0.06	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	0.03	
	12	20	22	0.12	7.08
	13	22	24	0.79	
	14	24	26	1.12	
	15	26	28	2.92	
	16	28	30	2.33	
	17	30	32	<0.02	
	18	32	34	0.58	
	19	34	36	0.05	
	20	36	38	0.04	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	<0.02	8.26
	24	42	44	<.02	
	25	44	46	<0.02	
	26	46	48	0.04	
	27	48	50	0.02	
	28	50	52	0.05	8.35
	29	52	54	0.09	
	30	54	56	0.06	
	31	56	58	0.05	
	32	58	60 A	0.03	
	33	58	60 B	0.02	
	34	60	62	0.03	8.06
	35	62	64	0.04	
	36	64	66	0.05	
	37	66	68	0.08	
	38	68	70	0.05	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	<.02	1.45	.30/.29	0.45

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2108	1	0	2	0.02	
June 15 98	2	2	4	<.02	
	3	4	6	<.02	
	4	6	8	<.02	
	5	8	10	<.02	
	6	10	12	<.02	
	7	12	14	<.02	
	8	14	16		
	9	16	18	<.02	
	10	18	20 A	0.06	
	11	18	20 B	0.02	
	12	20	22	0.42	7.76
	13	22	24	0.02	
	14	24	26	0.04	
	15	26	28	<0.02	d ? .76
	16	28	30	0.15	
	17	30	32	<0.02	d ? .95
	18	32	34	<0.02	
	19	34	36	<.02	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	0.02	
	23	40	42	<0.02	8.31
	24	42	44	<.02	
	25	44	46	<0.02	
	26	46	48	0.06	
	27	48	50	0.03	
	28	50	52	0.04	
	29	52	54	<.02	
	30	54	56	<.02	
	31	56	58	<.02	
	32	58	60 A	<.02	
	33	58	60 B	0.02	
	34	60	62	<.02	8.46
	35	62	64	<.02	
	36	64	66	<.02	
	37	66	68	<.02	
	38	68	70	<.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	.06/.07	<.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2109	1	0	2	0.09	
	2	2	4	0.08	
	3	4	6	0.03	
	4	6	8	<0.02	
	5	8	10	<0.02	
	6	10	12	<0.02	
	7	12	14	0.02	
	8	14	16	0.71	
	9	16	18	1.21	
	10	18	20 A	0.93	
	11	18	20 B	0.96	
	12	20	22	0.03	
	13	22	24	0.02	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	0.04	
	17	30	32	0.05	
	18	32	34	0.08	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	0.02	
	22	38	40 B	<0.02	
	23	40	42	<0.02	
	24	42	44	<0.02	
	25	44	46	<0.02	
	26	46	48	<0.02	
	27	48	50	0.02	
	28	50	52	0.02	
	29	52	54	<0.02	
	30	54	56	<0.02	
	31	56	58	<0.02	
	32	58	60 A	<0.02	
	33	58	60 B	0.02	
	34	60	62	<0.02	
	35	62	64	0.02	
	36	64	66	<0.02	
	37	66	68	<0.02	
	38	68	70	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	.09/.09	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2110	1	0	2	0.1	
19-Jun-98	2	2	4	0.09	
	3	4	6	<0.02	
	4	6	8	<0.02	
	5	8	10	0.08	
	6	10	12	0.03	
	7	12	14	0.37	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	0.03	
	11	18	20 B	0.04	
	12	20	22	<0.02	
	13	22	24	0.41	
	14	24	26	2.28	
	15	26	28	0.32	
	16	28	30	0.05	
	17	30	32	0.12	
	18	32	34	0.15	
	19	34	36	0.22	
	20	36	38	0.13	
	21	38	40 A	0.16	
	22	38	40 B	0.16	
	23	40	42	0.02	
	24	42	44	<0.02	
	25	44	46	0.02	
	26	46	48	0.03	
	27	48	50	0.02	
	28	50	52	0.03	
	29	52	54	<0.02	
	30	54	56	0.02	
	31	56	58	0.02	
	32	58	60 A	0.02	
	33	58	60 B	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	.09/.09	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2111	1	0	2	0.37	
21-Jun-98	2	2	4	0.51	
	3	4	6	1.74	
	4	6	8	2.23	
	5	8	10	1.73	
	6	10	12	2.93	
	7	12	14	0.33	
	8	14	16	0.17	
	9	16	18	0.05	
	10	18	20 A	0.03	
	11	18	20 B	0.03	
	12	20	22	0.02	
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.04	
	20	36	38	0.03	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	<0.02	8.73
	24	42	44	0.03	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.04	
	29	52	54	0.05	
	30	54	56	0.10	
	31	56	58	0.02	
	32	58	60 A	0.03	
	33	58	60 B	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.94	.04/.03	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2112	1	0	2	0.11	7.63
	2	2	4	0.15	
	3	4	6	0.08	
	4	6	8	0.08	
	5	8	10	0.05	
	6	10	12	0.08	
	7	12	14	0.07	
	8	14	16	0.04	
	9	16	18	0.01	
	10	18	20 A	0.05	
	11	18	20 B	0.02	
	12	20	22	0.02	5.31
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.01	
	16	28	30	0.02	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.02	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	0.01	6.35
	24	42	44	0	
	25	44	46	0	
	26	46	48	0.01	
	27	48	50	0.00	
	28	50	52	<	
	29	52	54	<	
	30	54	56	0.00	
	31	56	58	0.00	
	32	58	60 A	0.03	
	33	58	60 B	0.00	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	1.31	.05/.06	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2113	1	0	2	0.05	
22-Jun-98	2	2	4	0.13	
	3	4	6	0.45	
	4	6	8	0.36	
	5	8	10	0.41	
	6	10	12	0.16	
	7	12	14	0.08	
	8	14	16	0.09	
	9	16	18	0.09	
	10	18	20 A	0.08	
	11	18	20 B	0.08	
	12	20	22	0.03	
	13	22	24	0.03	
	14	24	26	0.05	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	<.02	
	18	32	34	0.03	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	0.02	
	22	38	40 B	0.02	
	23	40	42	0.02	7.84
	24	42	44	0.03	
	25	44	46	<0.02	
	26	46	48	0.03	
	27	48	50	0.04	
	28	50	52	<0.02	
	29	52	54	<0.02	
	30	54	56	0.02	
	31	56	58	<0.02	
	32	58	60 A	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.57	.03/.05	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2114	1	0	2	0.07	7.74
23-Jun-98	2	2	4	0.08	
	3	4	6	0.06	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.05	
	7	12	14	0.07	
	8	14	16	0.08	
	9	16	18	0.04	
	10	18	20 A	<.02	
	11	18	20 B	0.02	
	12	20	22	<.02	7.72
	13	22	24	<.02	
	14	24	26	0.05	
	15	26	28	3.1	
	16	28	30	0.93	
	17	30	32	0.49	
	18	32	34	1.5	
	19	34	36	0.04	
	20	36	38	0.03	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	<0.02	8.5
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.25	
	27	48	50	0.33	
	28	50	52	0.02	
	29	52	54	<0.02	
	30	54	56	0.02	
	31	56	58	0.02	
	32	58	60 A	0.03	
	33	58	60 B	<0.02	
	34	60	62	<0.02	7.33
	35	62	64	0.03	
	36	64	66	0.02	
	37	66	68	0.11	
	38	68	70	0.05	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	1.47	.09/.05	0.1

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2115	1	0	2	0.17	7.68
21-Jun-98	2	2	4	0.29	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.02	7.2
	7	12	14	0.02	
	8	14	16	0.41	
	9	16	18	0.06	
	10	18	20 A	0.98	
	11	18	20 B	0.95	
	12	20	22	0.73	5.04
	13	22	24	0.59	
	14	24	26	0.43	
	15	26	28	0.61	
	16	28	30	2.05	
	17	30	32	0.08	
	18	32	34	2.14	
	19	34	36	0.25	
	20	36	38	0.2	
	21	38	40 A	0.08	
	22	38	40 B	0.09	
	23	40	42	0.14	
	24	42	44	0.12	
	25	44	46	0.48	
	26	46	48	0.98	
	27	48	50	0.12	
	28	50	52	0.10	
	29	52	54	0.07	
	30	54	56	0.05	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.88	.09/.08	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2116	1	0	2	0.09	
21-Jun-98	2	2	4	0.05	
	3	4	6	0.04	
	4	6	8	0.05	
	5	8	10	0.06	
	6	10	12	<0.02	
	7	12	14	0.02	
	8	14	16	0.09	
	9	16	18	0.1	
	10	18	20 A	0.02	
	11	18	20 B	<0.02	
	12	20	22	0.04	
	13	22	24	0.04	
	14	24	26	0.02	
	15	26	28	0.03	
	16	28	30	0.03	
	17	30	32	0.02	
	18	32	34	0.02	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	<0.02	
	24	42	44	<0.02	
	25	44	46	0.02	
	26	46	48	0.04	
	27	48	50	<0.02	
	28	50	52	0.04	
	29	52	54	0.05	
	30	54	56	0.04	
	31	56	58	0.06	
	32	58	60 A	<0.02	
	33	58	60 B	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	.09/.09	<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2117	1	0	2	0.06	7.23
23-Jun-98	2	2	4	0.02	
	3	4	6	0.35	
	4	6	8	<.02	
	5	8	10	0.15	
	6	10	12	0.12	
	7	12	14	0.32	
	8	14	16	0.3	
	9	16	18	0.06	
	10	18	20 A	0.06	
	11	18	20 B	0.04	
	12	20	22	<.02	8.68
	13	22	24	0.08	
	14	24	26	0.02	
	15	26	28	<.02	
	16	28	30	0.02	
	17	30	32	0.04	
	18	32	34	<.02	
	19	34	36	0.02	
	20	36	38	0.02	
	21	38	40 A	0.02	
	22	38	40 B	<.02	
	23	40	42	<.02	
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	<.02	
	27	48	50	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.95	.06/.02	0.1

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
2118	1	0	2	0.03	
6/18/98	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	<	
	5	8	10	0.02	
	6	10	12	0.18	
	7	12	14	0.91	
	8	14	16	0.18	
	9	16	18	0.21	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	0.02	
	13	22	24	<	
	14	24	26	0.05	
	15	26	28	0.04	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	0.01	
	19	34	36	0.3	
	20	36	38	0.04	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	0.42	
	24	42	44	0.14	
	25	44	46	0.09	
	26	46	48	0.03	
	27	48	50	0.04	
	28	50	52	<	
	29	52	54	<	
	30	54	56	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	-0.01	0.54	.03/.04	0.16

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2119	1	0	2	0.05	7.44
6/19/98	2	2	4	0.04	
	3	4	6	0.15	
	4	6	8	1.77	
	5	8	10	0.35	
	6	10	12	0.05	7.18
	7	12	14	0.05	
	8	14	16	0.12	
	9	16	18	0.06	
	10	18	20 A	0.1	
	11	18	20 B	0.07	
	12	20	22	0.05	8.54
	13	22	24	0.09	
	14	24	26	0.05	
	15	26	28	0.03	
	16	28	30	0.03	
	17	30	32	0.05	6.51
	18	32	34	0.03	
	19	34	36	<	
	20	36	38	<	
	21	38	40 A	0.02	
	22	38	40 B	<	
	23	40	42	0.03	8.22
	24	42	44	0.04	
	25	44	46	0.02	
	26	46	48	0.19	
	27	48	50	0.09	
	28	50	52	0.04	8.09
	29	52	54	<	
	30	54	56	0.04	
	31	56	58	0.03	
	32	58	60A	0.02	
	33	58	60B	0.02	
	34	60	62	0.03	6.93
	35	62	64	0.03	
	36	64	66	0.04	
	37	66	68	0.03	
	38	68	70	<	
	39	70	72	0.04	6.53
	40	72	74	0.02	
	41	74	76	0.06	
QC/QA		BLANK	COMP	1st/Last	LIND DUPLICATE

	0	0.53 .05/.06	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2120	1	0	2	0.36	
6/19/98	2	2	4	0.27	
	3	4	6	0.17	
	4	6	8	0.15	
	5	8	10	0.1	
	6	10	12	0.02	
	7	12	14	0.04	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.04	
	11	18	20 B	0.03	
	12	20	22	0.04	
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	<	
	16	28	30	0.02	
	17	30	32	0.03	
	18	32	34	0.03	
	19	34	36	0.02	
	20	36	38	0.03	
	21	38	40 A	<	
	22	38	40 B	<	
	23	40	42	0.02	
	24	42	44	0.02	
	25	44	46	0.03	
	26	46	48	0.06	
	27	48	50	0.05	
	28	50	52	0.05	
	29	52	54	0.03	
	30	54	56	0.03	
	31	56	58	<	
	32	58	60A	<	
	33	58	60B	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.01	0.51	.36/.03	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2121	1	0	2	0.08	
6/19/98	2	2	4	0.04	
	3	4	6	0.77	
	4	6	8	0.64	
	5	8	10	0.41	
	6	10	12	0.17	
	7	12	14	0.06	
	8	14	16	0.05	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.03	
	12	20	22	0.03	
	13	22	24	<	
	14	24	26	0.04	
	15	26	28	<	
	16	28	30	0.02	
	17	30	32	0.03	
	18	32	34	0.02	
	19	34	36	<	
	20	36	38	0.03	
	21	38	40 A	0.02	
	22	38	40 B	0.02	
	23	40	42	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0	0.53	.08/.02	0.08

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2122	1	0	2	0.06	
	2	2	4	0.11	
	3	4	6	0.14	
	4	6	8	0.1	
	5	8	10	0.17	
	6	10	12	0.06	
	7	12	14	0.07	
	8	14	16	0.05	
	9	16	18	0.05	
	10	18	20 A	0.05	
	11	18	20 B	0.08	
	12	20	22	0.07	
	13	22	24	0.05	
	14	24	26	0.07	
	15	26	28	0.08	
	16	28	30	0.13	
	17	30	32	0.11	
	18	32	34	0.18	
	19	34	36	0.16	
	20	36	38	0.16	
	21	38	40 A	0.05	
	22	38	40 B	0.05	
	23	40	42	0.05	
	24	42	44	0.08	
	25	44	46	0.03	
	26	46	48	0.03	
	27	48	50	0.03	
	28	50	52	0.05	
	29	52	54	0.07	
	30	54	56	0.07	
	31	56	58	0.06	
	32	58	60A	0.04	
	33	58	60B	0.03	
	34	60	62	0.04	
	35	62	64	0.06	
	36	64	66	0.05	
	37	66	68	0.07	
	38	68	70	0.04	
	39	70	72	0.07	
	40	72	74	0.06	
	41	74	76	0.06	
	42	76	78	0.03	

43	78	80	0.07	EOH

COMP	BLANK	1st/last	Blind Duplicate
0.68		0 .06/.07	0.08

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au	pH
RC98 2123	1	0	2	0.04	6.96
	2	2	4	0.06	
	3	4	6	0.08	
	4	6	8	0.09	
	5	8	10	0.09	
	6	10	12	0.09	
	7	12	14	0.19	
	8	14	16	0.34	
	9	16	18	0.28	
	10	18	20 A	0.22	
	11	18	20 B	0.22	
	12	20	22	0.10	7.47
	13	22	24	0.12	
	14	24	26	0.1	
	15	26	28	0.09	
	16	28	30	0.11	
	17	30	32	0.1	
	18	32	34	0.11	
	19	34	36	0.13	
	20	36	38	0.12	
	21	38	40 A	0.14	
	22	38	40 B	0.13	
	23	40	42	0.1	7.01
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.02	
	29	52	54	0.03	
	30	54	56	0.05	
	31	56	58	0.02	
	32	58	60A	0.04	
	33	58	60B	0.03	
		BLANK	Comp	1st/last	Duplicate
QC/QA		0	1.34	.04/.03	0.18

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2124	1	0	2	0.07	
6/18/98	2	2	4	0.13	
	3	4	6	0.17	
	4	6	8	0.16	
	5	8	10	0.21	
	6	10	12	0.24	
	7	12	14	0.63	
	8	14	16	0.91	
	9	16	18	0.18	
	10	18	20 A	0.07	
	11	18	20 B	0.08	
	12	20	22	0.06	
	13	22	24	0.03	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.03	
	18	32	34	0.03	
	19	34	36	0.02	
	20	36	38	0.02	
	21	38	40 A	<	
	22	38	40 B	<	
	23	40	42	0.03	
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.05	
	28	50	52	0.02	
	29	52	54	0.03	
	30	54	56	0.02	
	31	56	58	<	
	32	58	60A	0.02	
	33	58	60B	0.02	
	34	60	62	0.02	
	35	62	64	<	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	-0.01	1.36	.07/<	0.2

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2125	1	0	2	0.26	
	2	2	4	0.15	
	3	4	6	0.2	
	4	6	8	0.34	
	5	8	10	0.03	
	6	10	12	0.05	
	7	12	14	<.02	
	8	14	16	<.02	
	9	16	18	0.06	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	<.02	
	13	22	24	<.02	
	14	24	26	<.02	
	15	26	28	<.02	
	16	28	30	<.02	
	17	30	32	<.02	
	18	32	34	<.02	
	19	34	36	0.03	
	20	36	38	0.03	
	21	38	40 A	<.02	
	22	38	40 B	<.02	
	23	40	42	<.02	
	24	42	44	<.02	
	25	44	46	<.02	
QC/QA	26	46	48	<.02	
	27	48	50	<.02	
	28	50	52	<.02	
	29	52	54	0.05	
	30	54	56	0.02	
	31	56	58	<.02	
	32	58	60	<.02	
	33	58	60	0.09	
	34	60	62	0.07	
	35	62	64	0.76	
	36	64	66	1.38	
	37	66	68	1.44	
	38	68	70	0.52	
	39	70	72	0.5	
	40	72	74	0.03	
	41	74	76	0.66	
	42	76	78	2.62	

43	78	80A	2.91	
44	78	80B	2.66	
45	80	82	0.04	
46	82	88	0.03	
47	84	86	0.01	
48	86	92	0.09	
49	88	90	0.09	
50	90	96	0.01	
51	92	94	0.03	
52	94	96	0.01	
53	96	98	0	
54	98	100A	0.01	
55	98	100B	0.03	EOH

BLANK	Comp	1st/last	Duplicate
<.02	1.34	.31/.03	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2126	1	0	2	0.09	
	2	2	4	0.84	
	3	4	6	3.51	
	4	6	8	0.48	
	5	8	10	1.1	
	6	10	12	0.35	
	7	12	14	0.12	
	8	14	16	0.03	
	9	16	18	0.13	
	10	18	20 A	0.04	
	11	18	20 B	0.04	
	12	20	22	0.39	
	13	22	24	1.39	
	14	24	26	0.51	
	15	26	28	0.2	
	16	28	30	0.11	
	17	30	32	0.09	
	18	32	34	0.04	
	19	34	36	0.07	
	20	36	38	0.04	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	0.03	6.95
	24	42	44	0.15	
	25	44	46	0.03	
	26	46	48	0.19	
	27	48	50	0.14	
	28	50	52	0.04	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.03	0.88	1.39/1.31	0.12

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2127	1	0	2	0.06	7.7
	2	2	4	0.03	
	3	4	6	0.02	
	4	6	8	0.01	
	5	8	10	0	
	6	10	12	<	
	7	12	14	0.01	
	8	14	16	0.04	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.02	
	12	20	22	0.01	7.69
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.04	
	16	28	30	0.03	
	17	30	32	0.03	
	18	32	34	0.06	
	19	34	36	0.04	
	20	36	38	0.04	
	21	38	40 A	0.04	
	22	38	40 B	0.05	EOH

	BLANK	COMP	1st / last	BLIND DUPLICAT
QC/QA	0	1.36	0.06	0

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2128	1	0	2	0.04	
	2	2	4	0.02	
	3	4	6	<.02	
	4	6	8	0.02	
	5	8	10	<.02	
	6	10	12	0.03	
	7	12	14	0.07	
	8	14	16	0.05	
	9	16	18	0.02	
	10	18	20 A	<.02	
	11	18	20 B	0.02	
	12	20	22	0.03	
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.03	
	16	28	30	0.02	
	17	30	32	<.02	
	18	32	34	0.03	
	19	34	36	0.02	
	20	36	38	0.04	
	21	38	40 A	<.02	
	22	38	40 B	0.03	
	23	40	42	<.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0.01	1.4	.04/<.02	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2129	1	0	2	0.01	
	2	2	4	0.01	
	3	4	6	0.02	
	4	6	8	0.01	
	5	8	10	0.02	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	0.01	
	9	16	18	0.02	
	10	18	20 A	0.01	
	11	18	20 B	0.05	
	12	20	22	0.03	
	13	22	24	0.02	
	14	24	26	0.01	
	15	26	28	0.04	
	16	28	30	0.13	
	17	30	32	0.13	
	18	32	34	0.07	
	19	34	36	0.03	
	20	36	38	0.03	
	21	38	40 A	0.03	
	22	38	40 B	0.04	EOH
		BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA		0.02	1.39	.02/.01	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2130	1	0	2	0.05	
	2	2	4	0.06	
	3	4	6	0.06	
	4	6	8	0.05	
	5	8	10	0.09	
	6	10	12	0.06	
	7	12	14	0.07	
	8	14	16	0.06	
	9	16	18	0.05	
	10	18	20 A	0.07	
	11	18	20 B	0.05	
	12	20	22	0.04	
	13	22	24	0.03	
	14	24	26	0.02	
	15	26	28	0.03	
	16	28	30	0.06	EOH
		BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA		0.01	0.89	.05/	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2131	1	0	2	<	
6/20/98	2	2	4	<	
	3	4	6	<	
	4	6	8	<	
	5	8	10	<	
	6	10	12	<	
	7	12	14	<	
	8	14	16	<	
	9	16	18	<	
	10	18	20 A	<	
	11	18	20 B	<	
	12	20	22	<	
	13	22	24	<	
	14	24	26	<	
	15	26	28	<	
	16	28	30	<	
	17	30	32	<	
	18	32	34	<	
	19	34	36	<	
	20	36	38	0.06	
	21	38	40 A	0.09	
	22	38	40 B	0.08	
	23	40	42	0.06	
	24	42	44	0.07	
	25	44	46	0.04	
	26	46	48	<	
	27	48	50	<	
	28	50	52	<	
	29	52	54	<	
	30	54	56	<	
	31	56	58	<	
	32	58	60	<	
	33	60	62	<	
	34	62	64	<	
	35	64	66	<	
	36	66	68	<	
	37	68	70	<	
	38	70	72	<	
	39	72	74	<	
	40	74	76	<	
	41	76	78	<	
	42	78	80	<	

43	80	82	<	
44	82	84	<	
45	84	86	<	
46	86	88	0.02	
47	88	90	<	
48	90	92	<	
49	92	94	0.03	
50	94	96	<	
51	96	98	<	
52	98	100	<	
53	100	102	<	
54	102	104	<	
55	104	106	<	
56	106	108	<	
57	108	110	<	
58	110	112	<	
59	112	114	<	
60	114	116	<	
61	116	118	<	
62	118	120	<	
63	120	122	<	8.08
64	122	124	<	
65	124	126	<	
66	126	128	<	
67	128	130	<	
68	130	132	<	
69	132	134	<	
70	134	136	0.02	
71	136	138	<	
72	138	140A	<	
73	138	140B	<	

Blanl	Comp	1st/last	Blind duplicate
0	1.86	</<	<

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2132	1	0	2	0.07	7.87
	2	2	4	0.18	
	3	4	6	0.09	
	4	6	8	0.16	
	5	8	10	0.19	
	6	10	12	0.09	
	7	12	14	0.01	
	8	14	16	0	
	9	16	18	0.05	
	10	18	20 A	0.02	
	11	18	20 B	0.01	
	12	20	22	0.01	6.54
	13	22	24	0.01	
	14	24	26	0.03	
	15	26	28	0.05	
	16	28	30	0.11	
	17	30	32	0.59	
	18	32	34	0.08	
	19	34	36	0.24	
	20	36	38	2.09	
	21	38	40 A	7.72	
	22	38	40 B	7.51	
	23	40	42	0.81	7.67
	24	42	44	0.30	
	25	44	46	0.13	
	26	46	48	2.06	
	27	48	50	0.22	
	28	50	52	0.06	
	29	52	54	0.06	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	0.01	0.51	.01/.01	0.01	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2133	1	0	2	0.02	
	2	2	4	0.01	
	3	4	6	0.01	
	4	6	8	0.02	
	5	8	10	0.04	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.25	
	9	16	18	0.23	
	10	18	20 A	0.01	
	11	18	20 B	0.01	
	12	20	22	0.02	
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.02	
	23	40	42	0.01	
	24	42	44	0.01	
	25	44	46	1.95	
	26	46	48	6.72	
	27	48	50	11.18	

BLANK	COMP	1st/last	BLIND	DUP
0.01	1.3	.02/.02	0.04	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2134	1	0	2	0.11	7.21
	2	2	4	0.02	
	3	4	6	0.03	
	4	6	8	0.01	
	5	8	10	0.01	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	0.04	
	9	16	18	0.04	
	10	18	20 A	0.43	
	11	18	20 B	0.48	
	12	20	22	0.05	7.50
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.02	
	20	36	38	0.05	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	0.01	7.12
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.01	
	29	52	54	0.01	
	30	54	56	0.11	
	31	56	58	0.01	
	32	58	60 A	0.01	
	33	58	60 B	0.01	
	34	60	62	0.01	7.69
	35	62	64	0.01	
	36	64	66	1.14	
	37	66	68	0.10	
	38	68	70	1.59	
	39	70	72	3.41	
	40	72	74	0.93	
	41	74	76	0.21	
	42	76	78	3.59	

43	78	80 A	1.79	
44	78	80 B	1.56	EOH

BLANK	COMP	1st/last	BLIND	DUP
0	1.28	.01/.01	0.04	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2135	1	0	2	0.39	
	2	2	4	0.50	
	3	4	6	0.13	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	0.03	
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	0.02	
	10	18	20 A	0.04	
	11	18	20 B	0.02	
	12	20	22	0.02	7.19
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.16	
	22	38	40 B	0.19	
	23	40	42	0.07	8.14
	24	42	44	1.16	
	25	44	46	4.49	
	26	46	48	0.74	
	27	48	50	0.47	
	28	50	52	0.28	
	29	52	54	0.13	
	30	54	56	0.11	
	31	56	58	0.46	
	32	58	60 A	1.31	
	33	58	60 B	1.55	
	34	60	62	2.55	7.69
	35	62	64	1.30	
	36	64	66	0.27	
	37	66	68	0.43	
	38	68	70	0.05	
	39	70	72	0.04	
	40	72	74	0.14	
	41	74	76	0.03	
	42	76	78	0.02	

43	78	80 A	0.02	
44	78	80 B	0.03	
45	80	82	0.01	7.78
46	82	84	0.02	
47	84	86	0.05	
48	86	88	0.05	
49	88	90	0.02	
50	90	92	0.03	
51	92	94	0.04	
52	94	96	0.01	
53	96	98	0.02	
54	98	100 A	0.07	
55	98	100 B	0.02	
56	100	102	0.01	7.92
57	102	104	0.03	
58	104	106	0.04	
59	106	108	0.05	
60	108	110	0.05	EOH

BLANK	COMP	1st/last	BLIND	DUP
0.02	0.54	.04/.04	0.02	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2136	1	0	2	0.06	7.5
	2	2	4	0.06	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.05	
	7	12	14	0.03	
	8	14	16	-0.01	
	9	16	18	-0.01	
	10	18	20 A	0.05	
	11	18	20 B	0.07	
	12	20	22	0.03	7.22
	13	22	24	-0.02	
	14	24	26	0	
	15	26	28	0	
	16	28	30	0.06	
	17	30	32	0.2	
	18	32	34	0.1	
	19	34	36	-0.01	
	20	36	38	-0.02	
	21	38	40 A	0.02	
	22	38	40 B	-0.02	
	23	40	42	<	7.39
	24	42	44	0.01	
	25	44	46	0	
	26	46	48	0.02	
	27	48	50	3.07	
	28	50	52	4.61	
	29	52	54	0.32	
	30	54	56	0.15	
	31	56	58	0.05	
	32	58	60A	1.39	
	33	58	60B	1.43	
	34	60	62	0.17	7.56
	35	62	64	0.44	
	36	64	66	0.58	
	37	66	68	0.54	
	38	68	70	0.29	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	-0.01	1.26	.10/.12		0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2137	1	0	2	0.08	7.5
	2	2	4	0.31	
	3	4	6	0.27	
	4	6	8	0.55	
	5	8	10	2.87	
	6	10	12	1.5	
	7	12	14	0.08	
	8	14	16	0.06	
	9	16	18	0.06	
	10	18	20 A	0.06	
	11	18	20 B	0.06	
	12	20	22	0.11	7.47
	13	22	24	0.03	
	14	24	26	0.08	
	15	26	28	0.08	
	16	28	30	0.07	
	17	30	32	4.12	
	18	32	34	5.74	
	19	34	36	0.72	
	20	36	38	0.28	
	21	38	40 A	0.18	
	22	38	40 B	0.21	
	23	40	42	0.21	7.8
	24	42	44	0.13	
	25	44	46	2.47	
	26	46	48	0.61	
	27	48	50	0.37	
	28	50	52	0.96	
	29	52	54	0.87	
	30	54	56	0.73	
	31	56	58	0.24	
	32	58	60A	0.47	
	33	58	60B	0.55	
	34	60	62	0.15	8.06
	35	62	64	0.07	
	36	64	66	0.05	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	0	0.94	1.36/1.50		1.36

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2138	1	0	2	0.07	7.73
	2	2	4	0.02	
	3	4	6	2.08	
	4	6	8	5.67	
	5	8	10	0.08	
	6	10	12	0.17	
	7	12	14	1.77	
	8	14	16	0.03	
	9	16	18	0.02	
	10	18	20 A	0.02	
	11	18	20 B	0	
	12	20	22	0.02	6.22
	13	22	24	0.07	
	14	24	26	1.03	
	15	26	28	1.71	
	16	28	30	0.07	
	17	30	32	0.16	
	18	32	34	0.12	
	19	34	36	1.49	
	20	36	38	0.37	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	1.94	7.67
	24	42	44	0.03	
	25	44	46	0.01	
	26	46	48	<	
	27	48	50	0.02	
	28	50	52	0.12	
	29	52	54	0.01	
	30	54	56	0.10	
	31	56	58	0.21	
	32	58	60A	1.16	
	33	58	60B	1.18	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	-0.01	0.85	.03/.03		0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2139	1	0	2	<	8.39
	2	2	4	<	
	3	4	6	0.41	
	4	6	8	0.15	
	5	8	10	0	
	6	10	12	3.61	
	7	12	14	0.05	
	8	14	16	<	
	9	16	18	<	
	10	18	20 A	-0.01	
	11	18	20 B	-0.01	
	12	20	22	0.81	8.26
	13	22	24	0.04	
	14	24	26	0.19	
	15	26	28	1.23	
	16	28	30	0.14	
	17	30	32	4.35	
	18	32	34	17.07	
	19	34	36	6.88	
	20	36	38	1.78	
	21	38	40 A	2.8	
	22	38	40 B	3.18	
	23	40	42	0.09	7.5
	24	42	44	0.04	
	25	44	46	0.06	
	26	46	48	3.77	
	27	48	50	0.51	
	28	50	52	0.09	
	29	52	54	0.02	
	30	54	56	0.09	
	31	56	58	0.02	
	32	58	60A	0.03	
	33	58	60B	<.02	
	BLANK	COMP	1st/last	BLIND	DUP
	0.01	1.33	.06/.01	0.08	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2140	1	0	2	0.06	7.99
16-Jul-98	2	2	4	0.06	
	3	4	6	0.05	
	4	6	8	0.04	
	5	8	10	0.05	
	6	10	12	0.12	
	7	12	14	0.02	
	8	14	16	<.02	
	9	16	18	0.28	
	10	18	20 A	0.32	
	11	18	20 B	0.35	
	12	20	22	0.16	7.35
	13	22	24	0.6	
	14	24	26	2.24	
	15	26	28	0.94	
	16	28	30	0.08	
	17	30	32	0.59	
	18	32	34	1.24	
	19	34	36	1.03	
	20	36	38	0.29	
	21	38	40	1.94	
	22	38	40	1.86	
	23	40	42	0.07	7.22
	24	42	44	0.17	
	25	44	46	0.78	
	26	46	48	0.5	
	27	48	50	0.42	
	28	50	52	0.69	
	29	52	54	0.2	
	30	54	56	0.2	
	31	56	58	0.06	
	32	58	60	0.07	
	33	58	60	0.09	
	34	60	62	0.07	7.70
	35	62	64	0.05	
	36	64	66	0.07	
	37	66	68	0.06	
	38	68	70	0.18	

E.O.H.

BLANK	COMP	1st/last	BLIND	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2141	1	0	2	0.3	7.71
	2	2	4	0.1	
	3	4	6	0.03	
	4	6	8	0.04	
	5	8	10	0.02	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0	
	9	16	18	0	
	10	18	20 A	0.01	
	11	18	20 B	0.01	
	12	20	22	0.03	6.74
	13	22	24	0	
	14	24	26	0.02	
	15	26	28	0.15	
	16	28	30	0.29	
	17	30	32	1.11	
	18	32	34	1.25	
	19	34	36	0.7	
	20	36	38	0.17	
	21	38	40 A	0.38	
	22	38	40 B	0.36	
	23	40	42	0.42	7.64
	24	42	44	0.01	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0	
	28	50	52	0.04	
	29	52	54	0.81	
	30	54	56	0.01	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	0	1.24	.01/.01	0.02	

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2142	1	0	2	0.09	7.15
	2	2	4	0.06	
	3	4	6	0.07	
	4	6	8	0.08	
	5	8	10	0.08	
	6	10	12	0.05	
	7	12	14	0.05	
	8	14	16	0.05	
	9	16	18	0.06	
	10	18	20 A	0.05	
	11	18	20 B	0.05	
	12	20	22	0.06	8.02
	13	22	24	0.05	
	14	24	26	0.06	
	15	26	28	0.07	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.03	
	19	34	36	0.01	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	1.37	.09/.01	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2143	1	0	2	0.1	7.06
	2	2	4	0.23	
	3	4	6	0.07	
	4	6	8	0.04	
	5	8	10	0.04	
	6	10	12	0.2	
	7	12	14	0.09	
	8	14	16	0.16	
	9	16	18	0.1	
	10	18	20 A	0.07	
	11	18	20 B	0.06	
	12	20	22	0.06	7.36
	13	22	24	0.05	
	14	24	26	0.03	
	15	26	28	0.02	
	16	28	30	0.05	
	17	30	32	0.08	
	18	32	34	0.06	
	19	34	36	0.05	
	20	36	38	0.02	
	21	38	40 A	0.05	
	22	38	40 B	0.04	
	23	40	42	0.07	7.55
	24	42	44	0.04	
	25	44	46	0.34	
	26	46	48	0.23	
	27	48	50	0.12	
	28	50	52	0.09	
	29	52	54	0.17	
	30	54	56	1.43	
	31	56	58	0.07	
	32	58	60 A	0.05	
	33	58	60 B	0.04	
	34	60	62	0.03	6.82
	35	62	64	0.05	EOH

BLANK	Comp	1ST/LAST	Duplicate
0.01	0.86	.10/.05	0.06

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	Au g/t	pH
RC98 2144	1	0	2	0.09	6.99
	2	2	4	0.03	
	3	4	6	0.05	
	4	6	8	0.03	
	5	8	10	0.05	
	6	10	12	0.12	
	7	12	14	0.09	
	8	14	16	0.16	
	9	16	18	0.18	
	10	18	20 A	0.04	
	11	18	20 B	0.05	
	12	20	22	0.1	7.54
	13	22	24	0.02	
	14	24	26	0.16	
	15	26	28	0.03	
	16	28	30	0.04	
	17	30	32	-0.02	
	18	32	34	0.03	
	19	34	36	0.06	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	1.34		0.16

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2145	1	0	2	0.23	7.42
	2	2	4	0.15	
	3	4	6	0.14	
	4	6	8	0.14	
	5	8	10	0.29	
	6	10	12	0.43	
	7	12	14	0.38	
	8	14	16	1.93	
	9	16	18	0.61	
	10	18	20 A	0.04	
	11	18	20 B	0.05	
	12	20	22	0.24	7.64
	13	22	24	0.65	
	14	24	26	0.38	
	15	26	28	0.04	
	16	28	30	0.57	
	17	30	32	0.35	
	18	32	34	2.30	
	19	34	36	0.22	
	20	36	38	0.05	
	21	38	40 A	0.07	
	22	38	40 B	0.08	
	23	40	42	0.07	7.67
	24	42	44	0.82	
	25	44	46	0.47	
QC/QA	26	46	48	0.15	
	27	48	50	0.13	
	28	50	52	0.10	
	29	52	54	0.19	
	30	54	56	0.25	
	31	56	58	0.44	
	32	58	60 A	0.09	
	33	58	60 B	0.09	
	34	60	62	0.11	7.52
	35	62	64	0.34	
	36	64	66	0.04	
	37	66	68	0.04	
	38	68	70	0.04	EOH
		BLANK	Comp	1ST/LAST	Duplicate
		0	1.36		2.36

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2146	1	0	2	0.29	7.4
	2	2	4	0.25	
	3	4	6	0.73	
	4	6	8	2.95	
	5	8	10	1.63	
	6	10	12	1.08	
	7	12	14	0.49	
	8	14	16	1.13	
	9	16	18	0.46	
	10	18	20 A	0.26	
	11	18	20 B	0.29	
	12	20	22	0.40	7.54
	13	22	24	0.72	
	14	24	26	1.14	
	15	26	28	0.44	
	16	28	30	0.35	
	17	30	32	0.91	
	18	32	34	0.34	
	19	34	36	0.35	
	20	36	38	0.47	
	21	38	40 A	0.46	
	22	38	40 B	0.40	
	23	40	42	0.76	7.67
	24	42	44	0.56	
	25	44	46	0.53	
	26	46	48	0.51	
	27	48	50	0.28	
	28	50	52	0.07	
	29	52	54	0.03	
	30	54	56	0.02	
	31	56	58	0.02	
	32	58	60A	0.05	
	33	58	60B	0.06	
	34	60	62	0.01	7.6
	35	62	64	0.01	
	36	64	66	0.01	
	37	66	68	0.02	
	38	68	70	0.03	
	39	70	72	0.05	
	40	72	74	0.05	EOH
		BLANK	COMP	1st/last	BLIND DUPLICAT

0	0.62	0.47

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2147	1	0	2	NO SAMPLE	
	2	2	4	6.39	
	3	4	6	2.96	
	4	6	8	0.23	
	5	8	10	0.18	
	6	10	12	0.11	
	7	12	14	0.29	
	8	14	16	1.99	
	9	16	18	0.78	
	10	18	20 A	0.55	
	11	18	20 B	0.55	
	12	20	22	3.90	7.68
	13	22	24	2.02	
	14	24	26	3.24	
	15	26	28	2.80	
	16	28	30	0.27	
	17	30	32	0.10	
	18	32	34	0.03	
	19	34	36	0.01	
	20	36	38	0.04	
	21	38	40 A	0.12	
	22	38	40 B	0.14	
	23	40	42	0.06	7.92
	24	42	44	1.13	
	25	44	46	0.43	
	26	46	48	0.07	
	27	48	50	0.05	EOH
QC/QA		BLANK	COMP	1ST/LAST	BLIND DUPLICATE
		0.01	0.93		0.14

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2148	1	0	2	0.10	7.09
	2	2	4	0.21	
	3	4	6	0.10	
	4	6	8	0.65	
	5	8	10	3.63	
	6	10	12	4.24	
	7	12	14	0.79	
	8	14	16	0.94	
	9	16	18	1.94	
	10	18	20 A	0.53	
	11	18	20 B	0.44	
	12	20	22	0.43	7.79
	13	22	24	0.44	
	14	24	26	1.62	
	15	26	28	1.16	
	16	28	30	0.40	
	17	30	32	2.33	
	18	32	34	0.88	
	19	34	36	1.20	
	20	36	38	0.68	
	21	38	40 A	0.36	
	22	38	40 B	0.38	
	23	40	42	0.22	7.84
	24	42	44	0.79	
	25	44	46	0.87	
	26	46	48	0.14	
	27	48	50	0.06	
	28	50	52	0.08	
	29	52	54	0.03	
	30	54	56	0.11	
	31	56	58	0.03	
	32	58	60A	0.02	
	33	58	60B	0.04	
	34	60	62	0.62	7.76
	35	62	64	1.16	
	36	64	66	0.08	
	37	66	68	0.40	
	38	68	70	0.06	EOH
		BLANK	COMP	1st/last	BLIND DUPLICAT

0	0.97	4.24

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2149	1	0	2	0.37	7.34
	2	2	4	0.3	
	3	4	6	0.14	
	4	6	8	0.37	
	5	8	10	0.11	
	6	10	12	0.11	
	7	12	14	0.1	
	8	14	16	0.13	
	9	16	18	0.11	
	10	18	20 A	0.13	
	11	18	20 B	0.14	
	12	20	22	0.12	8.07
	13	22	24	0.12	
	14	24	26	0.12	
	15	26	28	0.13	
	16	28	30	0.15	
	17	30	32	0.29	
	18	32	34	0.28	
	19	34	36	0.28	
	20	36	38	0.58	
	21	38	40 A	0.46	
	22	38	40 B	0.51	
	23	40	42	0.09	7.87
	24	42	44	<	
	25	44	46	<	EOH

	BLANK	COMP	1st/last	BLIND DUPLICAT
QC/QA	0	1.32		0.01

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2150	1	0	2	0.08	7.09
	2	2	4	0.07	
	3	4	6	0.06	
	4	6	8	0.05	
	5	8	10	0.09	
	6	10	12	0.08	
	7	12	14	0.05	
	8	14	16	0.02	
	9	16	18	0.29	
	10	18	20 A	0.03	
	11	18	20 B	0.02	
	12	20	22	0.04	7.98
	13	22	24	0.14	
	14	24	26	0.14	
	15	26	28	2.06	
	16	28	30	0.49	
	17	30	32	0.43	
	18	32	34	1.35	
	19	34	36	1.21	
	20	36	38	3.75	
	21	38	40 A	3.91	
	22	38	40 B	3.95	
	23	40	42	0.79	8.03
	24	42	44	0.59	
	25	44	46	0.86	
	26	46	48	0.05	
	27	48	50	0.06	
	28	50	52	0.04	
	29	52	54	0.03	
	30	54	56	0.02	
	31	56	58	0.03	
	32	58	60A	0.1	
	33	58	60B	0.2	
	34	60	62	0.12	
	35	62	64	0.2	
	36	64	66	0.04	
	37	66	68	0.1	EOH
QC/QA		BLANK	COMP	1st/Last	BLIND DUPLICATE
		-0.01	0.5		0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2151	1	0	2	0.03	7.21
	2	2	4	0.07	
	3	4	6	0.06	
	4	6	8	0.07	
	5	8	10	0.08	
	6	10	12	0.05	
	7	12	14	0.04	
	8	14	16	0.1	
	9	16	18	0.12	
	10	18	20 A	0.08	
	11	18	20 B	0.07	
	12	20	22	0.05	7.42
	13	22	24	0.05	
	14	24	26	0.12	
	15	26	28	0.08	
	16	28	30	0.05	
	17	30	32	0.07	
	18	32	34	0.08	
	19	34	36	0.06	
	20	36	38	0.05	
	21	38	40 A	0.03	
	22	38	40 B	-0.02	
	23	40	42	-0.02	8.15
	24	42	44	0.65	
	25	44	46	0.05	
	26	46	48	0.05	
	27	48	50	0.11	
	28	50	52	0.05	
	29	52	54	0.03	
	30	54	56	0.12	
	31	56	58	0.06	
	32	58	60	0.19	
	33	58	60	0.15	
	34	60	62	0.05	7.88
	35	62	64	0.03	
	36	64	66	0.1	
	37	66	68	0.08	
	38	68	70	0.18	
	39	70	72	0.02	
	40	72	74	0.04	
	41	74	76	0.04	
	42	76	78	0.02	

43	78	80A	0.04	
44	78	80B	-0.02	EOH
	blank	COMP	1ST/LAST	BLIND DUP
	0.01	0.99	.16/.19	0.16

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2152	1	0	2	0.96	
	2	2	4	0.46	
	3	4	6	0.36	
	4	6	8	0.25	
	5	8	10	0.18	
	6	10	12	0.08	
	7	12	14	<0.02	
	8	14	16	0.07	
	9	16	18	0.22	
	10	18	20 A	0.72	
	11	18	20 B	0.73	
	12	20	22	2.44	7.7
	13	22	24	0.25	
	14	24	26	0.39	
	15	26	28	0.96	
	16	28	30	0.28	
	17	30	32	0.9	
	18	32	34	0.21	
	19	34	36	1.53	
	20	36	38	0.13	
	21	38	40 A	0.02	
	22	38	40 B	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0	0.49	.22/.26	0.69

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2153	1	0	2	0.08	7.21
	2	2	4	0.05	
	3	4	6	0.04	
	4	6	8	0.03	
	5	8	10	0.05	
	6	10	12	0.05	
	7	12	14	0.05	
	8	14	16	0.06	
	9	16	18	0.40	
	10	18	20 A	0.08	
	11	18	20 B	0.08	
	12	20	22	0.06	7.67
	13	22	24	0.03	
	14	24	26	0.03	
	15	26	28	0.05	
	16	28	30	0.03	
	17	30	32	0.03	
	18	32	34	0.04	
	19	34	36	0.05	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.04	
	23	40	42	0.04	7.65
	24	42	44	0.05	
	25	44	46	0.04	
	26	46	48	0.05	
	27	48	50	0.04	EOH
		BLANK	COMP	1st/last	BLIND DUPLICATE
		0	0.55	.05/.06	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2154	1	0	2	0.06	7.76
	2	2	4	0.14	
	3	4	6	0.73	
	4	6	8	0.17	
	5	8	10	0.03	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.01	
	12	20	22	0.01	7.31
	13	22	24	0.49	
	14	24	26	0.91	
	15	26	28	0.38	
	16	28	30	0.10	
	17	30	32	0.11	
	18	32	34	0.09	
	19	34	36	0.04	
	20	36	38	0.01	
	21	38	40 A	0.04	
	22	38	40 B	0.04	
	23	40	42	0.16	7.51
	24	42	44	0.06	
	25	44	46	0.04	
	26	46	48	0.07	
	27	48	50	0.10	
	28	50	52	0.19	
	29	52	54	0.15	
	30	54	56	0.20	
	31	56	58	2.60	
	32	58	60 A	4.06	
	33	58	60 B	3.89	
	BLANK	COMP	1st/last	BLIND	DUP
	-0.01	1.33	.04/.05	0.03	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2155	1	0	2	0.03	6.9
	2	2	4	0.02	
	3	4	6	0.01	
	4	6	8	0.02	
	5	8	10	0	
	6	10	12	-0.01	
	7	12	14	0	
	8	14	16	0.01	
	9	16	18	-0.01	
	10	18	20 A	0.01	
	11	18	20 B	0	
	12	20	22	0	7.98
	13	22	24	0	
	14	24	26	0	
	15	26	28	0	
	16	28	30	0.01	
	17	30	32	-0.01	
	18	32	34	0.01	
	19	34	36	0	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	-0.01	
	23	40	42	0	8.22
	24	42	44	0.00	
	25	44	46	0	
	26	46	48	0.00	
	27	48	50	0.01	
BLANK	COMP	1st/last	BLIND	DUP	
0	0.89	.01/.01		-0.01	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2156	1	0	2	0.15	
	2	2	4	0.06	
	3	4	6	0.04	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.02	
	7	12	14	0.01	
	8	14	16	0.04	
	9	16	18	0.02	
	10	18	20 A	0.02	8.05
	11	18	20 B	0.02	
	12	20	22	0.05	
	13	22	24	0.01	
	14	24	26	0.03	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	EOH

BLANK	COMP	1st/last	BLIND	DUP
0.01	0.53	.03/.03	0.01	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2157	1	0	2	<0.02	
7-Jul-98	2	2	4	0.02	
	3	4	6	<0.02	
	4	6	8	<0.02	
	5	8	10	0.07	
	6	10	12	0.13	
	7	12	14	0.14	
	8	14	16	0.08	
	9	16	18	0.02	
	10	18	20 A	<0.02	
	11	18	20 B	<0.02	
	12	20	22	<0.02	8.41
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	0.1	
	BLANK	COMP	1st/last	BLIND	
	0.01	0.96	.02/.02	<0.02	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2158	1	0	2	0.72	
16-Jul-98	2	2	4	0.42	
	3	4	6	0.17	
	4	6	8	0.04	
	5	8	10	0.27	
	6	10	12	0.05	
	7	12	14	0.02	
	8	14	16	0.03	
	9	16	18	0.03	
	10	18	20 A	0.11	
	11	18	20 B	0.09	
	12	20	22	0.24	8.12
	13	22	24	0.18	
	14	24	26	0.93	
	15	26	28	8.86	
	16	28	30	1.01	
	17	30	32	0.61	
	18	32	34	0.22	
				E.O.H.	

BLANK	COMP	1st/last	BLIND	
0.02	0.92	.17/.19	0.08	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2159	1	0	2	0.1	7.89
	2	2	4	0.06	
	3	4	6	0.98	
	4	6	8	4.09	
	5	8	10	5.64	
	6	10	12	5.60	
	7	12	14	4.30	
	8	14	16	0.18	
	9	16	18	0.07	
	10	18	20 A	0.09	
	11	18	20 B	0.08	
	12	20	22	<0.02	8.09
	13	22	24	<0.02	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	33	0.05	EOH

BLANK	COMP	1st/last	BLIND	DUP
-0.01	0.47	.98/.94		4.58

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2160	1	0	2	0.08	8.02
	2	2	4	0.03	
	3	4	6	0.03	
	4	6	8	0.01	
	5	8	10	0.04	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.04	
	12	20	22	0.02	8.2
	13	22	24	0.01	
	14	24	26	0.03	
	15	26	28	0.02	
	16	28	30	0	
	17	30	32	0	
	18	32	34	0	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.02	
	22	38	40 B	0.01	EOH
	BLANK	COMP	1st/last	BLIND	DUP
	0	0.89	0/0		0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2161	1	0	2	0.24	
	2	2	4	0.14	
	3	4	6	0.05	
	4	6	8	0.31	
	5	8	10	0.54	
	6	10	12	0.14	
	7	12	14	0.12	
	8	14	16	0.44	
	9	16	18	0.12	
	10	18	20 A	0.04	
	11	18	20 B	0.04	
	12	20	22	<0.02	
	13	22	24	<0.02	
	14	24	26	0.02	
	15	26	28	0.11	
	16	28	30	0.05	
	17	30	32	0.10	
	18	32	34	1.03	
	19	34	36	2.19	
	20	36	38	8.49	
	21	38	40 A	4.13	
	22	38	40 B	4.07	
	23	40	42	2.28	
	24	42	44	0.88	
	25	44	46	0.16	
	26	46	48	0.06	
	27	48	50	0.08	
	28	50	52	0.11	
	29	52	54	0.21	
	30	54	56	0.28	
	31	56	58	0.04	
	32	58	60 A		
	33	58	60 B	0.03	
	34	60	62		
	35	62	64		
	36	64	66		
	37	66	68		
	38	68	70		EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.53	4.13/4.17	0.11

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2162	1	0	2	0.25	
	2	2	4	0.14	
	3	4	6	0.09	
	4	6	8	0.06	
	5	8	10	0.06	
	6	10	12	0.04	
	7	12	14	<.02	
	8	14	16	0.16	
	9	16	18	0.10	
	10	18	20 A	0.09	
	11	18	20 B	0.08	
	12	20	22	0.05	
	13	22	24	0.03	
	14	24	26	0.02	
	15	26	28	<.02	
	16	28	30	<.02	

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.51	.03/<.02	0.1

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2163	1	0	2	0.11	6.76
6/7/98	2	2	4	0.1	
	3	4	6	0.04	
	4	6	8	0.08	
	5	8	10	0.07	
	6	10	12	0.02	
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	<0.02	
	10	18	20 A	0.14	
	11	18	20 B	0.08	
	12	20	22	0.90	7.17
	13	22	24	1.11	
	14	24	26	4.52	
	15	26	28	5.40	
	16	28	30	5.00	
	17	30	32	2.89	
	18	32	34	1.37	
	19	34	36	3.67	
	20	34	36 B	4.07	
	21	36	38	0.87	
	22	38	40 A	0.12	
	23	38	40 B	0.16	
	24	40	42	0.18	
	25	42	44	0.03	
	26	44	46	0.04	
	27	46	48	<0.02	
	28	48	50	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.50	2.89/2.96	0.06

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2164	1	0	2	0.01	7.54
	2	2	4	0.01	
	3	4	6	0.01	
	4	6	8	0.01	
	5	8	10	0.01	
	6	10	12	0.02	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.01	
	12	20	22	0.01	7.77
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.01	
	23	40	42	0.01	
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.08	
	29	52	54	0.08	
	30	54	56	0.22	
	31	56	58	0.01	
	32	58	60 A	0.02	
	33	58	60 B	0.03	

	BLANK	COMP	1st/last	BLIND DUPLICATE
	-0.01	1.4	.01/.01	0.01

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2165	1	0	2	0.06	7.20
	2	2	4	0.04	
	3	4	6	0.03	
	4	6	8	0.30	
	5	8	10	0.11	
	6	10	12	0.01	
	7	12	14	0.01	
	8	14	16	0.01	
	9	16	18	0.01	
	10	18	20 A	0.01	
	11	18	20 B	0.02	
	12	20	22	0.01	7.82
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	0.01	
	17	30	32	0.01	
	18	32	34	0.01	
	19	34	36	0.01	
	20	36	38	0.01	
	21	38	40 A	0.01	
	22	38	40 B	0.02	
	23	40	42	0.01	8.29
	24	42	44	0.01	
	25	44	46	0.01	
	26	46	48	0.01	
	27	48	50	0.01	
	28	50	52	0.01	
	29	52	54	0.01	
	30	54	56	0.01	
	31	56	58	0.01	
	32	58	60 A	0.01	
	33	58	60 B	0.01	
		BLANK	COMP	1st/last	BLIND DUPLICATE
		-0.01	0.97	.01/.01	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2166	1	0	2	0.78	
	2	2	4	0.51	
	3	4	6	0.38	
	4	6	8	0.48	
	5	8	10	1.20	
	6	10	12	6.91	
	7	12	14	5.73	
	8	14	16	0.68	
	9	16	18	0.08	
	10	18	20 A	0.35	
	11	18	20 B	0.31	
	12	20	22	0.14	6.82
	13	22	24	0.12	
	14	24	26	0.42	
	15	26	28	0.04	
	16	28	30	0.03	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	1.47	.04/.06	5.48

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2167	1	0	2	0.13	6.43
	2	2	4	0.32	
	3	4	6	0.1	
	4	6	8	1.33	
	5	8	10	1.13	
	6	10	12	0.04	
	7	12	14	0.02	
	8	14	16	<.02	
	9	16	18	<0.02	
	10	18	20 A	<0.02	
	11	18	20 B	<0.02	
	12	20	22	<0.02	7.66
	13	22	24	<0.02	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.54	0.02/<0.02	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2168	1	0	2	0.16	7.11
	2	2	4	0.07	
	3	4	6	<0.02	
	4	6	8	0.15	
	5	8	10	0.54	
	6	10	12	<0.02	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	0.29	
	11	18	20 B	0.28	
	12	20	22	1.36	7.79
	13	22	24	0.90	
	14	24	26	0.42	
	15	26	28	0.74	
	16	28	30	0.27	
	17	30	32	1.15	
	18	32	34	0.47	
	19	34	36	1.58	
	20	36	38	1.69	
	21	38	40 A	1.73	
	22	38	40 B	1.50	
	23	40	42	0.81	8.03
	24	42	44	0.15	
	25	44	46	0.60	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	-0.01	0.52	1.58/1.59	<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2169	1	0	2	0.08	7.21
	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	<0.02	
	5	8	10	<0.02	
	6	10	12	<0.02	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	2.15	
	11	18	20 B	2.28	
	12	20	22	0.86	7.87
	13	22	24	0.04	
	14	24	26	0.15	
	15	26	28	0.15	
	16	28	30	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	1.35	.04/.05	<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2170	1	0	2	<0.02	7.84
	2	2	4	<0.02	
	3	4	6	0.02	
	4	6	8	0.05	
	5	8	10	0.38	
	6	10	12	0.04	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20	0.07	
		20	22	0.10	8.31
		22	24	<0.02	
		24	26	<0.02	
		26	28	<0.02	
		28	30	<0.02	
		30	32	<0.02	
		32	34	<0.02	
		34	36	<0.02	
		36	38	0.05	
		38	40 A	<0.02	
		38	40 B		
		40	42		
		42	44		
		44	46		
		46	48		
		48	50		
		50	52		
		52	54		
		54	56		
		56	58		
		58	60 A		
		58	60 B		
		60	62		
		62	64		
		64	66		
		66	68		
		68	70		

BLANK COMP 1st/last BLIND DUPLICATE

QC/QA

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2171	1	0	2	0.31	6.21
	2	2	4	0.04	
	3	4	6	0.03	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	<0.02	
	7	12	14	0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20	0.40	
	11	20	22	0.40	8.12
	12	22	24	0.08	
	13	24	26	0.11	
	14	26	28	0.13	
	15	28	30	0.14	
	16	30	32	0.04	
	17	32	34	0.60	
	18	34	36	1.20	
	19	36	38	0.53	
	20	38	40	0.36	
	21	40	42	<0.02	8.43
	22	42	44	0.02	
	23	44	46		
	24	46	48		
	25	48	50		
	26	50	52		
	27	52	54		
	28	54	56		
	29	56	58		
	30	58	60 A		
	31	58	60 B		
	32	60	62		
	33	62	64		
	34	64	66		
	35	66	68		
	36	68	70		

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.96	1.20/1.22	

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2172	1	0	2	2.06	
	2	2	4	3.39	
	3	4	6	1.06	
	4	6	8	0.85	
	5	8	10	0.38	
	6	10	12	0.03	
	7	12	14	0.07	
	8	14	16	<0.02	
	9	16	18	0.18	
	10	18	20 A	0.14	
	11	18	20 B	0.12	
	12	20	22	<0.02	8.21
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	0.03	
	16	28	30	0.04	
	17	30	32	0.02	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA		1.38	.07/.08	0.15

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2173	1	0	2	0.07	
	2	2	4	0.02	
	3	4	6	<0.02	
	4	6	8	<0.02	
	5	8	10	<0.02	
	6	10	12	<0.02	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	0.05	
	11	18	20 B	0.05	
	12	20	22	0.03	
	13	22	24	0.06	
	14	24	26	0.85	
	15	26	28	0.86	
	16	28	30	1.37	
	17	30	32	1.81	
	18	32	34	1.45	
	19	34	36	0.49	
	20	36	38	0.04	
	21	38	40 A	0.50	
	22	38	40 B	0.58	
	23	40	42	0.59	
	24	42	44	0.46	
	25	44	46	0.12	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.92	.06/.06	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2174	1	0	2	0.14	6.91
	2	2	4	0.05	
	3	4	6	0.47	
	4	6	8	1.16	
	5	8	10	0.76	
	6	10	12	0.27	
	7	12	14	0.18	
	8	14	16	0.09	
	9	16	18	<0.02	
	10	18	20 A	<0.02	
	11	18	20 B	<0.02	
	12	20	22	0.15	7.53
	13	22	24	<0.02	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.06	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	0.36	7.88
	24	42	44	0.65	
	25	44	46	1.18	
	26	46	48	0.16	
	27	48	50	0.50	
	28	50	52	0.72	
	29	52	54	0.69	
	30	54	56	0.76	
	31	56	58	1.29	
	32	58	60 A	2.64	
	33	58	60 B	2.41	

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.53	.16/.19	<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2175	1	0	2	1.44	
	2	2	4	0.18	
	3	4	6	0.05	
	4	6	8	0.04	
	5	8	10	0.05	
	6	10	12	0.05	
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	<0.02	
	10	18	20 A	0.03	
	11	18	20 B	0.02	
	12	20	22	0.03	
	13	22	24	0.18	
	14	24	26	0.11	
	15	26	28	0.03	
	16	28	30	0.03	
	17	30	32	0.05	
	18	32	34	<0.02	
	19	34	36	0.04	
	20	36	38	0.02	
	21	38	40 A	<0.02	
	22	38	40 B	0.03	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.03	0.56		0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2176	1	0	2	0.07	6.16
	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	<0.02	
	5	8	10	0.02	
	6	10	12	<0.02	
	7	12	14	<0.02	
	8	14	16	<0.02	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	<0.02	
	12	20	22	0.03	4.78
	13	22	24	<0.02	
	14	24	26	0.05	
	15	26	28	0.03	
	16	28	30	0.16	
	17	30	32	0.49	
	18	32	34	0.08	
	19	34	36	0.09	
	20	36	38	0.23	
	21	38	40 A	1.24	
	22	38	40 B	1.24	
	23	40	42	0.49	7.91
	24	42	44	0.94	
	25	44	46	1.73	
	26	46	48	1.67	
	27	48	50	1.34	
	28	50	52	1.22	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.97	.49/.47	<0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2177	1	0	2	0.51	
	2	2	4	0.53	
	3	4	6	1.50	
	4	6	8	0.96	
	5	8	10	0.11	
	6	10	12	0.15	
	7	12	14	0.03	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	0.02	
	13	22	24	0.02	
	14	24	26	<0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.02	0.84	<0.02/.02	0.15

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2178	1	0	2	0.18	
	2	2	4	0.04	
	3	4	6	0.04	
	4	6	8	0.04	
	5	8	10	0.05	
	6	10	12	0.07	
	7	12	14	0.09	
	8	14	16	0.04	
	9	16	18	0.04	
	10	18	20 A	0.07	
	11	18	20 B	0.08	
	12	20	22	0.07	6.05
	13	22	24	0.07	
	14	24	26	0.10	
	15	26	28	0.05	
	16	28	30	0.04	
	17	30	32	2.38	
	18	32	34	0.13	
	19	34	36	1.43	
	20	36	38	2.42	
	21	38	40 A	1.17	
	22	38	40 B	1.28	
	23	40	42	1.48	7.85
	24	42	44	1.58	
	25	44	46	1.31	
	26	46	48	1.81	
	27	48	50	0.44	
	28	50	52	0.79	
	29	52	54	0.87	
	30	54	56	2.48	
	31	56	58	1.97	
	32	58	60 A	0.17	
	33	58	60 B	0.15	

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.04	1.45	.07/.06	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2179	1	0	2	1.52	
	2	2	4	1.54	
	3	4	6	1.91	
	4	6	8	1.27	
	5	8	10	1.22	
	6	10	12	1.15	
	7	12	14	1.01	
	8	14	16	1.64	
	9	16	18	1.32	
	10	18	20 A	1.31	
	11	18	20 B	1.26	
	12	20	22	0.77	
	13	22	24	0.21	
	14	24	26	0.04	
	15	26	28	0.06	
	16	28	30	0.10	EOH

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.03	0.95	1.31/1.30	1.01

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2180	1	0	2	0.05	
	2	2	4	0.04	
	3	4	6	0.05	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.03	
	7	12	14	0.03	
	8	14	16	0.03	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.06	
	12	20	22	0.02	4.80
	13	22	24	0.03	
	14	24	26	0.03	
	15	26	28	0.03	
	16	28	30	0.15	
	17	30	32	2.52	
	18	32	34	3.72	
	19	34	36	1.91	
	20	36	38	1.29	
	21	38	40 A	0.88	
	22	38	40 B	0.98	
	23	40	42	0.94	8.06
	24	42	44	1.58	
	25	44	46	0.47	
	26	46	48	0.46	
	27	48	50	2.41	
	28	50	52	1.43	
	29	52	54	<0.02	
	30	54	56	<0.02	
	31	56	58	0.03	
	32	58	60 A	<0.02	
	33	58	60 B	0.07	

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.47	.04/.03	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2181	1	0	2	0.23	
	2	2	4	1.06	
	3	4	6	1.33	
	4	6	8	0.07	
	5	8	10	0.08	
	6	10	12	1.79	
	7	12	14	1.92	
	8	14	16	1.28	
	9	16	18	0.57	
	10	18	20 A	0.09	
	11	18	20 B	0.11	
	12	20	22	0.55	7.25
	13	22	24	0.24	
	14	24	26	0.08	
	15	26	28	0.12	
	16	28	30	0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36		
	20	36	38		
	21	38	40 A		
	22	38	40 B		
	23	40	42		
	24	42	44		
	25	44	46		
	26	46	48		
	27	48	50		
	28	50	52		
	29	52	54		
	30	54	56		
	31	56	58		
	32	58	60 A		
	33	58	60 B		

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.01	0.54	.57/.55	0.53

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2182	1	0	2	0.56	6.47
	2	2	4	1.21	
	3	4	6	1.46	
	4	6	8	0.31	
	5	8	10	0.74	
	6	10	12	0.17	
	7	12	14	0.08	
	8	14	16	0.07	
	9	16	18	0.05	
	10	18	20 A	<0.02	
	11	18	20 B	0.02	
	12	20	22	0.03	8.07
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	0.07	
	16	28	30	0.04	
	17	30	32		
	18	32	34		
	19	34	36		
	20	36	38		
	21	38	40 A		
	22	38	40 B		
	23	40	42		
	24	42	44		
	25	44	46		
	26	46	48		
	27	48	50		
	28	50	52		
	29	52	54		
	30	54	56		
	31	56	58		
	32	58	60 A		
	33	58	60 B		

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA				0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill *Assay Report*

HOLE		TO	FROM	Au	pH
2183	1	0	2	0.08	6.78
	2	2	4	0.05	
	3	4	6	0.13	
	4	6	8	0.32	
	5	8	10	0.67	
	6	10	12	0.69	
	7	12	14	0.09	
	8	14	16	0.04	
	9	16	18	0.19	
	10	18	20 A	0.76	
	11	18	20 B	0.7	
	12	20	22	0.49	6.91
	13	22	24	0.08	
	14	24	26	0.03	
	15	26	28	0.03	
	16	28	30	<0.02	
	17	30	32	0.02	
	18	32	34	0.03	
	19	34	36	<0.02	
	20	36	38	0.02	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42		
	24	42	44		
	25	44	46		
	26	46	48		
	27	48	50		
	28	50	52		
	29	52	54		
	30	54	56		
	31	56	58		
	32	58	60 A		
	33	58	60 B		

	BLANK	COMP	1st/last	BLIND DUPLICATE
QC/QA	0.00	0.52	.76/.70	0.81

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	Au	pH
2184	1	0	2	0.06	
	2	2	4	0.12	
	3	4	6	0.02	
	4	6	8	0.04	
	5	8	10	<0.02	
	6	10	12	1.08	
	7	12	14	0.17	
	8	14	16	2.6	
	9	16	18	1.54	
	10	18	20 A	0.5	
	11	18	20 B	0.56	
	12	20	22	4.43	6.70
	13	22	24	6.36	
	14	24	26	1.49	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	0.11	
	19	34	36	0.06	
	20	36	38	0.05	EOH

QC/QA	BLANK	COMP	1st/last	BLIND DUPLICATE
	0.01	1.44	.17/.16	1.68

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM	Au	pH
2185	1	0	2	0.10	7.18
	2	2	4	0.04	
	3	4	6	0.32	
	4	6	8	0.34	
	5	8	10	1.07	
	6	10	12	0.35	
	7	12	14	0.15	
	8	14	16	0.10	
	9	16	18	0.04	
	10	18	20 A	0.17	
	11	18	20 B	0.15	
	12	20	22	0.27	7.47
	13	22	24	0.09	
	14	24	26	0.09	
	15	26	28	0.22	
	16	28	30	0.46	
	17	30	32	0.27	
	18	32	34	0.81	
	19	34	36	1.82	
	20	36	38	3.08	
	21	38	40 A	10.86	
	22	38	40 B	11.27	
	23	40	42	10.74	7.07
	24	42	44	10.75	
	25	44	46	16.81	
	26	46	48	7.02	
	27	48	50	2.97	
	28	50	52	0.65	
	29	52	54	0.97	
	30	54	56	8.14	
	31	56	58	4.63	
	32	58	60 A	3.74	
	33	58	60 B	3.41	
	34	60	62	2.84	7.83
	35	62	64	6.13	
	36	64	66	0.89	
	37	66	68	0.74	
	38	68	70	0.23	
	39	70	72	0.62	
	40	72	74	0.93	
	41	74	76	3.17	
	42	76	78	3.04	

43	78	80 A	0.13	
44	78	80 B	0.10	
45	80	82	0.07	6.52
46	82	84	0.10	
47	84	86	0.04	
48	86	88	0.07	
49	88	90	0.44	
50	90	92	0.38	
51	92	94	0.12	
52	94	96	0.01	
53	96	98	0.02	
54	98	100A	0.04	
55	98	100B	0.03	
56	100	102	0.03	
57	102	104	0.02	
58	104	106	0.01	EOH

2185 D 0.13

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM	Au	pH
2186	1	0	2	NO SAMPLE	
	2	2	4	NO SAMPLE	
	3	4	6	0.53	
	4	6	8	0.10	
	5	8	10	0.08	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	<0.02	
	9	16	18	0.03	
	10	18	20 A	<0.02	
	11	18	20 B	0.02	
	12	20	22	0.55	6.30
	13	22	24	0.08	
	14	24	26	0.78	
	15	26	28	1.59	
	16	28	30	0.27	
	17	30	32	0.15	
	18	32	34	0.11	
	19	34	36	0.06	
	20	36	38	0.06	
	21	38	40 A	0.16	
	22	38	40 B	0.25	
	23	40	42	0.08	
	24	42	44	0.36	
	25	44	46	0.26	
	26	46	48	0.09	
	27	48	50	0.05	
	28	50	52	0.05	
	29	52	54	0.13	*
	30	54	56	0.21	
	31	56	58	1.08	
	32	58	60 A	0.51	
	33	58	60 B	0.49	
	34	60	62	0.23	
	35	62	64	0.36	
	36	64	66	1.06	
	37	66	68	0.72	
	38	68	70	0.26	
	39	70	72	0.08	
	40	72	74	0.65	
	41	74	76	0.38	
	42	76	78	0.25	

43	78	80 A	0.21	
44	78	80 B	0.24	
45	80	82	0.48	7.84
46	82	84	0.16	
47	84	86	0.43	
48	86	88	0.21	
49	88	90	0.32	
50	90	92	0.34	
51	92	94	0.23	
52	94	96	0.51	
53	96	98	0.21	
54	98	100 A	0.11	
55	98	100 B	0.11	
56	100	102	0.17	8.36
57	102	104	0.33	
58	104	106	0.19	
59	106	108	0.02	
60	108	110	0.21	
61	110	112	0.21	
62	112	114	0.56	
63	114	116	0.81	
64	116	118	0.37	
65	118	120A	0.01	
66	118	120B	0.02	
67	120	122	0.02	8.32
68	122	124	0.21	
69	124	126	0.11	
70	126	128	0.07	
71	128	130	0.08	
72	130	132	1.51	
73	132	134	0.25	
74	134	136	0.23	
75	136	138	0.20	
76	138	140A	3.32	
77	138	140B	2.98	EOH

2186 D 0.07

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM	Au	pH
2187	1	0	2	NO SAMPLE	
	2	2	4	0.03	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.03	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.04	
	11	18	20 B	0.03	
	12	20	22	<0.02	
	13	22	24	0.02	
	14	24	26	0.03	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.03	
	18	32	34	0.03	
	19	34	36	0.03	
	20	36	38	0.03	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	0.03	8.49
	24	42	44	0.03	
	25	44	46	0.02	
	26	46	48	0.03	
	27	48	50	0.02	
	28	50	52	0.03	
	29	52	54	0.04	
	30	54	56	0.03	
	31	56	58	<.02	
	32	58	60 A	<.02	
	33	58	60 B	<.02	
	34	60	62	<.02	8.18
	35	62	64	<.02	
	36	64	66	<.02	
	37	66	68	0.02	
	38	68	70	0.03	
	39	70	72	0.03	
	40	72	74	<.02	
	41	74	76	0.04	
	42	76	78	0.03	

43	78	80 A	0.03	
44	78	80 B	0.02	
45	80	82	0.03	7.82
46	82	84	<.02	
47	84	86	0.02	
48	86	88	0.03	
49	88	90	0.02	
50	90	92	0.02	
51	92	94	<.02	
52	94	96	<.02	
53	96	98	0.02	
54	98	100 A	<.02	
55	98	100 B	<.02	
56	100	102	<.02	8.35
57	102	104	<.02	
58	104	106	<.02	
59	106	108	<.02	
60	108	110	<.02	
61	110	112	<.02	
62	112	114	<.02	
63	114	116	0.02	
64	116	118	0.02	
65	118	120A	0.03	
66	118	120B	<.02	
67	120	122	<.02	8.16
68	122	124	<.02	
69	124	126	<.02	
70	126	128	<.02	
71	128	130	<.02	
72	130	132	0.02	
73	132	134	0.03	
74	134	136	0.02	
75	136	138	<.02	
76	138	140A	0.02	
77	138	140B	0.02	
78	140	142	0.02	8.78
79	142	144	0.03	
80	144	146	0.02	
81	146	148	0.03	EOH

BLANK	COMP	1ST/LAST	BLIND
0.01	0.52	.03/.03	

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM	Au	pH
2188	1	0	2	0.10	7.18
	2	2	4	0.09	
	3	4	6	0.17	
	4	6	8	0.08	
	5	8	10	0.07	
	6	10	12	0.03	
	7	12	14	0.02	
	8	14	16	0.05	
	9	16	18	0.02	
	10	18	20 A	0.04	
	11	18	20 B	0.04	
	12	20	22	<0.02	
	13	22	24	0.02	
	14	24	26	<0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.22	
	18	32	34	0.02	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	0.02	
	22	38	40 B	0.02	
	23	40	42	<0.02	
	24	42	44	0.02	
	25	44	46	0.05	
	26	46	48	0.02	
	27	48	50	0.03	

QC/QA	BLANK	COMP	1ST/LAST	BLIND DUP
	0.01	1.35	.07/.07	0.07

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM	Au	pH
2189	1	0	2	0.09	7.34
	2	2	4	0.1	
	3	4	6	0.07	
	4	6	8	0.03	
	5	8	10	0.18	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	0.02	
	11	18	20 B	<0.02	
	12	20	22	0.03	6.79
	13	22	24	<0.02	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.03	
	20	36	38	0.03	
	21	38	40 A	0.04	
	22	38	40 B	0.02	
	23	40	42	0.02	
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.03	EOH

QC/QA	BLANK	COMP	1ST/LAST	BLIND DUP
	0.01	1.52	.02/.02	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM		pH
2190	1	0	2	<.02	6.2
	2	2	4	<.02	
	3	4	6	0.03	
	4	6	8	<.02	
	5	8	10	<.02	
	6	10	12	<.02	
	7	12	14	<.02	
	8	14	16	<.02	
	9	16	18	<.02	
	10	18	20 A	<.02	
	11	18	20 B	<.02	
	12	20	22	0.02	8.66
	13	22	24	<.02	
	14	24	26	0.02	
	15	26	28	<.02	
	16	28	30	<.02	
	17	30	32	<.02	
	18	32	34	<.02	
	19	34	36	0.03	
	20	36	38	0.04	
	21	38	40 A	0.04	
	22	38	40 B	0.01	
	23	40	42	0.06	8.41
	24	42	44	0.06	
	25	44	46	0.07	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	<.02	
	30	54	56	0.02	
	31	56	58	0.02	
	32	58	60a	0.02	
	33	58	60b	0.03	
	34	60	62	0.03	8.42
	35	62	64	0.02	
	36	64	66	0.03	
	37	66	68	0.02	
	38	68	70	0.02	
	39	70	72	0.03	
	40	72	74	0.02	
	41	74	76	0.02	
	42	76	78	0.02	

43	78	80A	0.03	
44	78	80B	0.03	
45	80	82	0.02	7.9
46	82	84	0.02	
47	84	86	0.02	
48	86	88	0.05	
49	88	90	0.04	
50	90	92	0.02	
51	92	94	0.04	
52	94	96	0.03	
53	96	98	0.04	
54	98	100A	0.03	
55	98	100B	0.04	
56	100	102	0.05	8.87
57	102	104	0.03	
58	104	106	0.03	
59	106	108	0.03	
60	108	110	0.05	
61	110	112	0.05	
62	112	114	0.04	
63	114	116	0.03	
64	116	118	0.05	
65	118	120A	0.05	
66	118	120B	0.03	
67	120	122	0.04	8.62
68	122	124	0.02	
69	124	126	0.03	
70	126	128	0.03	
71	128	130	0.02	
72	130	132	0.04	EOH

2190 D 0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		TO	FROM		pH
2191	1	0	2	0.20	
	2	2	4	0.62	
	3	4	6	0.37	
	4	6	8	0.30	
	5	8	10	0.13	
	6	10	12	0.27	
	7	12	14	0.29	
	8	14	16	0.95	
	9	16	18	0.33	
	10	18	20 A	0.24	
	11	18	20 B	0.23	
	12	20	22	0.79	
	13	22	24	0.66	
	14	24	26	3.3	
	15	26	28	14.51	
	16	28	30	9.19	
	17	30	32	1.11	
	18	32	34	0.32	
	19	34	36	1.93	
	20	36	38	0.2	
	21	38	40 A	0.73	
	22	38	40 B	0.73	
	23	40	42	1.33	
	24	42	44	1.78	
	25	44	46	0.14	
	26	46	48	0.35	
	27	48	50	0.18	
	28	50	52	0.04	
	29	52	54	0.03	
	30	54	56	0.03	
	31	56	58	0.17	
	32	58	60a	0.24	
	33	58	60b	0.28	
	34	60	62	0.02	
	35	62	64	0.8	
	36	64	66	0.14	
	37	66	68	0.09	
	38	68	70	0.2	
	39	70	72	0.23	
	40	72	74	0.04	
	41	74	76	0.04	
	42	76	78	0.03	

43	78	80A	0.03	
44	78	80B	0.04	
45	80	82	0.03	
46	82	84	0.09	
47	84	86	0.04	
48	86	88	0.04	
49	88	90	0.1	
50	90	92	0.05	
51	92	94	0.03	
52	94	96	0.03	
53	96	98	0.05	
54	98	100A	0.05	
55	98	100B	0.05	
56	100	102	0.06	
57	102	104	0.02	EOH

1ST/LAST	COMP	DUPLICATE
.09/.06	0.61	0.36

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2192		0	2	0.32	
		2	4	0.42	
		4	6	0.58	
		6	8	0.33	
		8	10	0.19	
		10	12	0.08	
		12	14	0.26	
		14	16	0.15	
		16	18	0.07	
		18	20	0.08	
		20	22	5.42	7.74
		22	24	1.81	
		24	26	0.44	
		26	28	0.13	
		28	30	0.10	
		30	32	0.19	
		32	34	0.48	
		34	36	1.86	
		36	38	3.60	
		38	40	0.32	
		40	42	1.14	8.30
		42	44	0.18	
		44	46	0.04	
		46	48	0.02	
		48	50	0.03	
		50	52	0.05	
		52	54	0.05	
		54	56	0.01	
		56	58	0.01	
		58	60	0.02	
		60	62	0.13	7.80
		62	64	0.05	
		64	66	0.15	
		66	68	0.01	
		68	70	0.26	
		70	72	0.26	
		72	74	0.02	
		74	76	0.02	
		76	78	0.03	
		78	80	0.01	
		80	82	0.02	
		82	84	0.01	

	84	86	0.03	EOH

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2193		0	2	0.29	7.91
		2	4	0.34	
		6	8	0.04	
		8	10	0.02	
		10	12	0.02	
		12	14	0.01	
		14	16	0.10	
		16	18	0.16	
		18	20 A	1.02	
		18	20 B	1.18	
		20	22	1.27	7.2
		22	24	0.53	
		24	26	0.83	
		26	28	0.16	
		28	30	0.10	
		30	32	0.04	
		32	34	0.04	
		34	36	0.03	
		36	38	0.04	
		38	40 A	0.07	
		38	40 B	0.09	
		40	42	0.31	8.2
		42	44	0.10	
		44	46	0.02	
		46	48	0.02	
		48	50	0.01	
		50	52	0.04	
		52	54	0.06	
		54	56	0.08	
		56	58	0.03	
		58	60 A	0.08	
		58	60 B	0.03	
		60	62	0.01	8.58
		62	64	0.02	
		64	66	0.02	
		66	68	0.02	
		68	70	0.04	
		70	72	0.01	
		72	74	0.17	
		74	76	0.20	
		76	78	0.05	

	78	80 A	0.05	
	78	80 B	0.08	
	80	82	0.31	8.3
	82	84	0.39	
	84	86	0.35	
	86	88	1.51	
	88	90	1.53	
	90	92	1.28	
	92	94	0.70	
	94	96	0.1	
	96	98	0.04	
	98	100 A	0.05	
	98	100 B	0.06	
	100	102	0.07	8.82
	102	104	0.05	
	104	106	0.02	
	106	108	0.01	
	108	110	0.01	
	110	112	0.02	
	112	114	0.01	
	114	116	0.01	
	116	118	0.01	
	118	120 A	0.06	
	118	120 B	0.04	
	120	122	0.01	8.38
	122	124	0.01	
	124	126	0.03	
	126	128	0.04	
	128	130	0.07	EOH

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2194		2194	D	0.56	
		0	2	N/S	
		2	4	0.03	
		4	6	0.01	
		6	8	0.01	
		8	10	0.02	
		10	12	0.01	
		12	14	0.02	
		14	16	0.29	
		16	18	0.59	
		18	20	0.15	
		20	22	0.26	8.09
		22	24	0.36	
		24	26	0.20	
		26	28	0.44	
		28	30	0.29	
		30	32	0.16	
		32	34	1.34	
		34	36	0.24	
		36	38	0.03	
		38	40 A	0.11	
		38	40 B	0.12	
		40	42	0.79	7.93
		42	44	1.97	
		44	46	0.20	
		46	48	1.35	
		48	50	2.01	
		50	52	2.94	
		52	54	0.90	
		54	56	0.72	
		56	58	0.81	
		58	60 A	6.17	
		58	60 B	6.01	
		60	62	1.49	7.26
		62	64	0.54	
		64	66	0.09	
		66	68	1.30	
		68	70	1.81	
		70	72	0.96	
		72	74	0.58	
		74	76	0.39	
		76	78	0.19	

	78	80 A	0.06	
	78	80 B	0.05	
	80	82	0.03	8.04
	82	84	0.01	
	84	86	0.01	
	86	88	0.02	
	88	90	0.01	
	90	92	0.01	EOH

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2195		2195	D	0.03	
		0	2	0.02	7.87
		2	4	0.03	
		4	6	0.10	
		6	8	0.18	
		8	10	0.27	
		10	12	0.11	
		12	14	0.06	
		14	16	0.02	
		16	18	0.42	
		18	20	0.31	
		20	22		8.00
		22	24	0.02	
		24	26	0.01	
		26	28	0.10	
		28	30	0.08	
		30	32	0.16	
		32	34	0.13	
		34	36	0.05	
		36	38	0.03	
		38	40 A	0.05	
		38	40 B	0.06	
		40	42	0.03	8.1
		42	44	0.05	
		44	46	0.05	
		46	48	0.02	
		48	50	0.02	
		50	52	0.02	
		52	54	0.04	
		54	56	0.07	
		56	58	1.96	
		58	60 A	0.21	
		58	60 B	0.17	
		60	62	0.44	7.56
		62	64	0.38	
		64	66	0.96	
		66	68	0.48	
		68	70	0.13	
		70	72	0.03	
		72	74	0.03	
		74	76	0.01	
		76	78	0.01	

	78	80 A	0.02	
	78	80 B	0.01	
	80	82	0.02	8.66
	82	84	0.01	EOH

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2196			D	0.05	
		0	2	0.22	
		2	4	0.15	
		4	6	0.07	
		6	8	0.05	
		8	10	0.07	
		10	12	0.03	
		12	14	0.04	
		14	16	0.07	
		16	18	0.38	
		18	20	0.16	
		20	22	0.69	7.14
		22	24	8.10	
		24	26	12.57	
		26	28	1.22	
		28	30	0.74	
		30	32	1.29	
		32	34	0.88	
		34	36	2.12	
		36	38	1.05	
		38	40 A	3.14	
		38	40 B	2.86	
		40	42	1.79	8.07
		42	44	2.17	
		44	46	3.79	
		46	48	0.09	
		48	50	0.55	
		50	52	0.22	
		52	54	0.78	
		54	56	0.56	
		56	58	0.64	
		58	60 A	0.31	
		58	60 B	0.31	
		60	62	0.07	8.39
		62	64	0.05	
		64	66	0.04	
		66	68	0.06	
		68	70	0.02	
		70	72	0.04	
		72	74	0.01	
		74	76	0.01	
		76	78	0.01	

	78	80 A	0.02	
	78	80 B	0.03	
	80	82	0.02	8.03
	82	84	0.16	
	84	86	0.01	
	86	88	0.01	
	88	90	0.12	
	90	92	0.04	
	92	94	0.02	
	94	96	0.01	
	96	98	0.01	
	98	100 A	0.02	
	98	100 B	0.02	
	100	102	0.06	8.35
	102	104	0.03	
	104	106	0.02	
	106	107	0.02	EOH

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2197	1	0	2	0.17	9.37
	2	2	4	0.07	
	3	4	6	0.07	
	4	6	8	0.05	
	5	8	10	0.18	
	6	10	12	0.02	
	7	10	12 D	0.01	
	8	12	14	0.02	
	9	14	16	0.01	
	10	16	18	0.01	
	11	18	20	0.02	
	12	20	22	0.02	7.16
	13	22	24	0.01	
	14	24	26	0.01	
	15	26	28	0.01	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.20	
	20	36	38	0.05	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	0.02	7.3
	24	42	44	<0.02	
	25	44	46	0.02	
	26	46	48	<0.02	
	27	48	50	<0.02	
	28	50	52	<0.02	
	29	52	54	0.06	
	30	54	56	<0.02	
	31	56	58	0.02	
	32	58	60 A	<0.02	
	33	58	60 B	<0.02	
	34	60	62	0.17	8.09
	35	62	64	0.67	
	36	64	66	0.24	
	37	66	68	0.17	
	38	68	70	0.40	
	39	70	72	0.21	
	40	72	74	0.23	
	41	74	76	0.06	
	42	76	78	0.13	

43	78	80 A	0.95	
44	78	80 B	0.92	
45	80	82	0.34	8.12
46	82	84	0.06	
47	84	86	0.03	
48	86	88	0.05	
49	88	90	<0.02	
50	90	92	0.02	
51	92	94	0.02	
52	94	96	0.04	
53	96	98	0.06	
54	98	100 A	0.04	
55	98	100 B	<0.02	
56	100	102	0.03	7.56
57	102	104	0.23	
58	104	106	0.04	
59	106	108	0.03	
60	108	110	0.02	
61	110	112	0.03	
62	112	114	<0.02	
63	114	116	0.04	
64	116	118	0.04	
65	118	120 A	0.04	
66	118	120 B	0.04	
67	120	122	0.05	8.23
68	122	124	0.05	EOH

QC	COMP	BLANK	FIRST	LAST
	0.91	0		

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2198	1	0	2	0.25	7.42
	2	2	4	0.37	
	3	4	6	0.45	
	4	6	8	0.72	
	5	8	10	1.21	
	6	10	12	1.34	
	7	12	14	0.52	
	8	12	14 D	0.56	
	9	14	16	0.40	
	10	16	18	0.28	
	11	18	20	0.14	
	12	20	22	0.43	7.11
	13	22	24	1.47	
	14	24	26	0.46	
	15	26	28	0.16	
	16	28	30	1.42	
	17	30	32	0.42	
	18	32	34	1.85	
	19	34	36	2.97	
	20	36	38	2.04	
	21	38	40 A	0.50	
	22	38	40 B	0.95	
	23	40	42	0.25	7.61
	24	42	44	0.24	
	25	44	46	0.06	
	26	46	48	0.08	
	27	48	50	0.12	
	28	50	52	0.07	
	29	52	54	0.27	
	30	54	56	0.17	
	31	56	58	0.03	
	32	58	60 A	0.04	
	33	58	60 B	0.05	
	34	60	62	0.04	7.41
	35	62	64	0.05	
	36	64	66	0.03	
	37	66	68	0.04	
	38	68	70	0.08	
	39	70	72	0.06	
	40	72	74	2.89	
	41	74	76	5.20	
	42	76	78	1.90	

43	78	80 A	2.68	
44	78	80 B	2.17	
45	80	82	2.51	7.55
46	82	84	0.33	
47	84	86	0.72	
48	86	88	0.11	
49	88	90	0.02	
50	90	92	0.02	
51	92	94	0.08	
52	94	96	0.08	
53	96	98	0.07	
54	98	100 A	0.07	
55	98	100 B	0.06	
56	100	102	0.03	7.03
57	102	104	0.02	
58	104	106	0.03	
59	106	108	0.04	
60	108	110	0.02	EOH

QC	COMP	BLANK	FIRST	LAST
	0.74	0	2.68	2.39

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2199	1	0	2	0.26	
	2	2	4	0.3	
	3	4	6	0.27	
	4	6	8	0.35	
	5				
	6	10	12	0.16	
	7	12	14	0.17	
	8	12	14 D	0.15	
	9	14	16	0.25	
	10	16	18	0.26	
	11	18	20	0.18	
	12	20	22	0.42	
	13	22	24	0.09	
	14	24	26	0.09	
	15	26	28	0.11	
	16	28	30	0.03	
	17	30	32	0.44	
	18	32	34	0.75	
	19	34	36	0.07	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	<0.02	
	24	42	44	0.15	
	25	44	46	0.02	
	26	46	48	0.07	
	27	48	50	<0.02	
	28	50	52	0.05	
	29	52	54	0.04	
	30	54	56	<0.02	
	31	56	58	<0.02	
	32	58	60 A	<0.02	
	33	58	60 B	0.02	
	34	60	62	<0.02	
	35	62	64	0.03	
	36	64	66	0.03	
	37	66	68	0.05	
	38	68	70	0.03	
	39	70	72	0.01	
	40	72	74	0.02	
	41	74	76	0.01	
	42	76	78	0.02	

43	78	80	0.04	
44	80	82	0.01	
45	82	84	0.12	
46	84	86	0.01	
47	86	88	0.01	
48	88	90	0.03	EOH

QC	COMP	BLANK	FIRST	LAST
	1.04	0.01	0.05	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2200	1	0	2	0.24	
	2	2	4	0.19	
	3	4	6	0.48	
	4	6	8	0.14	
	5	8	10	0.70	
	6	10	12	0.69	
	7	12	14	0.71	
	8	14	16	0.86	
	9	16	18	0.41	
	10	18	20	0.37	
	11	20	22	0.14	
	12	22	24	0.78	
	13	24	26	0.29	
	14	26	28	0.05	
	15	28	30	0.13	
	16	30	32	0.09	
	17	32	34	0.08	
	18	34	36	0.27	
	19	36	38	0.28	
	20	38	40 A	0.13	
	21	38	40 B	0.17	
	22	40	42	0.40	
	23	42	44	1.22	
	24	44	46	0.84	
	25	46	48	0.50	
	26	48	50	0.23	
	27	50	52	0.42	
	28	52	54	0.08	
	29	54	56	0.48	
	30	56	58	0.31	
	31	58	60 A	0.18	
	32	58	60 B	0.18	
	33	60	62	0.06	
	34	62	64	0.13	
	35	64	66	0.08	
	36	66	68	0.06	
	37	68	70	0.07	
	38	70	72	0.45	
	39	72	74	0.21	
	40	74	76	0.04	
	41	76	78	0.02	
	42	78	80 A	0.02	

43	78	80 B	0.04	
44	80	82	0.02	
45	82	84	<0.02	
46	84	86	0.03	
47	86	88	0.04	
48	88	90	0.03	
49	90	92	0.03	
50	92	94	0.04	
51	94	96	0.04	
52	96	98	0.04	
53	98	100 A	0.05	
54	98	100 B	0.05	
55	100	102	0.06	
56	102	104	0.05	
57	104	106	0.04	
58	106	108	0.03	
59	108	110	0.03	

QC	COMP	BLANK	FIRST	LAST
	0.76	0.02	0.02	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2201	1	0	2	0.27	
	2	2	4	0.29	
	3	4	6	0.04	
	4	6	8	0.52	
	5	8	10	0.43	
	6	10	12	0.10	
	7	12	14	0.04	
	8	14	16	0.05	
	9	16	18	0.04	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	<0.02	
	13	22	24	0.02	
	14	24	26	0.02	
	15	26	28	<0.02	
	16	28	30	<0.02	
	17	30	32	<0.02	
	18	32	34	0.03	
	19	34	36	0.17	
	20	36	38	0.10	
	21	38	40 A	<0.02	
	22	38	40 B	0.03	
	23	40	42	0.06	
	24	42	44	0.13	
	25	44	46	0.03	
	26	46	48	0.03	
	27	48	50	0.09	
	28	50	52	0.08	
	29	52	54	0.04	
	30	54	56	0.04	
	31	56	58	0.19	
	32	58	60 A	0.03	
	33	58	60 B	0.04	
	34	60	62	0.13	
	35	62	64	0.02	
	36	64	66	0.03	
	37	66	68	0.06	
	38	68	70	0.05	
	39	70	72	0.07	
	40	72	74	0.02	
	41	74	76	0.02	
	42	76	78	0.02	

43	78	80 A	0.02	
44	78	80 B	0.03	
45	80	82	0.03	
46	82	84	0.02	
47	84	86	0.02	
48	86	88	0.04	
49	88	90	0.03	
50	90	92	0.04	
51	92	94	0.03	
52	94	96	0.05	
53	96	98	0.03	
54	98	100 A	0.03	
55	98	100 B	0.07	

QC	COMP	BLANK	FIRST	LAST	DUPLICATE
	0.87	0.01	0.02	0.07	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2202	1	0	2	0.14	7.66
	2	2	4	0.15	
	3	4	6	0.09	
	4	6	8	0.06	
	5	8	10	0.05	
	6	10	12	0.05	
	7	12	14	0.02	
	8	12	14 D	0.02	
	9	14	16	0.02	
	10	16	18	<0.02	
	11	18	20	0.02	
	12	20	22	0.03	8.19
	13	22	24	<0.02	
	14	24	26	0.14	
	15	26	28	0.22	
	16	28	30	0.02	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	0.03	
	20	36	38	<0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.03	
	23	40	42	0.17	
	24	42	44	0.06	
	25	44	46	0.11	
	26	46	48	0.22	
	27	48	50	0.12	
	28	50	52	0.04	
	29	52	54	0.23	
	30	54	56	0.02	
	31	56	58	0.03	
	32	58	60 A	0.04	
	33	58	60 B	0.04	
	34	60	62	0.26	7.02
	35	62	64	0.04	
	36	64	66	0.02	
	37	66	68	0.11	
	38	68	70	0.03	
	39	70	72	0.06	
	40	72	74	0.04	
	41	74	76	0.03	
	42	76	78	<0.02	

43	78	80 A	0.04	
44	78	80 B	0.02	
45	80	82	0.08	7.95
46	82	84	0.08	
47	84	86	0.02	
48	86	88	0.13	
49	88	90	0.20	
50	90	92	0.07	
51	92	94	0.05	
52	94	96	<0.02	
53	96	98	<0.02	
54	98	100 A	0.04	
55	98	100 B	<0.02	EOH

QC	BLANK	COMP	FIRST	LAST
	0	0.51	0.06	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration Assay Report

HOLE		FROM	TO	Au	pH
2203	1	0	2	0.03	7.46
	2	2	4	0.02	
	3	4	6	<0.02	
	4	6	8	0.02	
	5	8	10	0.06	
	6	10	12	0.02	
	7	10	12 D	<0.02	
	8	12	14	0.02	
	9	14	16	<0.02	
	10	16	18	0.05	
	11	18	20	0.03	
	12	20	22	<0.02	7.61
	13	22	24	<0.02	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	0.10	
	17	30	32	<0.02	
	18	32	34	0.03	
	19	34	36	0.02	
	20	36	38	<0.02	
	21	38	40 A	0.04	
	22	38	40 B	0.03	EOH

QC	BLANK	COMP	FIRST	LAST
	0		<0.02	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2204	1	0	2	N/S	
	2	2	4	N/S	
	3	4	6	N/S	
	4	6	8	0.24	
	5	8	10	0.18	
	6	10	12	0.63	
	7	12	14	0.18	
	8	14	16	0.10	
	9	16	18	0.10	
	10	18	20	0.14	
	11	20	22 A	0.23	8.18
	12	20	22 B	0.31	
	13	22	24	0.09	
	14	24	26	0.84	
	15	26	28	0.12	
	16	28	30	1.97	
	17	30	32	0.40	
	18	32	34	0.69	
	19	34	36	0.15	
	20	36	38	0.12	
	21	38	40	1.31	
	22	40	42 A	0.21	8.01
	23	40	42 B	0.22	
	24	42	44	0.34	
	25	44	46	0.07	
	26	46	48	0.04	
	27	48	50	0.06	
	28	50	52	0.06	
	29	52	54	0.06	
	30	54	56	0.10	
	31	56	58	<0.02	
	32	58	60	0.03	
	33	60	62 A	0.03	8.03
	34	60	62 B	0.04	
	35	62	64	0.05	
	36	64	66	0.05	
	37	66	68	0.04	
	38	68	70	0.07	EOH

QC/QA	BLANK	COMP	FIRST	LAST	ND DUPLICATE
	0.02	0.86	0.34	0.32	0.26

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Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2205	1	0	2	0.32	7.38
	2	2	4	0.42	
	3	4	6	0.51	
	4	6	8	0.22	
	5	8	10	0.25	
	6	10	12	0.43	
	7	12	14	0.40	
	8	14	16	0.48	
	9	16	18	2.21	
	10	18	20	1.96	
	11	20	22 A	1.02	
	12	20	22 B	0.95	
	13	22	24	1.41	
	14	24	26	0.71	
	15	26	28	0.13	
	16	28	30	0.53	
	17	30	32	0.14	
	18	32	34	0.13	
	19	34	36	0.02	
	20	36	38	0.13	
	21	38	40	0.13	
	22	40	42 A	0.04	
	23	40	42 B	0.06	
	24	42	44	0.09	
	25	44	46	0.05	
	26	46	48	0.05	
	27	48	50	0.05	
	28	50	52	0.03	
	29	52	54	0.05	
	30	54	56	0.05	
	31	56	58	0.04	
	32	58	60 A	0.03	
	33	58	60 B	0.04	
	34	60	62	0.11	7.62
	35	62	64	0.05	
	36	64	66	0.05	
	37	66	68	0.05	
	38	68	70	0.05	
	39	70	72	0.06	
	40	72	74	0.06	
	41	74	76	0.19	
	42	76	78	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	ID DUPLICATE
	0.03	0.65	0.05	0.09	1.22
					.73 RA

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH	
RC98 2206	1	0	2	0.47	7.85	
	2	2	4	1.06		
	3	4	6	1.23		
	4	6	8	0.13		
	5	8	10	0.24		
	6	10	12	0.41		
	7	12	14	0.81		
	8	14	16	1.01		
	9	16	18	0.42		
	10	18	20 A	0.31		
	11	18	20 B	0.34		
	12	20	22	0.37	6.03	
	13	22	24	0.27		
	14	24	26	1.27		
	15	26	28	1.21		
	16	28	30	0.05		
	17	30	32	0.06		
	18	32	34	0.07		
	19	34	36	0.07		
	20	36	38	0.05		
	21	38	40 A	0.08		
	22	38	40 B	0.06		
	23	40	42	0.05	8.10	
	24	42	44	0.06		
	25	44	46	0.06		
	26	46	48	0.07		
	27	48	50	0.07		
	28	50	52	0.07		
	29	52	54	0.04		
	30	54	56	0.02		
	31	56	58	0.06		
	32	58	60 A	0.06		
	33	58	60 B	0.07		
	34	60	62	0.08	8.46	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.91	0.31	0.28	0.12

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2207	1	0	2	NO SAMPLE	
	2	2	4	0.13	
	3	4	6	0.07	
	4	6	8	0.08	
	5	8	10	0.05	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	0.06	
	9	16	18	0.07	
	10	18	20 A	0.05	
	11	18	20 B	0.07	
	12	20	22	0.08	7.87
	13	22	24	0.05	
	14	24	26	0.06	
	15	26	28	0.04	
	16	28	30	0.07	
	17	30	32	0.08	
	18	32	34	0.09	
	19	34	36	0.05	
	20	36	38	0.19	
	21	38	40 A	0.06	
	22	38	40 B	0.13	
	23	40	42	0.18	7.64
	24	42	44	0.12	
	25	44	46	0.05	
	26	46	48	0.12	
	27	48	50	0.16	
	28	50	52	0.19	
	29	52	54	0.22	
	30	54	56	0.20	
	31	56	58	0.10	
	32	58	60 A	0.11	
	33	58	60 B	0.08	
	34	60	62	0.09	6.74
	35	62	64	0.21	
	36	64	66	0.23	
	37	66	68	0.11	
	38	68	70	0.15	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.89	0.13	0.15	0.13

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Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2208	1	0	2	0.05	7.62
	2	2	4	1.87	
	3	4	6	1.79	
	4	6	8	5.06	
	5	8	10	0.45	
	6	10	12	0.35	
	7	12	14	0.39	
	8	14	16	0.15	
	9	16	18	0.13	
	10	18	20 A	0.12	
	11	18	20 B	0.10	
	12	20	22	0.07	7.86
	13	22	24	0.05	
	14	24	26	0.11	
	15	26	28	0.17	
	16	28	30	0.18	
	17	30	32	0.10	
	18	32	34	0.07	
	19	34	36	0.08	
	20	36	38	0.07	
	21	38	40 A	0.07	
	22	38	40 B	0.06	
	23	40	42	0.07	7.92
	24	42	44	0.05	
	25	44	46	0.17	
	26	46	48	0.07	
	27	48	50	0.09	
	28	50	52	0.06	
	29	52	54	0.09	
	30	54	56	0.07	
	31	56	58	0.09	
	32	58	60 A	0.09	
	33	58	60 B	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.95	0.35	0.31	0.09

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2209	1	0	2	0.69	7.70
	2	2	4	0.38	
	3	4	6	0.30	
	4	6	8	1.18	
	5	8	10	0.29	
	6	10	12	0.15	
	7	12	14	0.16	
	8	14	16	0.36	
	9	16	18	0.12	
	10	18	20	0.09	
	12	20	22	0.08	8.21
	13	22	24	0.19	
	14	24	26	0.14	
	15	26	28	0.06	
	16	28	30	0.14	
	17	30	32	0.06	
	18	32	34	0.05	
	19	34	36	0.10	
	20	36	38	0.40	
	21	38	40	0.06	
	23	40	42	0.08	
	24	42	44	0.05	
	25	44	46	0.09	
	26	46	48	0.11	
	27	48	50	0.10	
	28	50	52	0.07	
	29	52	54	0.05	
	30	54	56	0.03	
	31	56	58	0.29	
	32	58	60	0.76	
	34	60	62	2.15	7.75
	35	62	64	0.65	
	36	64	66	0.10	
	37	66	68	0.17	
	38	68	70	0.20	
	39	70	72	0.12	
	40	72	74	0.09	
	41	74	75	0.12	
	42	75	76	0.15	
	43	76	78	0.13	
	44	78	80	0.16	EOH

QC/QA **BLANK** **COMP** **FIRST** **LAST** **BLIND DUPLICATE**

0.02	0.95	0.06	0.07	0.07

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2210	1	0	2	0.02	7.25
	2	2	4	0.43	
	3	4	6	0.18	
	4	6	8	0.08	
	5	8	10	0.30	
	6	10	12	0.10	
	7	12	14	0.11	
	8	14	16	0.12	
	9	16	18	0.33	
	10	18	20	0.96	
	12	20	22	0.44	7.98
	13	22	24	0.06	
	14	24	26	0.11	
	15	26	28	0.09	
	16	28	30	0.04	
	17	30	32	0.02	
	18	32	34	<0.02	
	19	34	36	0.03	
	20	36	38	0.29	
	21	38	40	0.14	
	23	40	42	0.02	8.15
	24	42	44	0.10	
	25	44	46	0.03	
	26	46	48	0.04	
	27	48	50	0.05	
	28	50	52	0.12	
	29	52	54	0.11	
	30	54	56	0.11	
	31	56	58	0.05	
	32	58	60	0.21	
	34	60	62	0.11	8.10
	35	62	64	0.08	
	36	64	66	0.07	
	37	66	68	0.05	
	38	68	70	0.07	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.45	0.02	0.02	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

RC98 2211

HOLE		TO	FROM	AU	pH
	1	0	2	0.09	
	2	2	4	0.08	
	3	4	6	0.04	
	4	6	8	0.02	
	5	8	10	0.02	
	6	10	12	0.03	
	7	12	14	0.04	
	8	14	16	0.03	
	9	16	18	0.04	
	10	18	20 A	0.05	7.41
	11	18	20 B	0.04	
	12	20	22	0.04	
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	0.05	
	16	28	30	<.02	
	17	30	32	<.02	
	18	32	34	<.02	
	19	34	36	0.02	
	20	36	38	0.02	
	21	38	40 A	<.02	8.1
	22	38	40 B	<.02	
	23	40	42	<.02	
	24	42	44	<.02	
	25	44	46	<.02	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.07	
	29	52	54	<.02	
	30	54	56	0.03	
	31	56	58	<.02	
	32	58	60 A	<.02	8.52
	33	58	60 B	0.02	
	34	60	62	0.02	
	35	62	64	0.02	
	36	64	66	0.03	
	37	66	68	0.02	
	38	68	70	0.02	
	39	70	72	<.02	
	40	72	74	0.02	
	41	74	76	0.03	
	42	76	78	0.02	
	43	78	80 A	0.04	

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

RC98 2211

HOLE		TO	FROM	AU	pH
	44	78	80 B	0.04	
	45	80	82	3.09	8.16
	46	82	84	0.2	
	47	84	86	0.09	
	48	86	88	0.18	
	49	88	90	0.07	
	50	90	92	0.14	
	51	92	94	0.07	
	52	94	96	0.1	
	53	96	98	0.19	
	54	98	100 A	0.12	
	55	98	100 B	0.12	
	56	100	102	0.07	8.64
	57	102	104	0.04	
	58	104	106	0.1	
	59	106	108	0.04	

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.97	<0.02	0.02	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2212	1	0	2	NO SAMPLE	
	2	2	4	0.05	
	3	4	6	0.04	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	0.04	
	7	12	14	0.04	
	8	14	16	0.04	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.04	
	12	20	22	0.04	6.33
	13	22	24	0.04	
	14	24	26	0.04	
	15	26	28	0.02	
	16	28	30	0.03	
	17	30	32	0.03	
	18	32	34	0.02	
	19	34	36	0.02	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.04	
	23	40	42	0.02	
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	<.02	
	30	54	56	0.06	
	31	56	58	<.02	
	32	58	60 A	<.02	
	33	58	60 B	<.02	
	34	60	62	<.02	
	35	62	64	<.02	
	36	64	66	0.02	
	37	66	68	0.02	
	38	68	70	<.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.50	0.03	0.04	<.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2213	1	0	2	0.04	
	2	2	4	0.02	
	3	4	6	0.02	
	4	6	8	0.02	
	5	8	10	<.02	
	6	10	12	<.02	
	7	12	14	0.03	
	8	14	16	<.02	
	9	16	18	<.02	
	10	18	20 A	0.02	5.18
	11	18	20 B	0.02	
	12	20	22	0.02	7.79
	13	22	24	<.02	
	14	24	26	0.03	
	15	26	28	0.04	
	16	28	30	0.05	
	17	30	32	0.08	
	18	32	34	0.08	
	19	34	36	<.02	
	20	36	38	<.02	
	21	38	40 A	<.02	
	22	38	40 B	<.02	
	23	40	42	0.02	8.59
	24	42	44	<.02	
	25	44	46	<.02	
	26	46	48	0.03	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	0.03	
	30	54	56	0.03	
	31	56	58	0.02	
	32	58	60 A	0.02	
	33	58	60 B	0.05	
	34	60	62	0.02	8.73
	35	62	64	0.02	
	36	64	66	<.02	
	37	66	68	0.03	
	38	68	70	<.02	
	39	70	72	0.02	
	40	72	74	0.80	
	41	74	76	2.45	
	42	76	78	0.28	
	43	78	80 A	0.20	

44	78	80 B	0.21	
45	80	82	0.08	8.6
46	82	84	0.12	
47	84	86	0.06	
48	86	88	0.07	
49	88	90	0.11	
50	90	92	0.07	
51	92	94	0.02	
52	94	96	0.02	
53	96	98	<.02	
54	98	100 A	<.02	
55	98	100 B	<.02	

QC/QA	BLANK	COMP	FIRST	LAST	BLIND PLICATE
	0.01	0.95	<0.02	0.03	<.02/.04

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2214	1	0	2	NO SAMPLE	
	2	2	4	0.16	
	3	4	6	0.07	
	4	6	8	0.03	
	5	8	10	0.03	
	6	10	12	0.02	
	7	12	14	<.02	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.06	
	11	18	20 B	0.07	
	12	20	22	0.16	
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	6.89	
	16	28	30	2.64	
	17	30	32	0.54	
	18	32	34	0.81	
	19	34	36	1.53	
	20	36	38	0.05	
	21	38	40 A	0.07	
	22	38	40 B	0.12	
	23	40	42	0.17	
	24	42	44	0.48	
	25	44	46	0.08	
	26	46	48	0.11	
	27	48	50	0.08	
	28	50	52	0.13	
	29	52	54	0.18	
	30	54	56	0.11	
	31	56	58	0.19	
	32	58	60 A	0.24	
	33	58	60 B	0.22	
	34	60	62	0.17	7.54
	35	62	64	0.25	
	36	64	66	0.56	
	37	66	68	0.15	
	38	68	70	0.20	
	39	70	72	0.05	
	40	72	74	0.09	
	41	74	76	0.05	
	42	76	78	0.07	
	43	78	80 A	0.04	8.13

44	78	80 B	0.03	
45	80	82	<.02	
46	82	84	0.03	
47	84	86	0.12	
48	86	88	0.07	
49	88	90	0.03	
50	90	92	0.07	
51	92	94	0.09	
52	94	96	0.04	
53	96	98	0.05	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.97	0.24	0.28	0.23

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2215	1	0	2	0.05	6.99
	2	2	4	0.03	
	3	4	6	0.03	
	4	6	8	0.03	
	5	8	10	0.03	
	6	10	12	0.03	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	0.04	7.93
	13	22	24	0.05	
	14	24	26	0.05	
	15	26	28	0.03	
	16	28	30	0.03	
	17	30	32	0.15	
	18	32	34	0.22	
	19	34	36	0.04	
	20	36	38	0.05	
	21	38	40 A	0.04	
	22	38	40 B	0.04	
	23	40	42	0.25	7.78
	24	42	44	0.07	
	25	44	46	0.07	
	26	46	48	0.78	
	27	48	50	0.24	
	28	50	52	0.11	
	29	52	54	0.17	
	30	54	56	0.23	
	31	56	58	0.31	
	32	58	60 A	0.33	
	33	58	60 B	0.35	
	34	60	62	1.49	8.06
	35	62	64	1.82	
	36	64	66	0.78	
	37	66	68	4.11	
	38	68	70	3.02	
	39	70	72	0.58	
	40	72	74	0.87	
	41	74	76	3.93	
	42	76	78	2.02	
	43	78	80 A	0.85	

44	78	80 B	0.92	
45	80	82	1.65	8.35
46	82	84	2.07	
47	84	86	0.24	
48	86	88	0.61	
49	88	90	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.5	0.05	0.11	1.14

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2216	1	0	2	0.10	6.73
	2	2	4	0.05	
	3	4	6	0.33	
	4	6	8	0.08	
	5	8	10	0.04	
	6	10	12	0.04	
	7	12	14	0.05	
	8	14	16	0.03	
	9	16	18	0.03	
	10	18	20 A	0.06	
	11	18	20 B	0.07	
	12	20	22	0.04	7.52
	13	22	24	0.11	
	14	24	26	0.09	
	15	26	28	0.25	
	16	28	30	0.76	
	17	30	32	0.36	
	18	32	34	0.11	
	19	34	36	0.12	
	20	36	38	0.30	
	21	38	40 A	0.08	
	22	38	40 B	0.08	
	23	40	42	0.11	7.58
	24	42	44	0.33	
	25	44	46	0.12	
	26	46	48	0.10	
	27	48	50	0.07	
	28	50	52	0.08	
	29	52	54	0.08	
	30	54	56	0.09	
	31	56	58	0.09	
	32	58	60 A	0.11	
	33	58	60 B	0.13	
	34	60	62	0.09	7.76
	35	62	64	0.08	
	36	64	66	0.06	
	37	66	68	0.09	
	38	68	70	0.40	
	39	70	72	0.13	
	40	72	74	0.16	
	41	74	76	0.32	
	42	76	78	0.41	
	43	78	80 A	0.15	

44	78	80 B	0.16	
45	80	82	0.24	7.71
46	82	84	0.29	
47	84	86	0.97	
48	86	88	0.41	
49	88	90	0.2	
50	90	92	0.14	
51	92	94	0.31	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.52	0.41	0.41	0.36

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2217	1	0	2	0.05	7.12
	2	2	4	0.04	
	3	4	6	0.04	
	4	6	8	0.05	
	5	8	10	0.06	
	6	10	12	0.10	
	7	12	14	0.08	
	8	14	16	0.11	
	9	16	18	0.18	
	10	18	20 A	0.09	
	11	18	20 B	0.08	
	12	20	22	0.10	8.12
	13	22	24	0.18	
	14	24	26	0.14	
	15	26	28	0.10	
	16	28	30	0.13	
	17	30	32	0.11	
	18	32	34	0.08	
	19	34	36	0.15	
	20	36	38	0.09	
	21	38	40 A	0.16	
	22	38	40 B	0.13	
	23	40	42	0.07	8.28
	24	42	44	0.07	
	25	44	46	0.04	
	26	46	48	0.09	
	27	48	50	0.06	
	28	50	52	0.04	
	29	52	54	0.06	
	30	54	56	<.02	
	31	56	58	0.04	
	32	58	60 A	0.04	
	33	58	60 B	0.03	
	34	60	62	0.04	8.39
	35	62	64	0.07	
	36	64	66	0.06	
	37	66	68	0.07	
	38	68	70	0.63	
	39	70	72	0.93	
	40	72	74	0.21	
	41	74	76	0.57	
	42	76	78	0.24	
	43	78	80 A	0.21	

44	78	80 B	0.19	
45	80	82	0.21	8.21
46	82	84	0.32	
47	84	86	1.26	
48	86	88	0.48	
49	88	90	0.11	
50	90	92	0.10	
51	92	94	0.31	
52	94	96	0.22	
53	96	98	0.10	
54	98	100 A	0.06	
55	98	100 B	0.04	
56	100	102	0.05	8.23
57	102	104	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.95	0.48	0.51	0.22

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2218	1	0	2	0.16	8.31
	2	2	4	0.15	
	3	4	6	0.10	
	4	6	8	0.08	
	5	8	10	0.16	
	6	10	12	0.13	
	7	12	14	0.09	
	8	14	16	0.07	
	9	16	18	0.11	
	10	18	20 A	0.07	
	11	18	20 B	0.11	
	12	20	22	0.08	7.91
	13	22	24	0.09	
	14	24	26	0.08	
	15	26	28	0.11	
	16	28	30	0.11	
	17	30	32	0.15	
	18	32	34	0.11	
	19	34	36	0.12	
	20	36	38	0.12	
	21	38	40 A	0.14	
	22	38	40 B	0.11	
	23	40	42	0.40	7.89
	24	42	44	0.10	
	25	44	46	0.64	
	26	46	48	0.31	
	27	48	50	0.15	
	28	50	52	0.20	
	29	52	54	0.19	
	30	54	56	0.13	
	31	56	58	0.30	
	32	58	60 A	0.07	
	33	58	60 B	0.08	
	34	60	62	0.65	7.81
	35	62	64	1.34	
	36	64	66	0.44	
	37	66	68	0.30	
	38	68	70	0.10	
	39	70	72	0.06	
	40	72	74	0.02	
	41	74	76	0.02	
	42	76	78	0.02	
	43	78	80 A	0.02	

44	78	80 B	0.04	
45	80	82	0.04	8.41
46	82	84	0.02	
47	84	86	0.39	
48	86	88	0.1	
49	88	90	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.53	0.3	0.32	0.09

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2219	1	0	2	0.11	7.62
	2	2	4	0.11	
	3	4	6	0.07	
	4	6	8	0.05	
	5	8	10	0.04	
	6	10	12	0.08	
	7	12	14	0.09	
	8	14	16	0.15	
	9	16	18	0.18	
	10	18	20 A	0.15	
	11	18	20 B	0.15	
	12	20	22	0.10	8.41
	13	22	24	0.19	
	14	24	26	0.22	
	15	26	28	0.10	
	16	28	30	0.15	
	17	30	32	0.06	
	18	32	34	0.12	
	19	34	36	0.15	
	20	36	38	0.20	
	21	38	40 A	0.23	
	22	38	40 B	0.25	
	23	40	42	0.17	7.96
	24	42	44	0.26	
	25	44	46	0.41	
	26	46	48	0.09	
	27	48	50	0.91	
	28	50	52	0.77	
	29	52	54	0.86	
	30	54	56	0.17	
	31	56	58	0.23	
	32	58	60 A	0.11	
	33	58	60 B	0.10	
	34	60	62	0.17	7.4
	35	62	64	0.13	
	36	64	66	0.06	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.55	0.15	0.10	0.08

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2220	1	0	2	0.08	6.97
	2	2	4	0.16	
	3	4	6	0.05	
	4	6	8	0.06	
	5	8	10	0.33	
	6	10	12	0.19	
	7	12	14	0.41	
	8	14	16	0.70	
	9	16	18	0.11	
	10	18	20 A	0.06	
	11	18	20 B	0.04	
	12	20	22	0.05	8.33
	13	22	24	0.06	
	14	24	26	0.06	
	15	26	28	0.29	
	16	28	30	0.04	
	17	30	32	0.07	
	18	32	34	0.29	
	19	34	36	0.85	
	20	36	38	0.12	
	21	38	40 A	0.11	
	22	38	40 B	0.03	
	23	40	42	0.05	8.22
	24	42	44	0.04	
	25	44	46	0.03	
	26	46	48	0.02	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	0.02	
	30	54	56	0.51	
	31	56	58	0.60	
	32	58	60 A	0.11	
	33	58	60 B	0.10	
	34	60	62	0.12	8.17
	35	62	64	0.11	
	36	64	66	0.06	
	37	66	68	0.06	
	38	68	70	0.08	
	39	70	72	0.05	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.92	0.03	0.05	0.69

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2221	1	0	2	0.20	7.90
	2	2	4	0.37	
	3	4	6	0.12	
	4	6	8	0.15	
	5	8	10	0.21	
	6	10	12	0.39	
	7	12	14	0.50	
	8	14	16	1.04	
	9	16	18	0.08	
	10	18	20 A	0.07	
	11	18	20 B	0.06	
	12	20	22	0.28	7.94
	13	22	24	0.25	
	14	24	26	0.09	
	15	26	28	0.08	
	16	28	30	0.07	
	17	30	32	0.16	
	18	32	34	0.04	
	19	34	36	1.50	
	20	36	38	2.79	
	21	38	40 A	1.90	
	22	38	40 B	1.90	
	23	40	42	0.24	8.2
	24	42	44	0.68	
	25	44	46	0.75	
	26	46	48	1.04	
	27	48	50	2.10	
	28	50	52	0.32	
	29	52	54	1.49	
	30	54	56	2.51	
	31	56	58	1.57	
	32	58	60 A	0.22	
	33	58	60 B	0.26	
	34	60	62	0.13	7.94
	35	62	64	0.08	
	36	64	66	0.12	
	37	66	68	0.07	
	38	68	70	0.32	
	39	70	72	0.26	
	40	72	74	0.05	
	41	74	76	0.14	
	42	76	78	0.07	
	43	78	80 A	0.05	
	44	78	80 B	0.06	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.04	0.93	0.3	0.32	0.96

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2222	1	0	2	0.09	8.10
	2	2	4	0.04	
	3	4	6	0.05	
	4	6	8	0.19	
	5	8	10	1.73	
	6	10	12	0.13	
	7	12	14	0.10	
	8	14	16	0.08	
	9	16	18	0.10	
	10	18	20 A	0.08	
	11	18	20 B	0.11	
	12	20	22	0.11	8.15
	13	22	24	0.05	
	14	24	26	0.06	
	15	26	28	0.05	
	16	28	30	0.74	
	17	30	32	1.17	
	18	32	34	0.34	
	19	34	36	0.45	
	20	36	38	2.29	
	21	38	40 A	0.46	
	22	38	40 B	0.38	
	23	40	42	0.23	8.12
	24	42	44	1.18	
	25	44	46	1.78	
	26	46	48	2.04	
	27	48	50	0.24	
	28	50	52	0.11	
	29	52	54	0.03	
	30	54	56	0.12	
	31	56	58	0.16	
	32	58	60 A	0.08	
	33	58	60 B	0.10	
	34	60	62	0.10	8.15
	35	62	64	0.43	
	36	64	66	0.07	
	37	66	68	0.06	
	38	68	70	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.04	0.98	0.08	0.11	1.37

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2223	1	0	2	0.18	7.32
	2	2	4	0.29	
	3	4	6	0.39	
	4	6	8	0.60	
	5	8	10	0.13	
	6	10	12	0.08	
	7	12	14	0.04	
	8	14	16	0.05	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.04	
	12	20	22	0.04	8.31
	13	22	24	0.26	
	14	24	26	0.03	
	15	26	28	0.45	
	16	28	30	0.07	
	17	30	32	0.65	
	18	32	34	0.35	
	19	34	36	0.83	
	20	36	38	0.11	
	21	38	40 A	0.11	
	22	38	40 B	0.09	
	23	40	42	0.11	7.98
	24	42	44	0.10	
	25	44	46	0.10	
	26	46	48	0.12	
	27	48	50	2.59	
	28	50	52	3.22	
	29	52	54	8.97	
	30	54	56	0.90	
	31	56	58	0.18	
	32	58	60 A	0.14	
	33	58	60 B	0.16	
	34	60	62	0.10	7.12
	35	62	64	0.14	
	36	64	66	0.05	
	37	66	68	0.25	
	38	68	70	0.35	
	39	70	72	0.58	
	40	72	74	0.25	
	41	74	76	0.1	
	42	76	78	0.04	EOH

QC/QA **BLANK** **COMP** **FIRST** **LAST** **BLIND DUPLICATE**

0.02	0.5	0.06	0.05	0.05

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2224	1	0	2	0.60	7.15
	2	2	4	0.30	
	3	4	6	0.23	
	4	6	8	0.24	
	5	8	10	0.18	
	6	10	12	0.06	
	7	12	14	0.04	
	8	14	16	0.04	
	9	16	18	0.03	
	10	18	20 A	0.02	
	11	18	20 B	0.03	
	12	20	22	0.05	7.81
	13	22	24	0.03	
	14	24	26	0.02	
	15	26	28	0.05	
	16	28	30	0.04	
	17	30	32	0.09	
	18	32	34	0.10	
	19	34	36	0.32	
	20	36	38	0.04	
	21	38	40 A	0.05	
	22	38	40 B	0.06	
	23	40	42	0.17	7.54
	24	42	44	0.10	
	25	44	46	0.09	
	26	46	48	0.21	
	27	48	50	0.09	
	28	50	52	0.04	
	29	52	54	0.06	
	30	54	56	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	-0.01	0.97	N/A		0.14

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2225	1	0	2	0.21	6.85
	2	2	4	0.18	
	3	4	6	3.54	
	4	6	8	0.53	
	5	8	10	0.19	
	6	10	12	0.85	
	7	12	14	0.39	
	8	14	16	1.79	
	9	16	18	0.66	
	10	18	20 A	0.49	
	11	18	20 B	0.38	
	12	20	22	2.22	7.70
	13	22	24	2.33	
	14	24	26	1.25	
	15	26	28	0.73	
	16	28	30	0.25	
	17	30	32	0.11	
	18	32	34	0.74	
	19	34	36	0.17	
	20	36	38	0.44	
	21	38	40 A	0.19	
	22	38	40 B	0.16	
	23	40	42	0.95	7.99
	24	42	44	0.14	
	25	44	46	0.34	
	26	46	48	0.29	
	27	48	50	0.89	
	28	50	52	0.81	
	29	52	54	1.27	
	30	54	56	0.22	
	31	56	58	0.07	
	32	58	60 A	0.08	
	33	58	60 B	0.08	
	34	60	62	1.34	7.82
	35	62	64	0.35	
	36	64	66	0.37	
	37	66	68	0.07	
	38	68	70	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.90	0.21	0.20	0.33

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2226	1	0	2	0.24	7.69
	2	2	4	0.13	
	3	4	6	0.18	
	4	6	8	0.54	
	5	8	10	0.76	
	6	10	12	0.47	
	7	12	14	0.53	
	8	14	16	0.08	
	9	16	18	0.03	
	10	18	20 A	0.12	
	11	18	20 B	0.12	
	12	20	22	0.07	7.90
	13	22	24	0.32	
	14	24	26	2.04	
	15	26	28	0.30	
	16	28	30	0.78	
	17	30	32	0.69	
	18	32	34	0.86	
	19	34	36	0.67	
	20	36	38	0.85	
	21	38	40 A	1.40	
	22	38	40 B	1.54	
	23	40	42	0.50	7.46
	24	42	44	1.46	
	25	44	46	0.53	
	26	46	48	0.78	
	27	48	50	0.24	
	28	50	52	1.93	
	29	52	54	0.50	
	30	54	56	0.38	
	31	56	58	0.14	
	32	58	60 A	0.08	
	33	58	60 B	0.08	
	34	60	62	0.12	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.96	N/A		1.09

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2227	1	0	2	0.33	6.58
	2	2	4	0.27	
	3	4	6	0.21	
	4	6	8	0.13	
	5	8	10	0.10	
	6	10	12	0.38	
	7	12	14	3.34	
	8	14	16	8.30	
	9	16	18	8.19	
	10	18	20 A	1.84	
	11	18	20 B	1.76	
	12	20	22	1.28	7.71
	13	22	24	0.94	
	14	24	26	4.41	
	15	26	28	6.95	
	16	28	30	1.01	
	17	30	32	0.82	
	18	32	34	0.57	
	19	34	36	0.69	
	20	36	38	0.66	
	21	38	40 A	0.35	
	22	38	40 B	0.37	
	23	40	42	0.15	7.79
	24	42	44	0.12	
	25	44	46	0.08	
	26	46	48	0.05	
	27	48	50	0.06	
	28	50	52	0.27	
	29	52	54	0.07	
	30	54	56	0.09	
	31	56	58	0.03	
	32	58	60 A	0.13	
	33	58	60 B	0.13	

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.56	0.30	0.29	0.91

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2228	1	0	2	0.38	7.36
	2	2	4	0.29	
	3	4	6	0.17	
	4	6	8	0.17	
	5	8	10	0.07	
	6	10	12	0.12	
	7	12	14	0.13	
	8	14	16	0.09	
	9	16	18	0.06	
	10	18	20 A	0.08	
	11	18	20 B	0.07	
	12	20	22	0.08	6.81
	13	22	24	0.20	
	14	24	26	0.22	
	15	26	28	0.12	
	16	28	30	0.12	
	17	30	32	0.05	
	18	32	34	0.06	
	19	34	36	0.06	
	20	36	38	0.19	
	21	38	40 A	0.07	
	22	38	40 B	0.11	
	23	40	42	0.16	7.2
	24	42	44	0.56	
	25	44	46	0.49	
	26	46	48	0.21	
	27	48	50	0.11	
	28	50	52	0.11	
	29	52	54	0.06	
	30	54	56	0.11	
	31	56	58	1.04	
	32	58	60 A	0.49	
	33	58	60 B	0.51	
	34	60	62	1.69	7.85
	35	62	64	1.20	
	36	64	66	0.49	
	37	66	68	0.59	
	38	68	70	0.20	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.54	0.59	0.62	0.07

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2229	1	0	2	0.23	7.59
	2	2	4	0.10	
	3	4	6	0.08	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	0.16	
	7	12	14	0.31	
	8	14	16	0.04	
	9	16	18	0.06	
	10	18	20 A	0.07	
	11	18	20 B	0.05	
	12	20	22	0.08	7.39
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.41	
	16	28	30	1.72	
	17	30	32	1.22	
	18	32	34	2.16	
	19	34	36	1.17	
	20	36	38	1.79	
	21	38	40 A	2.23	
	22	38	40 B	2.13	
	23	40	42	1.78	7.41
	24	42	44	0.83	
	25	44	46	0.21	
	26	46	48	0.40	
	27	48	50	0.48	
	28	50	52	0.04	
	29	52	54	0.04	
	30	54	56	0.06	
	31	56	58	0.07	
	32	58	60 A	0.04	
	33	58	60 B	0.05	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.98	0.08	0.07	0.18

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Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2230	1	0	2	0.22	6.43
	2	2	4	0.10	
	3	4	6	0.09	
	4	6	8	0.10	
	5	8	10	0.05	
	6	10	12	0.06	
	7	12	14	0.15	
	8	14	16	0.13	
	9	16	18	0.04	
	10	18	20 A	0.07	
	11	18	20 B	0.04	
	12	20	22	0.10	7.64
	13	22	24	0.07	
	14	24	26	0.08	
	15	26	28	0.15	
	16	28	30	0.59	
	17	30	32	0.60	
	18	32	34	0.93	
	19	34	36	0.88	
	20	36	38	1.86	
	21	38	40 A	0.86	
	22	38	40 B	0.79	
	23	40	42	4.52	7.09
	24	42	44	1.57	
	25	44	46	0.38	
	26	46	48	0.28	
	27	48	50	0.20	
	28	50	52	0.09	
	29	52	54	0.06	
	30	54	56	0.08	
	31	56	58	0.15	
	32	58	60 A	0.14	
	33	58	60 B	0.10	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0	0.91	N/A		0.84

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Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2231	1	0	2	0.34	7.42
	2	2	4	0.29	
	3	4	6	0.31	
	4	6	8	1.01	
	5	8	10	0.94	
	6	10	12	0.23	
	7	12	14	0.15	
	8	14	16	0.16	
	9	16	18	0.24	
	10	18	20 A	0.12	
	11	18	20 B	0.12	
	12	20	22	0.08	7.16
	13	22	24	0.96	
	14	24	26	0.44	
	15	26	28	0.25	
	16	28	30	0.33	
	17	30	32	0.06	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	0.06	7.55
	24	42	44	0.04	
	25	44	46	0.03	
	26	46	48	0.08	
	27	48	50	0.16	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0	0.91	N/A		0.31

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Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2232	1	0	2	0.16	7.17
	2	2	4	0.05	
	3	4	6	0.13	
	4	6	8	0.06	
	5	8	10	0.03	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	0.16	
	9	16	18	0.50	
	10	18	20 A	0.14	
	11	18	20 B	0.12	
	12	20	22	0.06	7.82
	13	22	24	1.11	
	14	24	26	0.18	
	15	26	28	0.08	
	16	28	30	0.07	
	17	30	32	0.12	
	18	32	34	0.14	
	19	34	36	0.13	
	20	36	38	0.36	
	21	38	40 A	0.15	
	22	38	40 B	0.18	
	23	40	42	3.15	8.13
	24	42	44	3.82	
	25	44	46	7.79	
	26	46	48	2.57	
	27	48	50	1.82	
	28	50	52	0.13	
	29	52	54	0.11	
	30	54	56	0.08	
	31	56	58	0.15	
	32	58	60 A	0.05	
	33	58	60 B	0.09	
	34	60	62	0.13	8.02
	35	62	64	0.05	
	36	64	66	0.05	
	37	66	68	0.05	
	38	68	70	0.06	EOH

QC/QA	BLANK	COMP	FIRST	LAST	ND DUPLICATE
	0.02	0.90	0.16	0.15	0.13

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2233	1	0	2	0.15	7.28
	2	2	4	0.11	
	3	4	6	0.03	
	4	6	8	0.06	
	5	8	10	0.10	
	6	10	12	0.07	
	7	12	14	0.05	
	8	14	16	0.12	
	9	16	18	0.08	
	10	18	20 A	0.08	
	11	18	20 B	0.07	
	12	20	22	0.10	7.84
	13	22	24	0.05	
	14	24	26	0.10	
	15	26	28	0.06	
	16	28	30	0.07	
	17	30	32	0.07	
	18	32	34	0.08	
	19	34	36	0.11	
	20	36	38	0.08	
	21	38	40 A	0.09	
	22	38	40 B	0.05	
	23	40	42	0.15	7.92
	24	42	44	0.05	
	25	44	46	0.05	
	26	46	48	0.04	
	27	48	50	0.04	
	28	50	52	0.04	
	29	52	54	0.11	
	30	54	56	0.12	
	31	56	58	0.54	
	32	58	60 A	0.11	
	33	58	60 B	0.15	
	34	60	62	0.09	6.89
	35	62	64	0.06	
	36	64	66	0.03	
	37	66	68	0.08	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.59	0.05	0.05	0.08

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2234	1	0	2	0.16	7.01
	2	2	4	0.22	
	3	4	6	0.12	
	4	6	8	0.07	
	5	8	10	0.13	
	6	10	12	0.05	
	7	12	14	0.07	
	8	14	16	0.10	
	9	16	18	0.12	
	10	18	20 A	0.15	
	11	18	20 B	0.22	
	12	20	22	0.12	7.57
	13	22	24	0.06	
	14	24	26	0.27	
	15	26	28	0.09	
	16	28	30	0.10	
	17	30	32	0.08	
	18	32	34	0.29	
	19	34	36	0.04	
	20	36	38	0.04	
	21	38	40 A	0.36	
	22	38	40 B	0.34	
	23	40	42	0.13	7.39
	24	42	44	2.16	
	25	44	46	0.07	
	26	46	48	0.13	
	27	48	50	0.11	
	28	50	52	0.19	
	29	52	54	0.74	
	30	54	56	0.33	
	31	56	58	0.05	
	32	58	60 A	0.06	
	33	58	60 B	0.05	
	34	60	62	0.07	7.81
	35	62	64	0.14	
	36	64	66	0.05	
	37	66	68	0.48	
	38	68	70	0.06	
	39	70	72	0.05	
	40	72	74	0.06	
	41	74	76	0.82	
	42	76	78	0.26	
	43	78	80 A	0.07	
	44	78	80 B	0.09	EOH

QC/QA	BLANK	COMP	FIRST	LAST	ND DUPLICATE
	0.04	0.44	0.13	0.14	0.04

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2235	1	0	2	0.06	7.10
	2	2	4	0.04	
	3	4	6	0.04	
	4	6	8	0.10	
	5	8	10	0.09	
	6	10	12	0.12	
	7	12	14	0.07	
	8	14	16	0.03	
	9	16	18	0.04	
	10	18	20 A	0.03	
	11	18	20 B	0.04	
	12	20	22	0.26	6.37
	13	22	24	0.15	
	14	24	26	0.32	
	15	26	28	0.04	
	16	28	30	0.09	
	17	30	32	0.06	
	18	32	34	0.14	
	19	34	36	0.32	
	20	36	38	0.58	
	21	38	40 A	0.08	
	22	38	40 B	0.07	
	23	40	42	0.12	6.99
	24	42	44	0.09	
	25	44	46	0.16	
	26	46	48	0.48	
	27	48	50	0.23	
	28	50	52	0.08	
	29	52	54	0.06	
	30	54	56	0.05	
	31	56	58	0.11	
	32	58	60 A	0.07	
	33	58	60 B	0.14	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.54	0.32	0.37	0.49

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2236	1	0	2	0.05	7.44
	2	2	4	0.07	
	3	4	6	0.55	
	4	6	8	1.45	
	5	8	10	1.69	
	6	10	12	1.56	
	7	12	14	0.67	
	8	14	16	0.22	
	9	16	18	0.47	
	10	18	20 A	0.69	
	11	18	20 B	0.61	
	12	20	22	0.31	6.87
	13	22	24	0.39	
	14	24	26	0.15	
	15	26	28	0.20	
	16	28	30	0.11	
	17	30	32	0.08	
	18	32	34	0.15	
	19	34	36	0.05	
	20	36	38	0.15	
	21	38	40 A	0.12	
	22	38	40 B	0.09	
	23	40	42	0.12	7.89
	24	42	44	0.56	
	25	44	46	0.96	
	26	46	48	0.61	
	27	48	50	0.13	
	28	50	52	0.14	
	29	52	54	0.08	
	30	54	56	0.14	
	31	56	58	0.09	
	32	58	60 A	0.02	
	33	58	60 B	0.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.96	0.20	0.20	0.20

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2237	1	0	2	0.29	7.44
	2	2	4	0.09	
	3	4	6	0.06	
	4	6	8	0.02	
	5	8	10	0.03	
	6	10	12	0.07	
	7	12	14	0.14	
	8	14	16	0.07	
	9	16	18	0.12	
	10	18	20 A	0.09	
	11	18	20 B	0.11	
	12	20	22	0.11	7.96
	13	22	24	0.15	
	14	24	26	0.21	
	15	26	28	0.24	
	16	28	30	0.90	
	17	30	32	1.09	
	18	32	34	0.52	
	19	34	36	0.16	
	20	36	38	0.07	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	<.02	7.72
	24	42	44	<.02	
	25	44	46	<.02	
	26	46	48	0.03	
	27	48	50	0.09	
	28	50	52	0.19	
	29	52	54	0.51	
	30	54	56	0.19	
	31	56	58	0.09	
	32	58	60 A	0.16	
	33	58	60 B	0.20	
	34	60	62	0.17	7.64
	35	62	64	<.02	
	36	64	66	0.02	
	37	66	68	0.04	
	38	68	70	0.03	
	39	70	72	0.03	
	40	72	74	0.31	
	41	74	76	0.05	
	42	76	78	0.04	
	43	78	80 A	0.17	

44	78	80 B	0.15	
45	80	82	0.09	8.01
46	82	84	0.05	
47	84	86	0.03	
48	86	88	0.03	
49	88	90	0.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0	0.94	0.36	0.34	0.36

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2238	1	0	2	0.10	6.81
	2	2	4	0.08	
	3	4	6	0.42	
	4	6	8	0.16	
	5	8	10	0.17	
	6	10	12	0.36	
	7	12	14	0.64	
	8	14	16	0.40	
	9	16	18	0.50	
	10	18	20 A	0.41	
	11	18	20 B	0.44	
	12	20	22	0.12	6.94
	13	22	24	0.08	
	14	24	26	0.08	
	15	26	28	0.15	
	16	28	30	0.04	
	17	30	32	0.09	
	18	32	34	0.13	
	19	34	36	0.03	
	20	36	38	0.09	
	21	38	40 A	0.19	
	22	38	40 B	0.17	
	23	40	42	0.05	7.82
	24	42	44	0.02	
	25	44	46	<.02	
	26	46	48	<.02	
	27	48	50	<.02	
	28	50	52	0.28	
	29	52	54	0.16	
	30	54	56	0.05	
	31	56	58	<.02	
	32	58	60 A	<.02	
	33	58	60 B	0.02	
	34	60	62	0.02	7.26
	35	62	64	0.02	
	36	64	66	<.02	
	37	66	68	<.02	
	38	68	70	<.02	
	39	70	72	0.02	
	40	72	74	<.02	
	41	74	76	<.02	

QC/QA **BLANK** **COMP** **FIRST** **LAST** **BLIND DUPLICATE**

0	0.5	0.05	0.04	0.07

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2239	1	0	2	0.15	7.41
	2	2	4	0.12	
	3	4	6	0.11	
	4	6	8	0.04	
	5	8	10	0.05	
	6	10	12	0.05	
	7	12	14	0.24	
	8	14	16	<0.02	
	9	16	18	<0.02	
	10	18	20 A	0.08	
	11	18	20 B	0.12	
	12	20	22	0.48	8.00
	13	22	24	0.86	
	14	24	26	0.77	
	15	26	28	0.60	
	16	28	30	0.66	
	17	30	32	0.07	
	18	32	34	0.05	
	19	34	36	0.15	
	20	36	38	0.21	
	21	38	40 A	<0.02	
	22	38	40 B	0.03	
	23	40	42	0.04	7.55
	24	42	44	0.09	
	25	44	46	0.13	
	26	46	48	0.36	
	27	48	50	0.33	
	28	50	52	0.26	
	29	52	54	0.02	
	30	54	56	0.08	
	31	56	58	0.03	
	32	58	60 A	<0.02	
	33	58	60 B	<0.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0	0.86	0.15	0.14	N/A

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2240	1	0	2	0.43	7.17
	2	2	4	0.39	
	3	4	6	0.88	
	4	6	8	2.86	
	5	8	10	0.92	
	6	10	12	0.10	
	7	12	14	0.05	
	8	14	16	0.29	
	9	16	18	0.38	
	10	18	20 A	0.14	
	11	18	20 B	0.11	
	12	20	22	0.11	8.09
	13	22	24	0.10	
	14	24	26	0.07	
	15	26	28	0.42	
	16	28	30	0.12	
	17	30	32	0.07	
	18	32	34	0.09	
	19	34	36	0.21	
	20	36	38	1.10	
	21	38	40 A	0.14	
	22	38	40 B	0.13	
	23	40	42	0.49	7.76
	24	42	44	0.83	
	25	44	46	0.20	
	26	46	48	0.10	
	27	48	50	0.08	
	28	50	52	0.04	
	29	52	54	0.80	
	30	54	56	0.12	
	31	56	58	0.06	
	32	58	60 A	0.27	
	33	58	60 B	0.21	
	34	60	62	0.37	7.79
	35	62	64	1.35	
	36	64	66	0.46	
	37	66	68	0.12	
	38	68	70	0.08	
	39	70	72	0.04	
	40	72	74	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.86	N/A		N/A

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Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2241	1	0	2	0.54	7.25
	2	2	4	0.27	
	3	4	6	0.68	
	4	6	8	0.77	
	5	8	10	0.53	
	6	10	12	0.46	
	7	12	14	0.31	
	8	14	16	0.30	
	9	16	18	0.17	
	10	18	20 A	0.19	
	11	18	20 B	0.24	
	12	20	22	0.35	8.06
	13	22	24	0.54	
	14	24	26	0.75	
	15	26	28	1.95	
	16	28	30	0.58	
	17	30	32	2.70	
	18	32	34	4.52	
	19	34	36	1.82	
	20	36	38	1.61	
	21	38	40 A	0.24	
	22	38	40 B	0.23	
	23	40	42	1.40	7.62
	24	42	44	0.09	
	25	44	46	0.04	
	26	46	48	0.13	
	27	48	50	0.04	
	28	50	52	<0.02	
	29	52	54	0.04	
	30	54	56	0.06	
	31	56	58	0.13	
	32	58	60 A	0.05	
	33	58	60 B	0.07	
	34	60	62	0.06	7.32
	35	62	64	0.23	
	36	64	66	0.13	
	37	66	68	0.14	
	38	68	70	0.03	
	39	70	72	0.03	
	40	72	74	0.02	
	41	74	76	0.02	
	42	76	78	0.02	
	43	78	80 A	0.02	

44	78	80 B	0.03	
45	80	82	0.04	8.09
46	82	84	0.1	
47	84	86	0.03	
48	86	88	0.05	
49	88	90	0.03	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0	0.50	0.75	0.73	N/A

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2242	1	0	2	N/S	
	2	2	4	N/S	
	3	4	6	N/S	
	4	6	8	N/S	
	5	8	10	N/S	
	6	10	12	N/S	
	7	12	14	0.63	
	8	14	16	0.54	
	9	16	18	0.21	
	10	18	20 A	0.05	
	11	18	20 B	0.04	
	12	20	22	0.02	6.85
	13	22	24	0.05	
	14	24	26	0.06	
	15	26	28	0.12	
	16	28	30	0.05	
	17	30	32	0.67	
	18	32	34	0.13	
	19	34	36	0.54	
	20	36	38	0.76	
	21	38	40 A	0.77	
	22	38	40 B	0.85	
	23	40	42	0.15	7.56
	24	42	44	0.08	
	25	44	46	0.04	
	26	46	48	0.04	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	<0.02	
	30	54	56	<.02	
	31	56	58	<.02	
	32	58	60 A	0.03	
	33	58	60 B	0.02	
	34	60	62	0.02	7.78
	35	62	64	0.02	
	36	64	66	0.03	
	37	66	68	0.02	
	38	68	70	0.02	
	39	70	72	<0.02	
	40	72	74	0.02	
	41	74	76	0.02	
	42	76	78	0.05	
	43	78	80 A	0.05	

	44	78	80 B	0.02	
	45	80	82	0.04	8.18
	46	82	84	0.02	
	47	84	86	0.06	
	48	86	88	0.06	
	49	88	90	0.04	
		BLANK	**COMP**	**FIRST**	**LAST**	**BLIND DUPLICATE**
QC/QA		0	0.89	0.05	0.04	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2243	1	0	2	0.07	7.42
	2	2	4	0.04	
	3	4	6	0.04	
	4	6	8	0.04	
	5	8	10	0.03	
	6	10	12	0.04	
	7	12	14	0.03	
	8	14	16	0.16	
	9	16	18	0.08	
	10	18	20 A	1.36	
	11	18	20 B	1.28	
	12	20	22	0.84	8.09
	13	22	24	0.92	
	14	24	26	1.24	
	15	26	28	5.52	
	16	28	30	0.20	
	17	30	32	0.08	
	18	32	34	0.03	
	19	34	36	0.04	
	20	36	38	0.06	
	21	38	40 A	0.18	
	22	38	40 B	0.09	
	23	40	42	0.05	7.39
	24	42	44	0.07	
	25	44	46	0.05	
	26	46	48	0.03	
	27	48	50	0.05	
	28	50	52	0.05	
	29	52	54	0.04	
	30	54	56	0.03	
	31	56	58	0.04	
	32	58	60 A	<.02	
	33	58	60 B	0.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.56	0.03	0.04	0.02

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Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2244	1	0	2	0.35	7.63
	2	2	4	0.20	
	3	4	6	0.09	
	4	6	8	0.11	
	5	8	10	0.08	
	6	10	12	0.03	
	7	12	14	0.03	
	8	14	16	<.02	
	9	16	18	0.02	
	10	18	20 A	0.05	
	11	18	20 B	0.04	
	12	20	22	0.03	8.06
	13	22	24	0.04	
	14	24	26	0.03	
	15	26	28	0.09	
	16	28	30	0.03	
	17	30	32	0.08	
	18	32	34	0.03	
	19	34	36	0.03	
	20	36	38	0.02	
	21	38	40 A	0.03	
	22	38	40 B	0.02	
	23	40	42	0.02	7.27
	24	42	44	0.07	
	25	44	46	0.03	
	26	46	48	0.08	
	27	48	50	0.02	
	28	50	52	0.05	
	29	52	54	0.06	
	30	54	56	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.49	0.04	0.04	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2245	1	0	2	0.32	
	2	2	4	0.04	
	3	4	6	0.10	
	4	6	8	0.04	
	5	8	10	0.02	
	6	10	12	0.03	
	7	12	14	<0.02	
	8	14	16	0.03	
	9	16	18	<0.02	
	10	18	20 A	0.02	
	11	18	20 B	0.03	
	12	20	22	0.02	
	13	22	24	0.03	
	14	24	26	0.04	
	15	26	28	0.06	
	16	28	30	0.05	
	17	30	32	0.02	
	18	32	34	0.15	
	19	34	36	16.54	
	20	36	38	24.11	
	21	38	40 A	19.52	
	22	38	40 B	19.22	
	23	40	42	14.45	
	24	42	44	8.85	
	25	44	46	8.41	
	26	46	48	1.31	
	27	48	50	0.38	
	28	50	52	0.58	
	29	52	54	0.12	
	30	54	56	0.07	
	31	56	58	0.53	
	32	58	60 A	0.19	
	33	58	60 B	0.19	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.58	14.45	15.04	16.30

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Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2246	1	0	2	0.38	
	2	2	4	0.22	
	3	4	6	0.30	
	4	6	8	0.26	
	5	8	10	0.20	
	6	10	12	0.07	
	7	12	14	0.14	
	8	14	16	0.33	
	9	16	18	0.27	
	10	18	20 A	0.23	
	11	18	20 B	0.25	
	12	20	22	0.31	
	13	22	24	0.27	
	14	24	26	0.14	
	15	26	28	0.07	
	16	28	30	0.47	
	17	30	32	0.76	
	18	32	34	0.21	
	19	34	36	0.67	
	20	36	38	0.30	
	21	38	40 A	0.08	
	22	38	40 B	0.07	
	23	40	42	0.55	
	24	42	44	0.24	
	25	44	46	0.94	
	26	46	48	0.39	
	27	48	50	1.61	
	28	50	52	2.82	
	29	52	54	1.23	
	30	54	56	1.00	
	31	56	58	0.70	
	32	58	60 A	0.27	
	33	58	60 B	0.30	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.50	0.38	0.31	0.30

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Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2247	1	0	2	0.33	
	2	2	4	0.09	
	3	4	6	0.03	
	4	6	8	0.02	
	5	8	10	0.03	
	6	10	12	0.05	
	7	12	14	0.03	
	8	14	16	0.10	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	0.03	
	12	20	22	0.02	
	13	22	24	<0.02	
	14	24	26	<0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40 A	0.02	
	22	38	40 B	0.03	
	23	40	42	0.02	
	24	42	44	0.02	
	25	44	46	<0.02	
	26	46	48	<0.02	
	27	48	50	0.03	
	28	50	52	3.54	
	29	52	54	2.02	
	30	54	56	0.05	
	31	56	58	0.03	
	32	58	60 A	0.02	
	33	58	60 B	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.50	0.02	0.03	0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2248	1	0	2	0.05	
	2	2	4	0.03	
	3	4	6	0.11	
	4	6	8	0.03	
	5	8	10	0.02	
	6	10	12	0.02	
	7	12	14	0.02	
	8	14	16	0.02	
	9	16	18	0.02	
	10	18	20 A	0.02	
	11	18	20 B	<0.02	
	12	20	22	0.03	
	13	22	24	0.03	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	0.02	
	19	34	36	0.03	
	20	36	38	0.03	
	21	38	40 A	0.03	
	22	38	40 B	0.04	
	23	40	42	0.03	
	24	42	44	0.06	
	25	44	46	0.04	
	26	46	48	0.06	
	27	48	50	0.03	
	28	50	52	0.02	
	29	52	54	0.03	
	30	54	56	<0.02	
	31	56	58	0.02	
	32	58	60 A	0.04	
	33	58	60 B	0.07	
	34	60	62	0.05	
	35	62	64	0.03	
	36	64	66	0.07	
	37	66	68	0.04	
	38	68	70	0.02	
	39	70	72	0.02	
	40	72	74	<0.02	
	41	74	76	0.03	
	42	76	78	0.02	
	43	78	80 A	0.02	
	44	78	80 B	0.02	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.03	0.50	0.02	0.02	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2249	1	0	2	0.06	
	2	2	4	0.03	
	3	4	6	0.03	
	4	6	8	0.05	
	5	8	10	0.05	
	6	10	12	0.03	
	7	12	14	0.04	
	8	14	16	0.05	
	9	16	18	0.03	
	10	18	20 A	0.03	
	11	18	20 B	<.02	
	12	20	22	0.04	
	13	22	24	0.04	
	14	24	26	0.02	
	15	26	28	0.02	
	16	28	30	<0.02	
	17	30	32	0.03	
	18	32	34	<0.02	
	19	34	36	0.08	
	20	36	38	0.05	
	21	38	40 A	0.05	
	22	38	40 B	0.02	
	23	40	42	0.03	
	24	42	44	0.03	
	25	44	46	0.05	
	26	46	48	0.02	
	27	48	50	0.05	
	28	50	52	0.08	
	29	52	54	0.04	
	30	54	56	0.03	
	31	56	58	0.06	
	32	58	60 A	0.04	
	33	58	60 B	0.05	
	34	60	62		
	35	62	64		
	36	64	66		
	37	66	68		
	38	68	70		
	39	70	72		
	40	72	74		
	41	74	76		
	42	76	78		
	43	78	80 A		
	44	78	80 B		EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.02	0.44			0.02

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report*

HOLE		TO	FROM	AU	pH
RC98 2250	1	0	2	0.08	
	2	2	4	0.03	
	3	4	6	0.08	
	4	6	8	0.02	
	5	8	10	0.04	
	6	10	12	0.07	
	7	12	14	0.05	
	8	14	16	0.02	
	9	16	18	0.02	
	10	18	20 A	0.03	
	11	18	20 B	<0.02	
	12	20	22	<0.02	
	13	22	24	<0.02	
	14	24	26	0.02	
	15	26	28	0.06	
	16	28	30	0.03	
	17	30	32	0.02	
	18	32	34	0.03	
	19	34	36	<0.02	
	20	36	38	0.03	
	21	38	40 A	<0.02	
	22	38	40 B	0.02	
	23	40	42	0.06	
	24	42	44	0.02	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.04	
	28	50	52	0.02	
	29	52	54	0.04	
	30	54	56	0.04	
	31	56	58	0.04	
	32	58	60 A	0.04	
	33	58	60 B	0.03	
	34	60	62	0.03	
	35	62	64	0.02	
	36	64	66	0.08	
	37	66	68	0.03	
	38	68	70	0.03	
	39	70	72	0.04	
	40	72	74	0.05	

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.00	0.53	0.05	0.04	0.08

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report

HOLE		TO	FROM	AU	pH
RC98 2251	1	0	2	1.34	
	2	2	4	0.04	
	3	4	6	0.03	
	4	6	8	0.10	
	5	8	10	0.03	
	6	10	12	7.49	
	7	12	14	11.19	
	8	14	16	1.70	
	9	16	18	0.99	
	10	18	20 A	1.99	
	11	18	20 B	1.91	
	12	20	22	1.22	
	13	22	24	2.72	
	14	24	26	0.13	
	15	26	28	0.08	
	16	28	30	0.06	
	17	30	32	0.05	
	18	32	34	0.26	
	19	34	36	0.04	
	20	36	38	0.13	
	21	38	40 A	0.03	
	22	38	40 B	<0.02	
	23	40	42	0.62	
	24	42	44	0.11	
	25	44	46	0.03	
	26	46	48	0.14	
	27	48	50	0.54	EOH

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.00	0.93	0.06	0.05	No sample

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report 22-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2252	1	0	2	0.60	
	2	2	4	4.59	
	3	4	6	0.54	
	4	6	8	0.21	
	5	8	10	0.05	
	6	10	12	0.05	
	7	12	14	0.03	
	8	14	16	0.07	
	9	16	18	0.06	
	10	18	20 A	0.97	
	11	18	20 B	1.02	
	12	20	22	13.94	
	13	22	24	0.94	
	14	24	26	1.09	
	15	26	28	1.04	
	16	28	30	0.38	
	17	30	32	0.33	
	18	32	34	0.35	
	19	34	36	0.07	
	20	36	38	0.24	
	21	38	40 A	0.31	
	22	38	40 B	0.32	
	23	40	42	0.04	
	24	42	44	0.04	
	25	44	46	0.03	
	26	46	48	0.26	
	27	48	50	0.03	
	28	50	52	1.78	
	29	52	54	0.10	EOH

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.02	0.9			0.26

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report 22-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2253	1	0	2	0.78	
	2	2	4	0.60	
	3	4	6	0.10	
	4	6	8	0.10	
	5	8	10	0.12	
	6	10	12	0.10	
	7	12	14	0.03	
	8	14	16	0.03	
	9	16	18	<0.02	
	10	18	20 A	0.03	
	11	18	20 B	<0.02	
	12	20	22	<0.02	
	13	22	24	0.04	
	14	24	26	0.02	
	15	26	28	0.17	
	16	28	30	0.06	
	17	30	32	<0.02	
	18	32	34	<0.02	
	19	34	36	<0.02	
	20	36	38	<0.02	
	21	38	40 A	<0.02	
	22	38	40 B	<0.02	
	23	40	42	0.02	
	24	42	44	<0.02	
	25	44	46	<0.02	
	26	46	48	0.02	
	27	48	50	0.03	EOH

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.00	0.91	0.6	0.6	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Infill Assay Report 22-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2254	1	0	2		No Sample
	2	2	4		No Sample
	3	4	6		No Sample
	4	6	8		No Sample
	5	8	10	0.09	
	6	10	12	0.04	
	7	12	14	0.06	
	8	14	16	0.04	
	9	16	18	0.04	
	10	18	20 A	<0.02	
	11	18	20 B	0.03	
	12	20	22	<0.02	
	13	22	24	<0.02	
	14	24	26	<0.02	
	15	26	28	0.02	
	16	28	30	0.02	
	17	30	32	0.02	
	18	32	34	0.02	
	19	34	36	0.03	
	20	36	38	0.02	
	21	38	40 A	0.05	
	22	38	40 B	0.03	
	23	40	42	0.03	
	24	42	44	0.04	
	25	44	46	0.02	
	26	46	48	0.02	
	27	48	50	0.02	EOH

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.00	0.51	0.02	0.02	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report* 24-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2255	1	0	2	No Sample	
	2	2	4	No Sample	
	3	4	6	No Sample	
	4	6	8	No Sample	
	5	8	10	0.22	
	6	10	12	0.13	
	7	12	14	0.11	
	8	14	16	0.22	
	9	16	18	0.22	
	10	18	20 A	0.19	
	11	18	20 B	0.20	
	12	20	22	0.04	
	13	22	24	0.02	
	14	24	26	0.03	
	15	26	28	0.03	
	16	28	30	0.02	
	17	30	32	0.04	
	18	32	34	0.03	
	19	34	36	0.04	
	20	36	38	0.04	
	21	38	40 A		
	22	38	40 B		
	23	40	42	0.05	
	24	42	44		
	25	44	46		
	26	46	48	0.02	
	27	48	50		

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.00	0.51	0.02	0.02	0.03

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report* 24-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2256	1	0	2	0.06	
	2	2	4	0.04	
	3	4	6	0.05	
	4	6	8	0.02	
	5	8	10	<.02	
	6	10	12	0.02	
	7	12	14	<.02	
	8	14	16	0.02	
	9	16	18	<.02	
	10	18	20 A	0.02	
	11	18	20 B	0.02	
	12	20	22	<.02	
	13	22	24	0.03	
	14	24	26	0.05	
	15	26	28	0.10	
	16	28	30	0.02	
	17	30	32	0.03	EOH

QC/QA

BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
0.01	0.96	0.06	0.04	

Viceroy Minerals Corporation

Brewery Creek Mine

Exploration *Assay Report* 24-Nov-98

HOLE		TO	FROM	AU	pH
RC98 2257	1	0	2	0.18	
	2	2	4	0.26	
	3	4	6	0.16	
	4	6	8	0.16	
	5	8	10	0.28	
	6	10	12	0.09	
	7	12	14	0.06	
	8	14	16	0.04	
	9	16	18	0.02	
	10	18	20 A	0.05	
	11	18	20 B	0.04	EOH

QC/QA	BLANK	COMP	FIRST	LAST	BLIND DUPLICATE
	0.01	0.96	0.06	0.04	

2191-2201 & 2205

093962

Hole ID	Northing	Easting	Elevation	Length	Path	Zone	Year Drilled	Purpose	Drilled By	Drill Date	Hole Type	Logged By	Log Date	Depth
RC98-2039	19567.9	22176.0	872.4	66.0	LINEAR	GOLDEN	1998	EXPLORATION	Midnight S	13-May-98	RC	V. Park	13-May-98	0
RC98-2040	19589.2	22074.1	898.0	50.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	13-May-98	RC	J. Hanson	15-May-98	0
RC98-2041	19538.4	21874.0	921.5	76.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	14-May-98	RC	J. Hanson	15-May-98	0
RC98-2042	19467.8	21849.2	931.0	84.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	14-May-98	RC	J. Hanson	15-May-98	0
RC98-2043	19503.6	21774.5	937.8	80.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	14-May-98	RC	J. Hanson	19-May-98	0
RC98-2044	19546.6	21774.1	926.5	70.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	14-May-98	RC	J. Hanson	19-May-98	0
RC98-2045	19598.6	21549.3	950.6	56.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	14-May-98	RC	J. Hanson	19-May-98	0
RC98-2046	19986.1	20550.0	947.2	60.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	15-May-98	RC	J. Hanson	20-May-98	0
RC98-2047	19881.3	20578.7	957.3	60.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	15-May-98	RC	J. Hanson	20-May-98	0
RC98-2048	19852.8	20645.1	975.7	86.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	15-May-98	RC	J. Hanson	21-May-98	0
RC98-2049	19883.1	21042.8	1036.0	54.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	16-May-98	RC	J. Hanson	21-May-98	0
RC98-2050	19868.2	21095.2	1033.8	50.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	16-May-98	RC	J. Hanson	21-May-98	0
RC98-2051	19891.0	20617.5	972.1	64.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	17-May-98	RC	J. Hanson	21-May-98	0
RC98-2052	19815.8	21200.2	1024.5	56.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	17-May-98	RC	J. Hanson	21-May-98	0
RC98-2053	19757.6	21250.1	1011.3	50.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	17-May-98	RC	J. Hanson	22-May-98	0
RC98-2054	19710.2	21326.3	992.5	50.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	18-May-98	RC	J. Hanson	22-May-98	0
RC98-2055	19740.6	20900.6	959.9	80.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	18-May-98	RC	A. Samuels	24-May-98	0
RC98-2056	19738.8	21025.0	966.0	70.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	18-May-98	RC	J. Hanson	25-May-98	0
RC98-2057	19693.7	21725.0	943.1	56.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	19-May-98	RC	J. Hanson	25-May-98	0
RC98-2058	19755.4	21724.9	970.0	56.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	19-May-98	RC	J. Hanson	25-May-98	0
RC98-2059	19668.2	21800.7	927.1	50.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	19-May-98	RC	J. Hanson	25-May-98	0
RC98-2060	19675.0	21872.3	918.8	30.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	20-May-98	RC	A. Samuels	26-May-98	0
RC98-2061	19797.9	21975.0	929.4	60.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	20-May-98	RC	J. Hanson	26-May-98	0
RC98-2062	19910.6	22049.6	961.1	60.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	20-May-98	RC	J. Hanson	26-May-98	0
RC98-2063	19883.0	22200.3	917.3	30.0	LINEAR	GOLDEN	1998	EXPLORATION	Midnight S	20-May-98	RC	V.Park	23-May-98	0
RC98-2064	19722.9	21715.3	956.2	60.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	21-May-98	RC	J. Hanson	26-May-98	0
RC98-2065	19688.8	20851.0	947.9	80.0	LINEAR	GOLDEN	1998	INFILL	Midnight S	21-May-98	RC	J. Hanson	27-May-98	0
RC98-2066	20601.7	18641.0	879.4	26.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	21-May-98	RC	V. Park	24-May-98	0
RC98-2067	20637.1	18740.6	887.1	46.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	21-May-98	RC	V. Park	24-May-98	0
RC98-2068	20683.9	18724.9	906.3	30.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	21-May-98	RC	V. Park	24-May-98	0
RC98-2069	20862.9	18798.1	960.2	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	22-May-98	RC	J. Hanson	27-May-98	0
RC98-2070	20830.9	18817.0	953.7	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	23-May-98	RC	C. Germain	02-Jun-98	0
RC98-2071	20811.3	18903.4	950.6	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	23-May-98	RC	C. Germain	03-Jun-98	0
RC98-2072	20715.2	18816.9	919.1	56.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	23-May-98	RC	V. Park	25-May-98	0
RC98-2073	20730.9	18864.5	927.5	56.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	24-May-98	RC	C. Germain	02-Jun-98	0
RC98-2074	20776.7	18874.0	941.3	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	24-May-98	RC	J. Hanson	01-Jun-98	0
RC98-2075	20743.8	18912.1	933.6	110.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	24-May-98	RC	V. Park	31-May-98	0
RC98-2076	20831.3	18864.5	952.4	74.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	24-May-98	RC	J. Hanson	02-Jun-98	0
RC98-2077	20826.1	18758.1	948.1	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	25-May-98	RC	J. Hanson	02-Jun-98	0
RC98-2078	20700.3	18823.7	914.4	54.5	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	25-May-98	RC	V. Park	31-May-98	0
RC98-2079	20575.0	18655.5	867.3	46.0	LINEAR	MOOSEHEAD	1998	EXPLORATION	Midnight S	25-May-98	RC	V. Park	08-Jun-98	0
RC98-2080	20843.3	18887.1	957.1	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	26-May-98	RC	J. Hanson	03-Jun-98	0
RC98-2081	20852.6	18905.6	959.9	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	26-May-98	RC	J. Hanson	03-Jun-98	0
RC98-2082	20822.0	18921.0	953.3	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	26-May-98	RC	C. Germain	05-Jun-98	0
RC98-2083	20872.8	18872.6	962.4	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	27-May-98	RC	J. Hanson	03-Jun-98	0

Hole ID	Northing	Easting	Elevation	Length	Path	Zone	Year Drilled	Purpose	Drilled By	Drill Date	Hole Type	Logged By	Log Date	Depth
RC98-2084	20849.6	18952.9	960.9	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	27-May-98	RC	J. Hanson	04-Jun-98	0
RC98-2085	20912.1	18920.3	969.6	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	27-May-98	RC	J. Hanson	04-Jun-98	0
RC98-2086	20881.3	18937.2	966.4	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	27-May-98	RC	J. Hanson	05-Jun-98	0
RC98-2087	20941.1	18954.1	972.0	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-May-98	RC	C. Germair	05-Jun-98	0
RC98-2088	20930.5	18980.2	970.9	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-May-98	RC	J. Hanson	05-Jun-98	0
RC98-2089	20916.6	18968.0	970.5	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-May-98	RC	J. Hanson	05-Jun-98	0
RC98-2090	20913.2	19010.2	968.6	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-May-98	RC	C. Germair	05-Jun-98	0
RC98-2091	20885.6	18981.0	966.7	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-May-98	RC	J. Hanson	05-Jun-98	0
RC98-2092	20886.5	19024.4	965.9	66.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-May-98	RC	J. Hanson	08-Jun-98	0
RC98-2093	20853.3	18996.6	962.3	80.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-May-98	RC	J. Hanson	09-Jun-98	0
RC98-2094	20823.1	19012.3	955.4	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	09-Jun-98	0
RC98-2095	20818.5	19057.6	954.1	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	09-Jun-98	0
RC98-2096	20882.7	19100.2	961.1	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	09-Jun-98	0
RC98-2097	20918.8	19070.9	963.8	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	09-Jun-98	0
RC98-2098	20952.1	19086.8	963.4	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	10-Jun-98	0
RC98-2099	20942.0	19026.2	968.8	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-May-98	RC	J. Hanson	10-Jun-98	0
RC98-2100	20920.8	19104.8	960.7	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-May-98	RC	J. Hanson	10-Jun-98	0
RC98-2101	20945.8	19139.4	955.7	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-May-98	RC	J. Hanson	10-Jun-98	0
RC98-2102	20913.5	19154.3	953.4	66.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-May-98	RC	J. Hanson	10-Jun-98	0
RC98-2103	20939.6	19265.5	934.3	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	01-Jun-98	RC	J. Hanson	11-Jun-98	0
RC98-2104	20990.4	19211.5	937.0	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-May-98	RC	J. Hanson	11-Jun-98	0
RC98-2105	20955.0	19231.6	940.4	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	01-Jun-98	RC	J. Hanson	12-Jun-98	0
RC98-2106	20933.3	19288.0	936.8	68.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	01-Jun-98	RC	J. Hanson	-1	0
RC98-2107	20963.6	19272.6	934.1	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	01-Jun-98	RC	J. Hanson	-1	0
RC98-2108	20899.5	19304.5	940.9	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	02-Jun-98	RC	J. Hanson	-1	0
RC98-2109	20905.1	19320.1	940.1	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	02-Jun-98	RC	J. Hanson	-1	0
RC98-2110	20917.3	19338.3	942.5	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	02-Jun-98	RC	J. Hanson	-1	0
RC98-2111	20947.3	19323.2	936.0	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	02-Jun-98	RC	J. Hanson	-1	0
RC98-2112	21005.0	19335.1	930.4	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	03-Jun-98	RC	J. Hanson	-1	0
RC98-2113	20973.5	19353.7	936.5	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	03-Jun-98	RC	J. Hanson	-1	0
RC98-2114	20908.6	19420.2	957.3	70.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	03-Jun-98	RC	J. Hanson	-1	0
RC98-2115	20935.9	19373.8	949.3	56.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	03-Jun-98	RC	J. Hanson	-1	0
RC98-2116	20880.7	19474.2	957.9	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	04-Jun-98	RC	J. Hanson	-1	0
RC98-2117	20887.6	19524.3	959.3	50.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	04-Jun-98	RC	J. Hanson	-1	0
RC98-2118	21189.2	17217.0	802.6	56.0	LINEAR	E BIG ROCK	1998	EXPLORATION	Midnight S	04-Jun-98	RC	V. Park	18-Jun-98	0
RC98-2119	21164.5	17222.7	802.7	76.0	LINEAR	E BIG ROCK	1998	EXPLORATION	Midnight S	04-Jun-98	RC	A. Samuel	25-Oct-98	0
RC98-2120	21730.6	16557.9	695.6	60.0	LINEAR	E BIG ROCK	1998	EXPLORATION	Midnight S	05-Jun-98	RC	A. Samuel	25-Oct-98	0
RC98-2121	21703.4	16557.3	697.5	42.0	LINEAR	E BIG ROCK	1998	EXPLORATION	Midnight S	05-Jun-98	RC	A. Samuel	26-Oct-98	0
RC98-2122	20683.0	17518.4	825.1	80.0	LINEAR	PACIFIC	1998	EXPLORATION	Midnight S	06-Jun-98	RC	V. Park	20-Jun-98	0
RC98-2123	20725.0	17570.6	827.8	60.0	LINEAR	PACIFIC	1998	EXPLORATION	Midnight S	06-Jun-98	RC	V. Park	23-Jun-98	0
RC98-2124	20305.7	18050.0	841.0	64.0	LINEAR	PACIFIC	1998	EXPLORATION	Midnight S	06-Jun-98	RC	V. Park	20-Jun-98	0
RC98-2125	19677.6	23002.0	798.5	100.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	06-Jun-98	RC	V. Park	20-Jun-98	0
RC98-2126	19677.6	23002.0	798.5	52.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	07-Jun-98	RC	V. Park	22-Jun-98	0
RC98-2127	19713.9	23048.2	801.1	40.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	07-Jun-98	RC	V. Park	22-Jun-98	0
RC98-2128	19700.0	23100.1	794.5	43.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	07-Jun-98	RC	V. Park	22-Jun-98	0
RC98-2129	19687.2	23054.4	791.6	40.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	08-Jun-98	RC	V. Park	22-Jun-98	0

Hole ID	Northing	Easting	Elevation	Length	Path	Zone	Year Drilled	Purpose	Drilled By	Drill Date	Hole Type	Logged By	Log Date	Depth
RC98-2130	19674.2	23099.8	782.4	30.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	08-Jun-98	RC	V. Park	22-Jun-98	0
RC98-2131	19776.3	23021.1	815.8	140.0	LINEAR	LUCKY	1998	EXPLORATION	Midnight S	08-Jun-98	RC	V. Park	20-Jun-98	0
RC98-2132	19638.6	22902.9	830.5	54.0	LINEAR	LUCKY	1998	INFILL	Midnight S	08-Jun-98	RC	J. Hanson	-1	0
RC98-2133	19623.0	22843.0	838.8	50.0	LINEAR	LUCKY	1998	INFILL	Midnight S	9-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2134	19641.9	22724.4	821.3	80.0	LINEAR	LUCKY	1998	INFILL	Midnight S	10-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2135	19640.6	22769.5	825.3	110.0	LINEAR	LUCKY	1998	INFILL	Midnight S	10-Jun-98	RC	C. Germair	23-Jul-98	0
RC98-2136	19613.6	22792.5	820.9	70.0	LINEAR	LUCKY	1998	INFILL	Midnight S	11-Jun-98	RC	J. Hanson		0
RC98-2137	19653.5	22790.0	830.5	66.0	LINEAR	LUCKY	1998	INFILL	Midnight S	11-Jun-98	RC	C. Germair	23-Jul-98	0
RC98-2138	19686.8	22842.7	845.8	60.0	LINEAR	LUCKY	1998	INFILL	Midnight S	11-Jun-98	RC	J. Hanson	-1	0
RC98-2139	19651.8	22842.7	845.0	60.0	LINEAR	LUCKY	1998	INFILL	Midnight S	11-Jun-98	RC	J. Hanson	-1	0
RC98-2140	19696.0	22793.6	844.8	70.0	LINEAR	LUCKY	1998	INFILL	Midnight S	12-Jun-98	RC	C. Germair	23-Jul-98	0
RC98-2141	19722.7	22843.4	849.8	56.0	LINEAR	LUCKY	1998	INFILL	Midnight S	12-Jun-98	RC	J. Hanson	-1	0
RC98-2142	19446.6	23049.9	774.6	36.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	12-Jun-98	RC	V. Park	26-Jun-98	0
RC98-2143	19367.6	23099.3	806.7	64.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	12-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2144	19401.6	23099.8	804.1	36.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	12-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2145	19352.5	23318.3	829.0	70.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	12-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2146	19352.5	23318.3	829.0	74.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	13-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2147	19373.7	23369.5	835.2	50.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	13-Jun-98	RC	V. Park	26-Jun-98	0
RC98-2148	19335.5	23370.4	848.0	70.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	13-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2149	19383.6	23468.6	837.4	46.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	13-Jun-98	RC	V. Park	-1	0
RC98-2150	19344.0	23468.6	845.4	68.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	14-Jun-98	RC	V. Park	26-Jun-98	0
RC98-2151	19315.2	23470.2	846.6	80.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	14-Jun-98	RC	V. Park	26-Jun-98	0
RC98-2152	19390.2	23320.0	816.1	40.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	14-Jun-98	RC	V. Park	26-Jun-98	0
RC98-2153	19408.8	23050.9	786.4	50.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	14-Jun-98	RC	V. Park	27-Jun-98	0
RC98-2154	19743.2	19921.3	795.6	60.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	15-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2155	19876.6	19850.0	815.6	50.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	15-Jun-98	RC	J. Hanson	-1	0
RC98-2156	19701.9	20173.9	819.1	34.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	15-Jun-98	RC	J. Hanson	-1	0
RC98-2157	19725.9	20174.9	825.1	34.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	15-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2158	19752.3	20174.4	837.3	34.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	16-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2159	19777.5	20174.6	847.6	33.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	16-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2160	19808.0	20120.7	849.9	40.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	16-Jun-98	RC	J. Hanson	-1	0
RC98-2161	19925.3	20644.7	984.6	60.0	LINEAR	KOKANEE	1998	INFILL	Midnight S	16-Jun-98	RC	J. Hanson	-1	0
RC98-2162	19810.8	19849.7	799.1	30.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	17-Jun-98	RC	C. Germair	22-Jul-98	0
RC98-2163	19826.1	19850.0	799.6	50.0	LINEAR	FOSTERS	1998	INFILL	Midnight S	17-Jun-98	RC	J. Hanson	-1	0
RC98-2164	20024.0	18548.6	742.7	60.0	LINEAR	BLUE	1998	EXPLORATION	Midnight S	18-Jun-98	RC	C. Germair	-1	0
RC98-2165	19976.6	18551.2	729.8	60.0	LINEAR	BLUE	1998	EXPLORATION	Midnight S	18-Jun-98	RC	C. Germair	-1	0
RC98-2166	20849.6	18746.9	954.4	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-Jul-98	RC	-1	-1	0
RC98-2167	20863.1	18769.0	959.2	30.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-Jul-98	RC	-1	-1	0
RC98-2168	20838.7	18780.4	953.1	46.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-Jul-98	RC	-1	-1	0
RC98-2169	20844.6	18803.2	954.9	30.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	28-Jul-98	RC	-1	-1	0
RC98-2170	20850.3	18853.5	957.6	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2171	20840.8	18912.0	958.1	44.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2172	20875.1	18893.7	964.1	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2173	20899.5	18928.1	968.9	46.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2174	20866.3	19034.4	962.5	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2175	20941.2	18994.9	971.5	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0

Hole ID	Northing	Easting	Elevation	Length	Path	Zone	Year Drilled	Purpose	Drilled By	Drill Date	Hole Type	Logged By	Log Date	Depth
RC98-2176	20902.5	19113.5	960.5	52.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2177	20947.2	19063.5	963.8	30.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	29-Jul-98	RC	-1	-1	0
RC98-2178	20926.7	19149.5	952.2	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-Jul-98	RC	-1	-1	0
RC98-2179	20957.8	19131.1	954.7	30.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-Jul-98	RC	-1	-1	0
RC98-2180	20899.5	19092.2	961.6	60.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	30-Jul-98	RC	-1	-1	0
RC98-2181	20920.1	19313.0	939.3	38.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-Jul-98	RC	-1	-1	0
RC98-2182	20984.6	19261.9	927.8	34.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-Jul-98	RC	-1	-1	0
RC98-2183	20947.0	19346.2	937.2	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-Jul-98	RC	-1	-1	0
RC98-2184	20953.9	19379.4	943.1	40.0	LINEAR	MOOSEHEAD	1998	INFILL	Midnight S	31-Jul-98	RC	-1	-1	0
RC98-2185	19293.6	23370.3	860.2	106.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	-1	RC	V. Park	-1	0
RC98-2186	19269.8	23420.3	868.9	140.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	-1	RC	V. Park	-1	0
RC98-2187	19971.7	22484.7	854.7	148.0	LINEAR	LG GAP	1998	EXPLORATION	Midnight S	-1	RC	C. Germair	-1	0
RC98-2188	20761.6	17617.0	835.0	50.0	LINEAR	PACIFIC	1998	EXPLORATION	Midnight S	-1	RC	A. Samuels	28-Oct-98	0
RC98-2189	20781.2	17636.7	835.1	50.0	LINEAR	PACIFIC	1998	EXPLORATION	Midnight S	-1	RC	C. Germair	-1	0
RC98-2190	19952.5	22458.8	839.0	132.0	LINEAR	LG GAP	1998	EXPLORATION	Midnight S	-1	RC	C. Germair	-1	0
RC98-2191	19337.8	23372.5	847.5	104.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	18-Sep-98	RC	V. Park	22-Sep-98	0
RC98-2192	19317.8	23369.7	847.9	86.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	20-Sep-98	RC	V. Park	22-Sep-98	0
RC98-2193	19311.1	23346.1	847.2	130.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	20-Sep-98	RC	V. Park	23-Sep-98	0
RC98-2194	19322.9	23422.4	853.8	92.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	20-Sep-98	RC	V. Park	24-Sep-98	0
RC98-2195	19294.8	23370.9	861.5	84.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	21-Sep-98	RC	V. Park	24-Sep-98	0
RC98-2196	19269.4	23371.1	866.7	107.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	22-Sep-98	RC	V. Park	27-Sep-98	0
RC98-2197	19252.6	23419.7	869.4	124.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	22-Sep-98	RC	V. Park	28-Sep-98	0
RC98-2198	19166.2	23662.7	831.5	110.0	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	23-Sep-98	RC	V. Park	28-Sep-98	0
RC98-2199	19166.3	23661.0	831.5	90.0	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	23-Sep-98	RC	V. Park	1-Oct-98	0
RC98-2200	19145.4	23665.3	836.9	110.0	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	24-Sep-98	RC	V. Park	5-Oct-98	0
RC98-2201	19143.1	23725.3	849.9	100.0	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	24-Sep-98	RC	V. Park	6-Oct-98	0
RC98-2202	19178.8	23723.1	840.4	100.0	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	24-Sep-98	RC	V. Park	29-Sep-98	0
RC98-2203	19383.7	23520.2	815.5	40.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	25-Sep-98	RC	V. Park	28-Sep-98	0
RC98-2204	19325.0	23318.0	838.0	70.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	24-Oct-98	RC	V. Park	25-Oct-98	0
RC98-2205	19403.8	23226.6	813.1	78.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	24-Oct-98	RC	V. Park	25-Oct-98	0
RC98-2206	19423.2	23275.3	800.0	61.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	24-Oct-98	RC	V. Park	26-Oct-98	0
RC98-2207	19303.3	23519.6	837.6	70.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	25-Oct-98	RC	V. Park	26-Oct-98	0
RC98-2208	19346.7	23518.8	821.4	60.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	25-Oct-98	RC	A. Samuels	27-Oct-98	0
RC98-2209	19424.7	23398.6	823.5	80.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	26-Oct-98	RC	V. Park	27-Oct-98	0
RC98-2210	19453.8	23254.0	790.1	70.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	26-Oct-98	RC	V. Park	27-Oct-98	0
RC98-2211	19220.4	23357.5	878.8	108.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	26-Oct-98	RC	A. Samuels	29-Oct-98	0
RC98-2212	19219.4	23345.0	878.6	69.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	27-Oct-98	RC	V. Park	27-Oct-98	0
RC98-2213	19219.9	23311.1	871.2	100.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	27-Oct-98	RC	A. Samuels	30-Oct-98	0
RC98-2214	19271.0	23342.4	860.3	98.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	27-Oct-98	RC	A. Samuels	1-Nov-98	0
RC98-2215	19249.4	23466.8	863.8	90.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	28-Oct-98	RC	A. Samuels	31-Oct-98	0
RC98-2216	19250.6	23467.1	863.7	94.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	28-Oct-98	RC	A. Samuels	3-Nov-98	0
RC98-2217	19290.0	23470.1	856.1	104.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	29-Oct-98	RC	A. Samuels	4-Nov-98	0
RC98-2218	19315.2	23470.0	846.2	90.0	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	29-Oct-98	RC	V. Park	4-Nov-98	0
RC98-2219	19313.1	23501.6	838.4	66.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	30-Oct-98	RC	V. Park	4-Nov-98	0
RC98-2220	19358.9	23450.5	846.8	72.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	30-Oct-98	RC	A. Samuels	5-Nov-98	0
RC98-2221	19333.9	23400.2	851.4	80.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	30-Oct-98	RC	V. Park	5-Nov-98	0

Hole ID	Northing	Easting	Elevation	Length	Path	Zone	Year Drilled	Purpose	Drilled By	Drill Date	Hole Type	Logged By	Log Date	Depth
RC98-2222	19351.2	23400.2	847.7	70.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	30-Oct-98	RC	V. Park	5-Nov-98	0
RC98-2223	19394.7	23377.5	830.5	78.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	31-Oct-98	RC	V. Park	5-Nov-98	0
RC98-2224	19387.7	23305.0	813.9	56.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	31-Oct-98	RC	A. Samuels	5-Nov-98	0
RC98-2225	19336.5	23352.7	841.8	70.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	31-Oct-98	RC	A. Samuels	7-Nov-98	0
RC98-2226	19329.4	23302.0	832.8	62.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	31-Oct-98	RC	V. Park	6-Nov-98	0
RC98-2227	19357.8	23305.1	826.0	60.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	A. Samuels	15-Nov-98	0
RC98-2228	19332.8	23255.5	827.6	70.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	A. Samuels	8-Nov-98	0
RC98-2229	19334.4	23276.0	827.9	60.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	V. Park	14-Nov-98	0
RC98-2230	19368.0	23257.1	822.8	60.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	V. Park	15-Nov-98	0
RC98-2231	19403.8	23255.4	812.7	50.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	V. Park	13-Nov-98	0
RC98-2232	19349.5	23378.1	844.5	70.0	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	1-Nov-98	RC	V. Park	15-Nov-98	0
RC98-2233	19328.5	23450.1	855.0	68	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	2-Nov-98	RC	V. Park	13-Nov-98	0
RC98-2234	19295.3	23450.4	856.9	80	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	2-Nov-98	RC	V. Park	15-Nov-98	0
RC98-2235	19288.3	23400.6	865.0	60	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	3-Nov-98	RC	V. Park	13-Nov-98	0
RC98-2236	19290.7	23366.9	860.9	60	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	2-Nov-98	RC	A. Samuels	15-Nov-98	0
RC98-2237	19360.1	23198.9	824.6	90	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	4-Nov-98	RC	A. Samuels	9-Nov-98	0
RC98-2238	19379.9	23176.0	818.1	76	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	4-Nov-98	RC	A. Samuels	10-Nov-98	0
RC98-2239	19371.0	23400.2	847.1	60	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	4-Nov-98	RC	A. Samuels	11-Nov-98	0
RC98-2240	19373.7	23354.8	830.7	74	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	5-Nov-98	RC	A. Samuels	11-Nov-98	0
RC98-2241	19178.0	23682.5	832.4	90	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	5-Nov-98	RC	A. Samuels	13-Nov-98	0
RC98-2242	19188.4	23657.2	825.7	90	LINEAR	SCHOONER	1998	EXPLORATION	Midnight S	5-Nov-98	RC	A. Samuels	12-Nov-98	0
RC98-2243	19341.3	23499.0	834.0	60	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	7-Nov-98	RC	A. Samuels	13-Nov-98	0
RC98-2244	19394.8	23497.0	824.0	56	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	7-Nov-98	RC	A. Samuels	14-Nov-98	0
RC98-2245	19268.746	23348.886	860.081	60	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	14-Nov-98	RC	A. Samuels	17-Nov-98	0
RC98-2246	19352.211	23230.245	825.882	60	LINEAR	BOHEMIAN	1998	INFILL	Midnight S	15-Nov-98	RC	V. Park	17-Nov-98	0
RC98-2247	19256.863	23372.946	868.488	60	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	16-Nov-98	RC	V. Park	17-Nov-98	0
RC98-2248	19237.459	23424.353	873.053	80	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	16-Nov-98	RC	A. Samuels	17-Nov-98	0
RC98-2249	19204.015	23426.877	881.172	60	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	17-Nov-98	RC	A. Samuels	18-Nov-98	0
RC98-2250	19215.705	23472.141	865.532	74	LINEAR	BOHEMIAN	1998	EXPLORATION	Midnight S	17-Nov-98	RC	A. Samuels	19-Nov-98	0
RC98-2251	19668.792	22902.422	827.045	50	LINEAR	LUCKY	1998	INFILL	Midnight S	18-Nov-98	RC	A. Samuels	20-Nov-98	0
RC98-2252	19695.717	22902.376	827.235	54	LINEAR	LUCKY	1998	INFILL	Midnight S	18-Nov-98	RC	A. Samuels	20-Nov-98	0
RC98-2253	19772.844	22955.91	809.023	50	LINEAR	LUCKY	1998	INFILL	Midnight S	19-Nov-98	RC	A. Samuels	20-Nov-98	0
RC98-2254	19740.299	22959.637	805.844	50	LINEAR	LUCKY	1998	INFILL	Midnight S	19-Nov-98	RC	A. Samuels	20-Nov-98	0
RC98-2255	19600.953	22212.301	855.229	50	LINEAR	GOLDEN	1998	EXPLORATION	Midnight S	20-Nov-98	RC	V. Park	-1	0
RC98-2256	19580.91	22229.794	854.606	32	LINEAR	GOLDEN	1998	EXPLORATION	Midnight S	20-Nov-98	RC	V. Park	-1	0
RC98-2257	19607.054	22172.525	865.173	20	LINEAR	GOLDEN	1998	EXPLORATION	Midnight S	21-Nov-98	RC	V. Park	-1	0