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# ASSESSMENT REPORT

describing

## DIAMOND DRILLING

at the

## MOR PROPERTY

| | |
|---|---|
| MOR 1-4 | YB89771-YB89774 |
| 5-8 | YB91626-YB91629 |
| 9-12 | YB91820-YB91823 |
| 13-52 | YB92029-YB92068 |
| 53-106 | YC71599-YC71652 |
| 107-224 | YC72301-YC72418 |
| 225-290 | YC73523-YC73588 |

NTS 105C/01
Latitude 60º06'N; Longitude 132º05'W

in the

Watson Lake Mining District,
Yukon Territory

prepared by

Archer, Cathro & Associates (1981) Limited

for

**TARSIS CAPITAL CORP.**

by

W.A.Wengzynowski, P.Eng.

April 2009

## TABLE OF CONTENTS


| | Page |
|---|---|
| INTRODUCTION | 1 |
| PROPERTY LOCATION, CLAIM DATA AND ACCESS | 1 |
| HISTORY | 1 |
| GEOMORPHOLOGY | 2 |
| GEOLOGY | 3 |
| MINERALIZATION | 5 |
| SOIL GEOCHEMISTRY | 6 |
| GEOPHYSICAL SURVEYS | 7 |
| DIAMOND DRILLING AND PROSPECTING | 8 |
| DISCUSSION AND CONCLUSIONS | 10 |
| REFERENCES | 12 |


## APPENDICES


I STATEMENT OF QUALIFICATIONS

II CERTIFICATES OF ANALYSIS

III GEOPHYSICAL REPORTS BY GEOTECH LTD. AND CONDOR CONSULTING INC.

IV GEOLOGICAL AND GEOTECHNICAL LOGS

## FIGURES


| No. | Description | Follows Page |
|---|---|---|
| 1 | Property Location | 1 |
| 2 | Claim Location | 1 |
| 3 | Tectonic Setting | 3 |
| 4 | Regional Geology | 3 |
| 5 | Stratigraphic Column | 3 |
| 6 | Property Geology | 4 |
| 7 | 2008 Soil Sample Locations | in pocket |
| 8 | Copper Soil Geochemistry | in pocket |
| 9 | Lead Soil Geochemistry | in pocket |
| 10 | Zinc Soil Geochemistry | in pocket |
| 11 | Silver Soil Geochemistry | in pocket |
| 12 | Gold Soil Geochemistry | in pocket |
| 13 | 2008 Ground Geophysical Survey and DDH Locations | 8 |
| 14 | Drill Section 2500E | 9 |
| 15 | Drill Section 2600E | 9 |
| 16 | Drill Section 2800E | 9 |
| 17 | Drill Section 2900E | 9 |
| 18 | Drill Section 3000E | 9 |
| 19 | Drill Section 3100E | 9 |
| 20 | Drill Section MOR-08-05 | 10 |
| 21 | Drill Section MOR-08-012 | 10 |

## TABLES


| | | Page |
|---|---|---|
| I | Main Lithological Units | 4 |
| II | Drill Hole Data | 8 |
| III | Discovery Zone | 9 |
| IV | SD Zone | 10 |

## INTRODUCTION

The MOR property covers a volcanic hosted massive sulphide (VHMS) prospect located in southern Yukon. Tarsis Capital Corp. owns the property 100%.

This report describes the results of soil geochemical sampling across two main Versatile Time Domain Electro Magnetic (VTEM) anomalies, cursory ground gravity surveys, additional helicopter borne VTEM surveys and 1703 m of diamond drilling completed in eight holes beneath two targets. All work was conducted with daily helicopter support from a tent camp located on private land along the Morley River, 8 km south of the property. The program was completed between May 29 and July 22. Exploration was funded by Tarsis and managed by Archer, Cathro & Associates (1981) Limited. The author participated in and/or supervised the work program. The author's Statement of Qualifications appear in Appendix I.

## PROPERTY LOCATION, CLAIM DATA AND ACCESS

The MOR property consists of 290 contiguous mineral claims located in southern Yukon on NTS map sheets 105C/01 at latitude 60°06'N and longitude 132°05'W (Figure 1). The claims are registered with the Watson Lake Mining Recorder in the name of Tarsis Capital Corp. The locations of individual claims are shown on Figure 2 while claim registration data are listed below.

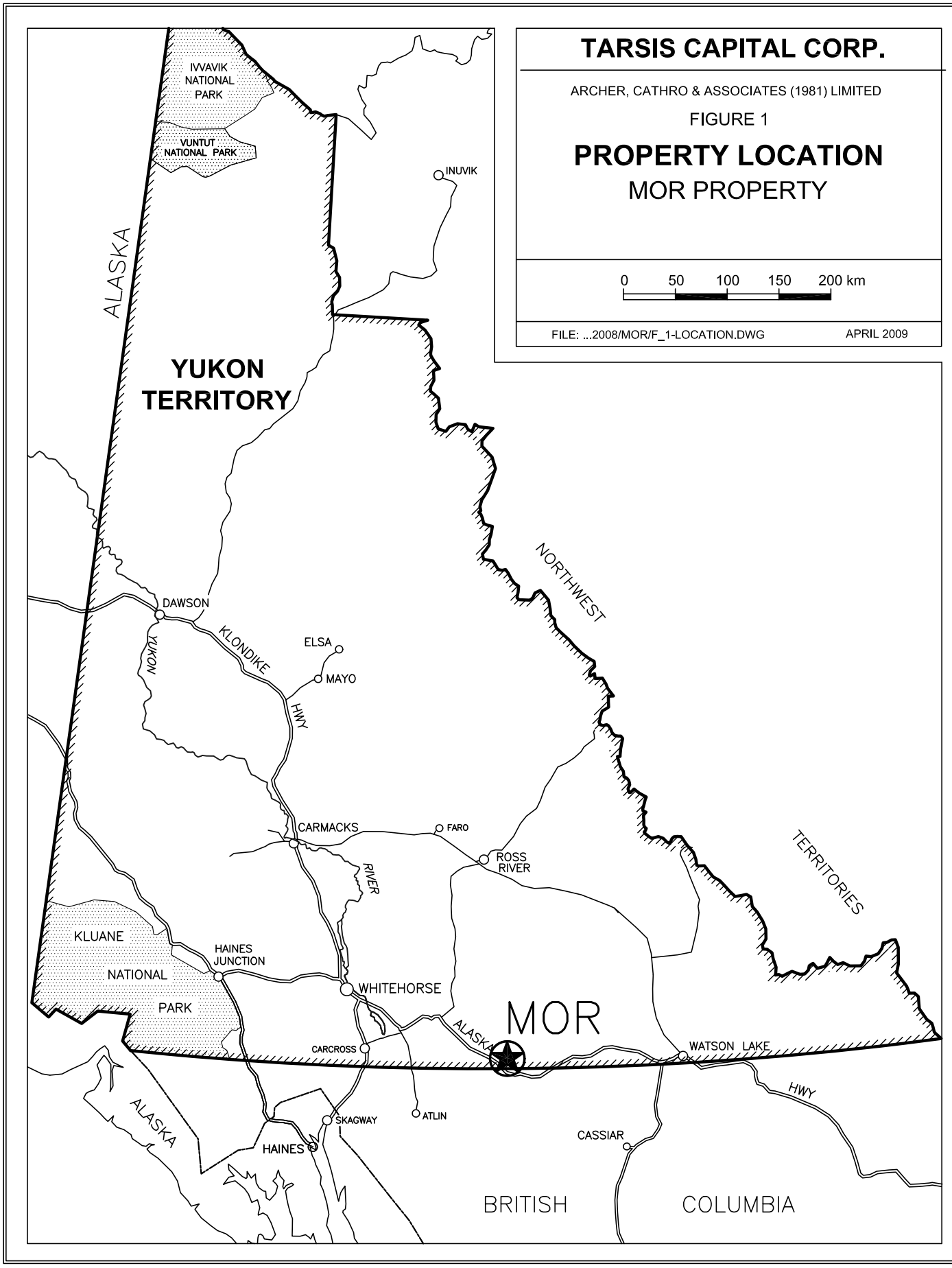
| Claim Name | Grant Number | Expiry Date * |
|---|---|---|
| MOR 1-4 | YB89771-YB89774 | April 29, 2024 |
| 5-8 | YB91626-YB91629 | April 29, 2021 |
| 9-12 | YB91820-YB91823 | April 29, 2021 |
| 13-52 | YB92029-YB92068 | April 29, 2022 |
| 53-106 | YC71599-YC71652 | April 29, 2017 |
| 107-224 | YC72301-YC72418 | April 29, 2013 |
| 225-290 | YC73523-YC73588 | April 29, 2014 |

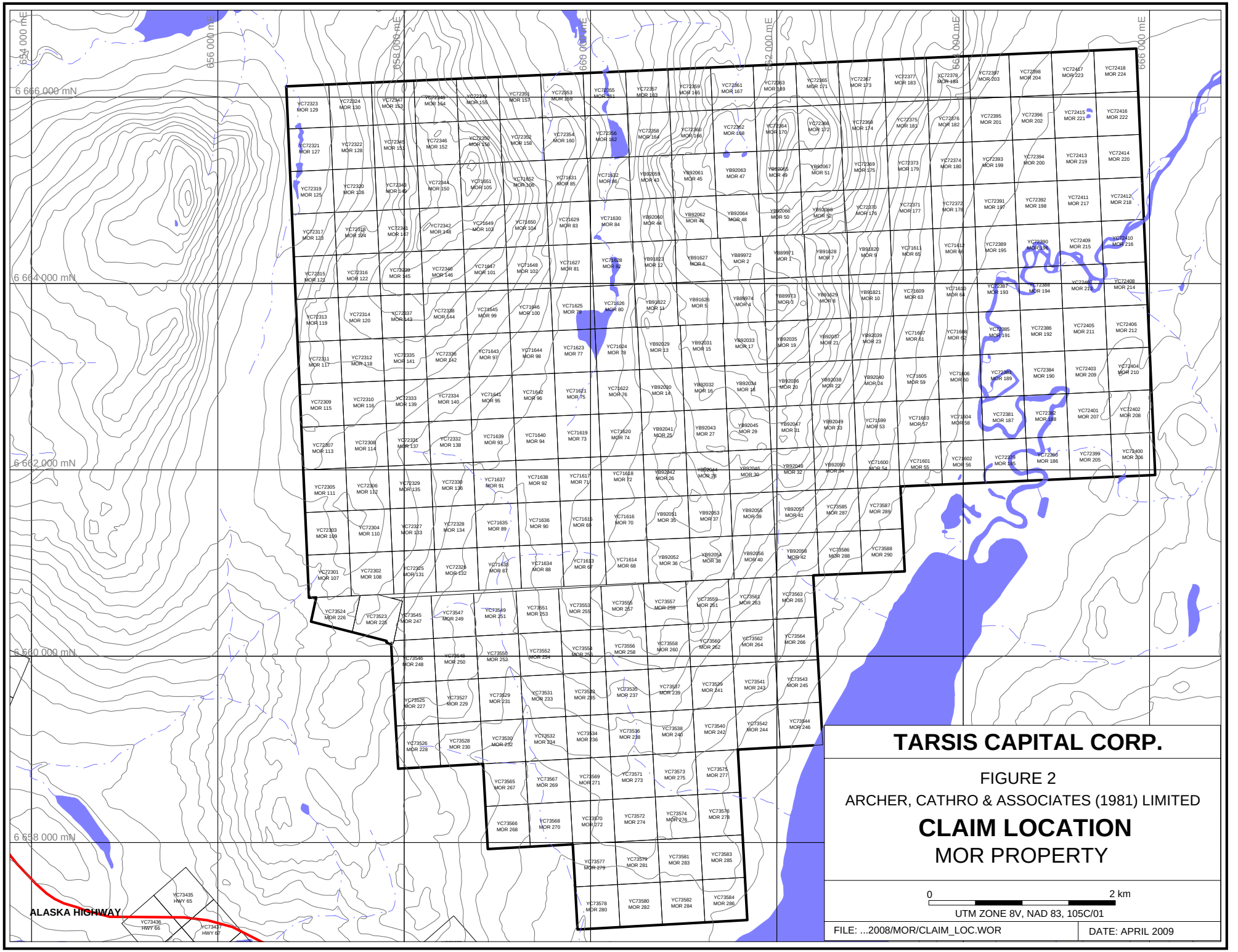
* Expiry dates include 2008 work which has been filed for assessment credit but not yet accepted.

The MOR property is located 35 km east of Teslin, a village that lies alongside the Alaska Highway approximately 183 km by road southeast of Whitehorse. In 2008, the mobilization to and from the property and daily crew moves were performed with a Hughes 500D operated by Fireweed Helicopters Ltd. from the Morley River camp.

## HISTORY

In 1980 Regional Resources Limited conducted regional scale stream sediment sampling in the MOR area and discovered a small zone of significant base and precious metal values in soil as well as a subcrop of gossanous schist (Discovery Showing), however, no claims were staked at this time. In 1997 Fairfield Minerals Ltd. revisited the area and staked four claims (MOR 1- 4)


TARSIS CAPITAL CORP.
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
FIGURE 1
PROPERTY LOCATION
MOR PROPERTY
0 50 100 150 200 km
FILE: ...2008/MOR/F_1-LOCATION.DWG
APRIL 2009
IVVAVIK NATIONAL PARK
VUNTUT NATIONAL PARK
INUVIK
ALASKA
YUKON TERRITORY
NORTHWEST
TERRITORIES
DAWSON
YUKON
KLONDIKE
HWY
ELSA
MAYO
CARMACKS
FARO
ROSS RIVER
RIVER
KLUANE
NATIONAL
PARK
HAINES JUNCTION
WHITEHORSE
MOR
ALASKA
CARCROSS
WATSON LAKE
HWY
ALASKA
SKAGWAY
ATLIN
HAINES
CASSIAR
BRITISH
COLUMBIA




# TARSIS CAPITAL CORP.

FIGURE 2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## CLAIM LOCATION

MOR PROPERTY

0 2 km

UTM ZONE 8V, NAD 83, 105C/01

FILE: ...2008/MOR/CLAIM_LOC.WOR

DATE: APRIL 2009

to cover the Discovery Showing. Exploration consisted of hand pitting and trenching followed by reconnaissance scale prospecting and silt, rock and soil sampling across the entire property. In 1998 Fairfield staked an additional 8 claims (MOR 5-12) and carried out grid soil sampling, and ground magnetic and VLF-EM geophysical surveys. Limited blast trenching, prospecting and reconnaissance rock sampling were also conducted in the area of the Discovery Showing.

In 1999 the property was optioned to Brett Resources Inc. who staked an additional 40 claims (MOR 13-52). Exploration consisted of geochemical sampling (22 line km/442 samples), property wide geological mapping at 1:10,000 scale, and detailed geological mapping (1:1500) in areas of known mineralization. In December 1999 Brett relinquished its option due to a corporate merger and shift in exploration focus.

Field work by Fairfield in 2000 consisted of additional grid soil sampling and ground magnetic and VLF-EM surveys, in conjunction with detailed grid-based soil profile and bedrock sampling by portable power augur. The following summer, geochemically anomalous areas were followed up by a series of in-fill auger sampling lines and prospecting. A total of 1223 samples were collected for multi-element analysis. This work identified a linear east trending band of anomalous copper, lead and zinc-in-soil up to 2000 m long centered on the Discovery Showing.

In 2002 Fairfield was amalgamated with Almaden Resources Corporation to form Almaden Minerals Ltd. and the MOR mineral title was subsequently transferred.

In 2003 Kobex Resources Ltd. acquired a 60 % interest in the MOR property and in 2004 conducted a two phase work program, consisting of an induced polarization (IP) geophysical survey followed by a two hole diamond drilling program. Results confirmed the presence of sub economic VMS style mineralization (Discovery Horizon), however, Kobex elected to return the property to Almaden in September 2005.

Tarsis purchased the property from Almaden in April 2007 and proceeded with a four hole drill program, coarse wide spaced soil sampling and 285 line km of helicopter borne Versatile Time Domain Electromagnetic surveys. Diamond drilling was focused at the Discovery Horizon following up the intersections reported by Kobex and confirming the geometry of the system. The drilling encountered gently dipping massive sulphide in two to three stacked horizons beneath the near surface historical intersections and traced the mineralization along strike for 300 m. VTEM surveys identified a series of intermittent conductors coincident with the projected surface trace of the Discovery Horizon in the northern part of the property traceable for over 5 km. Another isolated but fairly intense anomaly was identified 2 km south of the Discovery Horizon.

## GEOMORPHOLOGY

The property lies along the northwestern flank of the Cassiar Mountains. It is mostly situated between Mount Morley to west and the Morley River Valley to the east and encompasses two moderately steep north trending ridges that are linked by a narrow upland valley. Local topography is subdued with local elevations ranging from 900 m in the valley bottom to 1400 m

atop the westernmost ridge. The best exposures are on glacially scoured hummocks along the ridge crest and on oversteepened hillsides where soil has been washed away.

A small, unnamed lake surrounded by marshland is located in the centre of the property. This lake is fed by tributaries of Hassell Lake from the north and by numerous small creeks and streams that drain from the upper ridge crests that surround it. Creeks draining from the ridge on the eastern half of the property form tributaries of the Morley River which is part of the Yukon River watershed.

Much of the claim block is well vegetated with spruce, balsam, pine, alder, and tamarack on hillsides with willow occurring along creeks and in marshes. Treeline in the vicinity of the MOR property occurs at 1450 m.

## GEOLOGY

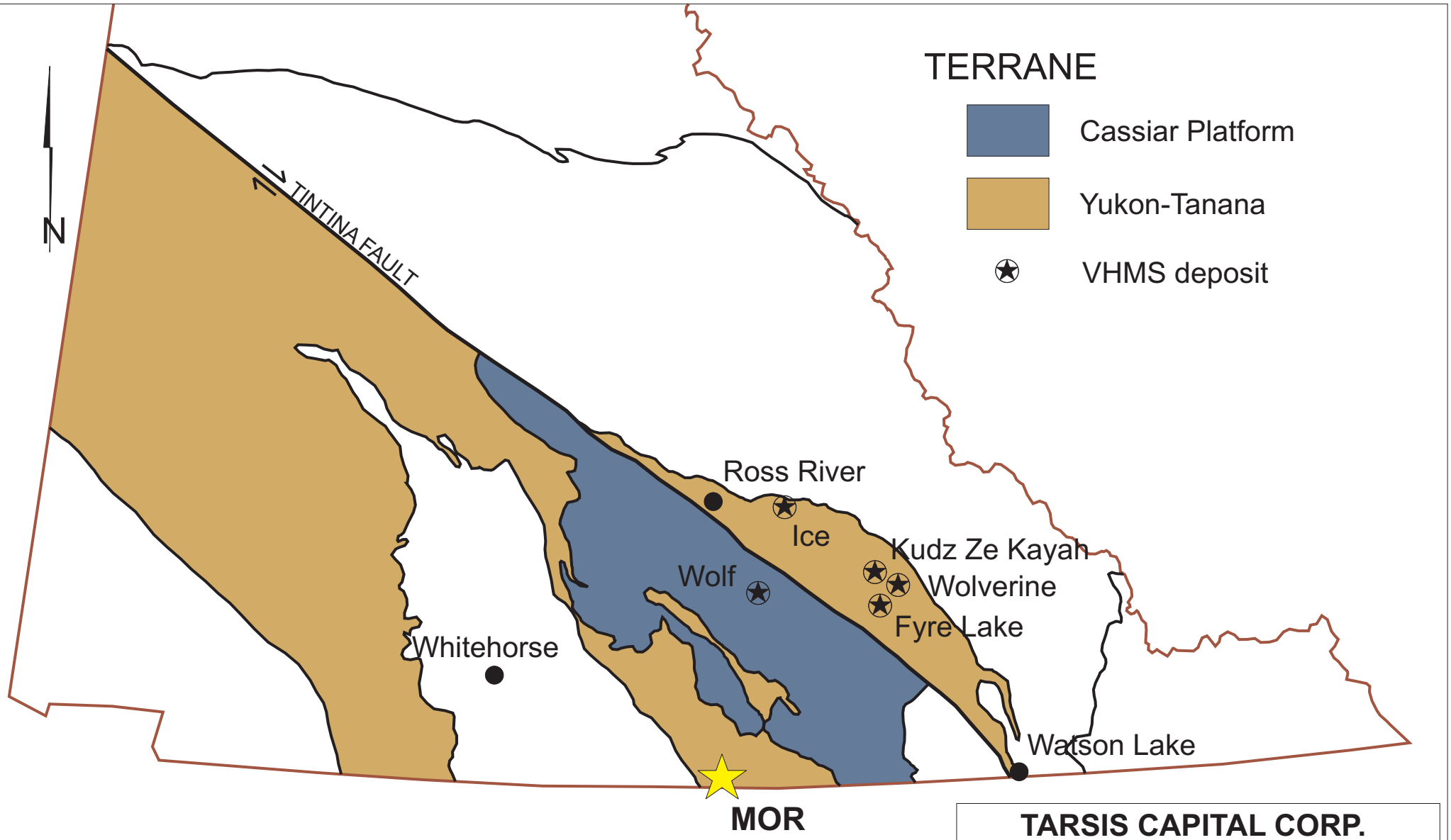
### Regional Geology

The property lies within a belt of Yukon-Tanana Terrane rocks on the southwest side of the Tintina Fault Zone (Figure 3). Yukon-Tanana Terrane rocks underlie much of west-central Yukon, including a displaced block immediately northeast of the Tintina Fault Zone referred to as the Finlayson Lake District, which hosts a number of VHMS deposits and prospects.

The most recent classification of the Yukon-Tanana Terrane southwest of the Tintina Fault Zone near the B.C.-Yukon border was addressed in a special paper published by the Geological Association of Canada, 2006. This portion of the cordillera is segregated into three belts referred to as the eastern, central and western belts (Roots et al., 2006) and all three belts comprise stratigraphy associated with Permian and older sedimentation, arc related volcanism and coeval intrusions. Stratigraphy within all belts has been intruded by Eocene to early Jurassic intrusions.

The western belt hosts the MOR property and is bound by the strike-slip Teslin Fault to the west and an unnamed fault to the northeast (Figure 4). Stratigraphic units belong mostly to the Big Salmon Complex and comprise bimodal arc-volcanic rocks, phyllite, siliceous metasedimentary rocks and minor carbonate units. Coeval orthogneiss is common throughout the sequence and ranges in age from late Devonian to Jurassic. The upper portion of the volcanic sequence of the Big Salmon Complex is marked by a rose coloured manganiferous metachert believed to represent an exhalative volcanic pulse (Mihalynuk et al, 2006). The metavolcanic rocks of the Big Salmon Complex are considered age equivalent to the Finlayson Assemblage northeast of the Tintina Fault Zone (Colpron et al, 2006). The magnetic cycles associated with these rocks span upper Devonian to mid Mississippian and are age equivalent to the Finlayson and Wolverine Magmatic Cycles (Figure 5).

Klinkit Group unconformably overlies stratigraphy of the Big Salmon Complex. It consists of pale coloured marble and intermediate to mafic tuffs plus volcanic-derived metasedimentary rocks, with lesser volcanic flows, quartz sandstone and interlayered dark siltstone. Volcanic rocks are more abundant near the base of the succession. These sequences were deposited between Middle Mississippian and Permian.




**TARSIS CAPITAL CORP.**

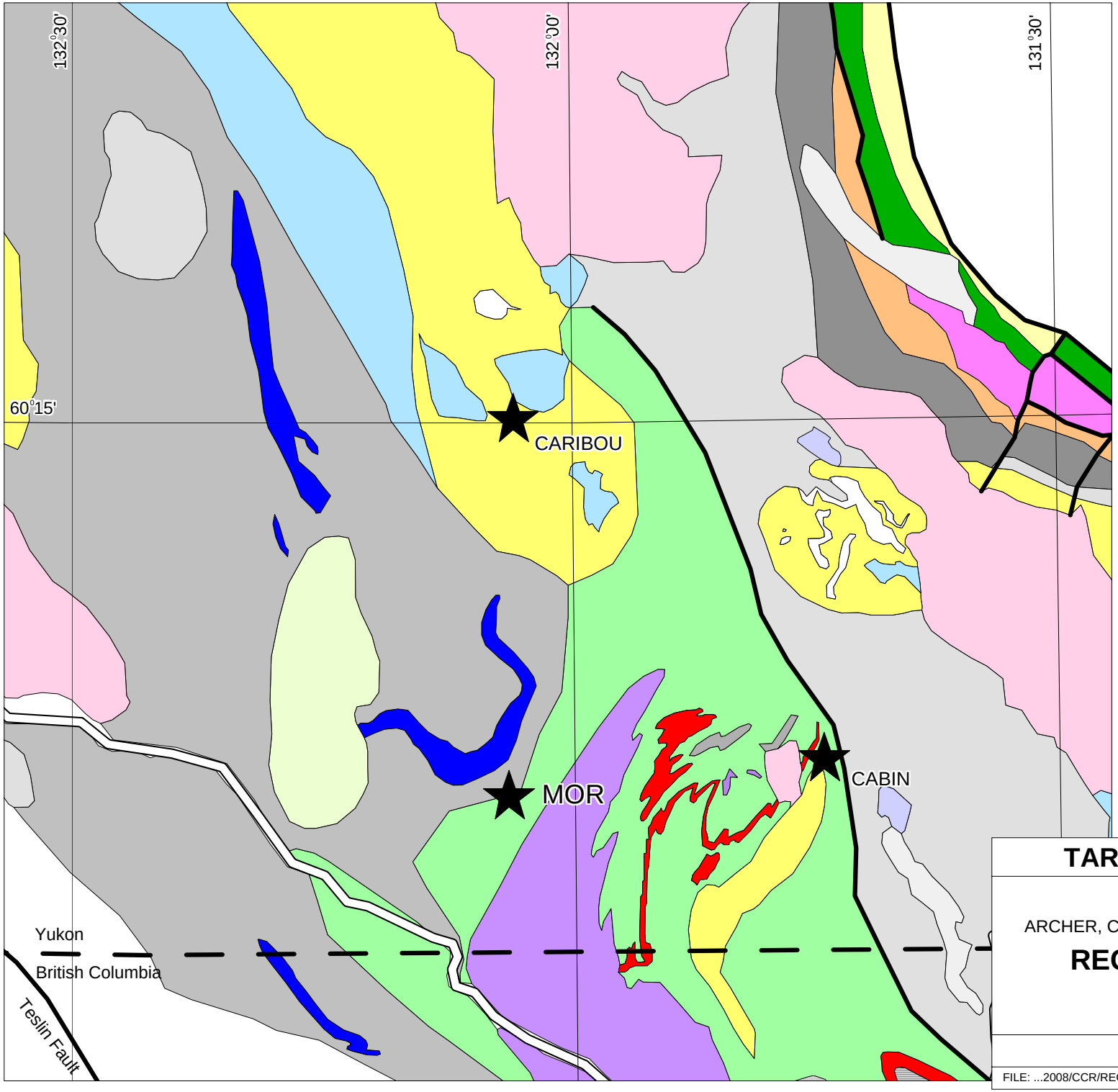
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

FIGURE 3

**TECTONIC SETTING**

MOR PROPERTY

..FILE\: ...2008/MOR/F_3-TEC.CDR APRIL 2009




Cretaceous intrusions

YUKON-TANANA TERRANE

Ram stock (Permian

Klinkit Group

(Pennsylvanian to Permian)

volcanic and sedimentary rocks

(Mississippian)

limestone and volcanic rocks

Big Salmon Complex

(Devonian to Mississippian)

felsic tuff and younger sedimentary rocks

marble/metachert marker

Mount Hazel orthogneiss

greenstone and intercalated sedimentary rocks; gabbro-basalt complex

psammite, argillite

Swift River Group

(Devonian to Mississippian)

greywacke

chert and argillite

Ram Creek Complex

(Devonian to Mississippian)

quartzite and sandstone

mafic volcanic rocks

Dorsey Complex

(pre-Devonian to Miss.)

metasedimentary rocks

amphibolite sills and mafic metasedimentary rocks

**TARSIS CAPITAL CORP.**

FIGURE 4

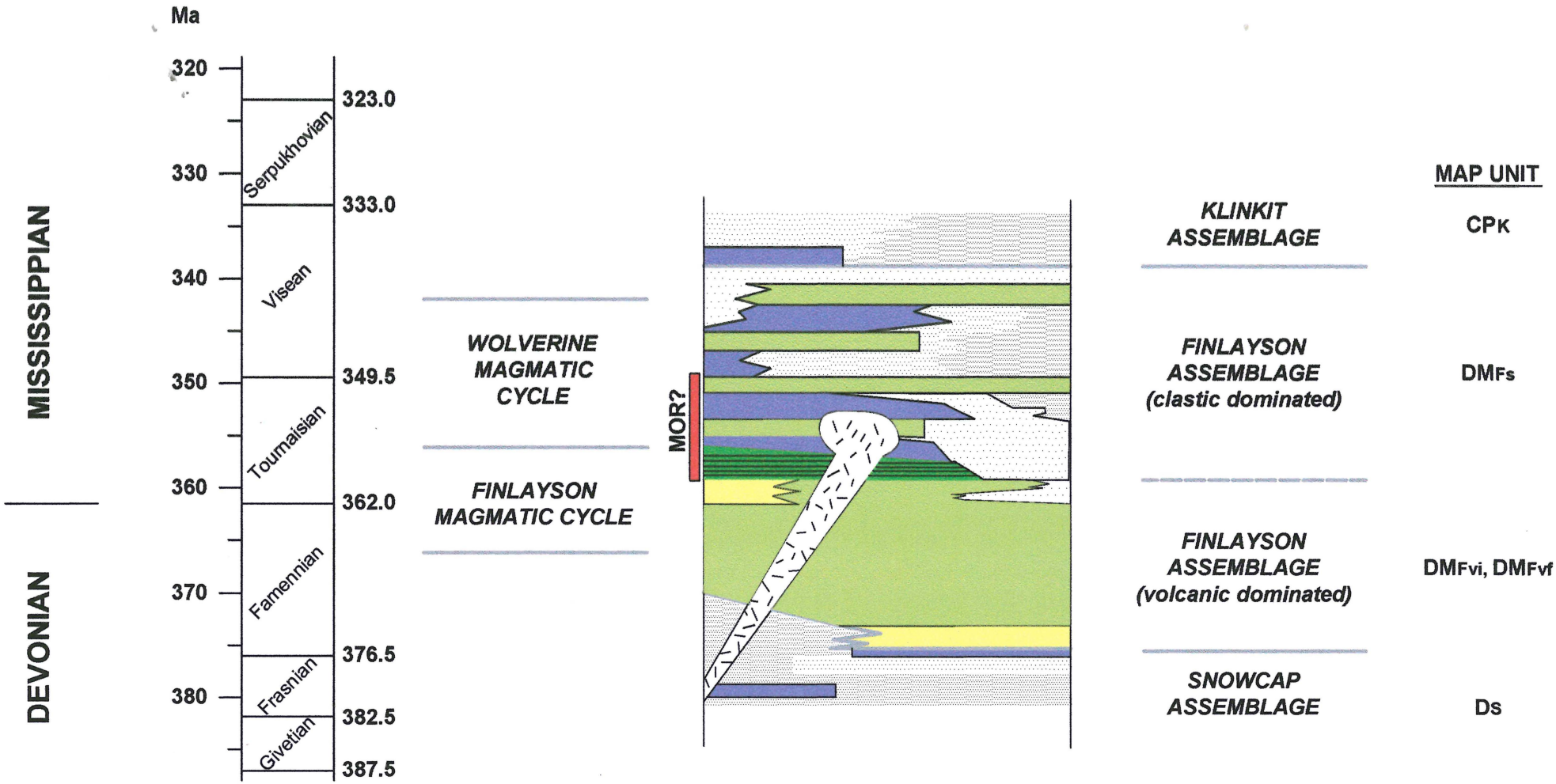
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# REGIONAL GEOLOGY

MOR PROPERTY

1:300,000

FILE: ...2008/CCR/REGIONAL GEOLOGY.WOR | DATE: APRIL 2009




- lower to mid Mississippian granite
- exhalite (manganiferous "crinkle" chert)
- felsic volcanic sequence
- mafic to intermediate volcanic sequence
- marble
- conglomerate
- quartzite
- psammite

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## FIGURE 5

## STRATIGRAPHIC COLUMN

## YUKON TANANA TERRANE

### TESLIN AREA

YUKON AND NORTHERN BRITISH COLUMBIA

*after Mihalynuk et al (2000)*

The main lithologies in the vicinity of the MOR property are summarized on the Table I.

**Table I: Main Lithological Units**

| | |
|---|---|
| Quarternary<br>Overburden | Glacial till, lateral and terminal moraines and glaciofluvial outwash |
| Mid-Cretaceous or Early Tertiary<br>Cassiar Suite | Granodiorite and biotite-quartz monzonite porphyry |
| Pennsylvanian to Permian<br>Klinkit Group | Volcaniclastic and sedimentary rocks |
| Mississippian<br>Klinkit Group | Limestone and volcanic rocks |
| Devonian to Mississippian<br>Big Salmon Complex | Mount Hazel orthogneiss |
| | Greenstone and intercalated sedimentary rocks |

(Roots et al, 2006)

**Property Geology**

The MOR property is mostly underlain by mafic and felsic metavolcaniclastic rocks of the Devono-Mississippian Big Salmon Complex (Figure 6). Much of the stratigraphic descriptions below are based on previous authors (Ritcey and Balon, 1998) descriptions plus traverses and drill core inspection by the current author.

The MOR property is underlain by a thick sequence of pale green-grey chlorite±quartz schist of which the protolith is interpreted to be primarily mafic to intermediate volcaniclastic tuff. These rocks contain varying amounts of layer parallel quartz and feldspar. Quartzite/chert is observed locally as interbeds within the mafic dominated succession but never sufficiently thick enough to form a mappable unit. All rocks are strongly deformed and have a pervasive schistosity which generally strikes east and dips moderately to the south. The sequence has been significantly thickened by tight high amplitude folds, which are observed in outcrop scale and drill core. Metamorphic grade is middle greenschist facies. This assemblage of dominantly mafic metavolcanic rocks is suggested to correlate with the "greenstone sequence" of the Big Salmon Complex mapped by Mihalynuk et al. (1998).

Metavolcaniclastic stratigraphy contains coeval pale grey to white orthogneiss sills that are texturally sucrosic and very difficult to distinguish from some felsic and intermediate volcaniclastic rocks. The orthogneiss likely evolved from a fairly fine grained intrusive as the augen are virtually non existent.

Basement stratigraphy in the northeast portion of the property consists of grey-white, thickly bedded, medium- to coarse-grained limestone/marble. This unit is gently southward dipping and appears to be conformable with the overlying volcaniclastic sequence described above. Bedding attitudes strike east and dip south approximately 30°.

A single traverse to the north of the limestone unit (outside the northern MOR claim boundary) revealed a third mappable geological unit comprising a highly variable sequence of grey,

ROCK TYPES

Devono-Mississippian Sequence in rough stratigraphic order

mch - Grey to black locally carbonaceous meta-chert
xph - Siliceous phyllite
Qgryw - Quartz Greywacke
QSsc - Quartz sericite schist
QMsc - Quartz Muscovite schist
fxtf - Felsic crystal tuff
mtf - Mafic tuff
Cgn - Chlorite Gneiss
CMsc - Green locally banded Chlorite Muscovite schist
Csc - Green locally banded Chlorite schist
mrbl - Grey - white thickly bedded medium - coarse grained marble

MINERAL ABBREVIATIONS

B - Biotite
C - Chlorite
Cp - Chalcopyrite
Ep - Epidote
M - Muscovite
Mn - Manganese
Mt - Magnetite
Py - Pyrite
Q - Quartz
S - Sericite

Csc

xph-QMsc-

Qgryw-mch

Csc

mrbl

mrbl

mrbl

mrbl

mrbl-Csc

mrbl

mrbl-CSc

mrbl

mrbl-CMsc

mrbl-CMsc

Csc w QSsc clasts

DISCOVERY SHOWING AREA
1997-1998 TRENCHES

BHC Area

6,664,000 mN

Csc-QSsc-fxtf

Csc w interbeds of QSsc, Py diss 3-5%

DISCOVERY HORIZON

QSsc

CMsc

CMsc w Bull Qtz pod

mauve mch float

CQsc Ep Py 2%

CQsc

QCsc-QCgn

QCsc mt

QCsc-Csc

QCBsc Tr Py Mt

CQMsc Tr Py

QCsc-Csc

QCc-Csc

QCsc-QCgn

MAG HORIZON

SD HORIZON

BEAN HORIZON

Qtz Vn 60cm

6,662,000 mN

Csc with thin Q,Mt Py horizon

660 000 mE

662 000 mE

Geological Contact
Creek
Elevation Contour (Feet)
Bedrock Exposure
Strike and Dip of Bedding and Foliation
Rock Sample Location
Note: MOR99-R12, R13 not shown as they are outside the map area
Main Soil Geochemical Anomaly
(Cu±Pb±Zn±Ag±Au)

2004 Drill hole
2007 Drill hole
2008 Drill hole

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FIGURE 6

# PROPERTY GEOLOGY

## MOR PROPERTY

0 0.5 1.0 km

UTM ZONE 8, NAD83
105C01

FILE: ...2008/MOR/F_5-GEO.DWG

DATE: APRIL 2009

siliceous, phyllitic metasediments with interbedded 1-10 m thick, dark grey to black, carbonaceous cherts. This unit strikes to the northeast and dips to the southeast.

An inferred stratigraphic column for the Teslin area is shown on Figure 6 based on observations by Nelson et al., 2000 and postulates the relative position of the MOR mineralization. This theory is partly supported by geochronological results from select MOR drill core in late 2007 which yielded a morphologically simple population of zircon, permissive of magmatic origin yielding Devono-Mississippian dates between 347 and 365 Ma (M. Colpron pers. comm., 2008).

## MINERALIZATION

VHMS style mineralization occurs within two parts of the MOR property. The Discovery Horizon is located in the northern part of the claim block and has been the primary focus of exploration. Several new mineralized outcrops were located in 2008 approximately 2 km south of the Discovery Horizon and collectively they are referred to as the SD Zone. Most parts of the property are heavily vegetated with rare outcrop and subcrop exposure.

Mineralization at the Discovery Horizon consists of medium- and coarse-grained massive and semi-massive sulphide comprised dominantly of pyrite. The most common accessory sulphide is chalcopyrite which occurs as interstitial grains and blebby aggregates within a pyrite dominant matrix. Sphalerite and galena are rarely observed as trace disseminations.

Massive and semi-massive sulphide horizons are stacked within an envelope of mafic dominant volcaniclastic stratigraphy that is weakly to moderately mineralized with coarse disseminated pyrite and rare chalcopyrite. Medium- to coarse-grained magnetite is irregularly disseminated throughout the stratigraphic column. Alteration associated with the volcaniclastic rocks is dominated by a combination of pale to medium green chlorite and sericite. Darker chlorite is developed nearer the massive sulphide sections and narrow felsic volcaniclastic pulses coincide with some of the stronger mineralization.

The SD Zone is defined by three or more northwest trending, gently southwest dipping sulphide and/or oxide bearing mafic and felsic metavolcanic horizons in the southern portion of the claim block. Three distinct horizons have been identified within a 250 m thick package of bimodal mafic and felsic metavolcaniclastic stratigraphy and they are referred to as the Mag, SD and Bean Horizons.

Sulphides at the SD and Bean Horizons are dominated by thinly laminated and strongly magnetic pyrrhotite with lower concentrations of blebby interstitial and disseminated chalcopyrite. Coarse pyrite is less common than pyrrhotite at the SD Horizon and visa versa at the Bean Horizon. Where pyrite is present it occurs as foliation parallel grains and aggregates. Magnetite is present as fine grained massive bands and medium- to coarse grains. The Mag Horizon is characterized by medium to coarse disseminated magnetite and minor amounts of coarse foliation parallel pyrite.

In general, sulphide and magnetite-rich horizons at the SD Zone are developed within locally mafic volcaniclastic units that appear to have been subjected to fairly intense hydrothermal alteration.

## SOIL GEOCHEMISTRY

Soil sampling carried out by Brett Resources in 1999 outlined a copper-in-soil anomaly in the central part of the property, east of the current drill grid. The widely spaced lines used in the survey, however, prevented the company from properly delineating the anomaly.

Power auger sampling conducted in 2000 refined the existing geochemical anomalies and better defined the signature in the vicinity of the Discovery Horizon. Lead and zinc response from the combine data set form a narrow linear east trending anomaly that extends roughly 2500 m across the width of the grid. The thresholds defining most of the anomaly are weak to moderate but the contrast with the adjacent soils is excellent. Copper response is also coincidently elevated along this trend but forms numerous additional anomalies south of this main trend.

Silver and gold response is subdued across most of the grid but does form irregular spot highs mostly outside the main lead-zinc-copper geochemical trend.

During 2008, two separate areas were soil sampled. Grid soil sampling was performed across the western part of the SD Zone and all of VTEM Anomaly D. Soil samples were also collected whenever possible at each station during claim staking in the southern part of the claim block.

The SD grid is positioned over the northwest projection of the known SD and Bean Horizons. An 1100 m east trending baseline was implemented with one metre long pickets showing grid coordinates every 50 m. Soil samples were collected at 50 m intervals on lines run perpendicular to the baseline. A total of 291 soil samples were collected from the SD grid.

VTEM Anomaly D is located on the eastern side of the claim block. A 600 m by 300 m grid was positioned directly over the anomaly. A total of 103 samples were collected.

All soil samples were collected at 50 m intervals along grid lines spaced 50 m apart. Their locations were determined by means of compass and hip-chain surveys with frequent checks using handheld GPS units. Sample sites are marked by wooden lath bearing aluminum tags inscribed with the sample numbers. Soil samples were collected from 20 to 50 cm deep holes dug with geotools or hand augers. Each sample was placed into an individually pre-numbered kraft paper bag.

Most of the soil samples were collected from slopes ranging between 10° and 25°. They were generally composed of two types of material: (1) poorly developed B Horizon soils in grassy valley bottoms and (2) areas of low relief that are mantled by organic material glacial till. Soil types were not differentiated or recorded by the samplers.

All soil samples were sent to ALS Chemex where they were dried and sieved to -180 microns. A portion of the fine fraction was then digested in aqua-regia and analysed for 34 elements by the

inductively coupled plasma-atomic emission spectroscopy technique (ME-ICP41). Certificates of analysis are located in Appendix II. Sample locations are shown on Figure 7, while results for copper, lead, zinc, silver and gold are shown on Figures 8 through 12, respectively.

The combined results for all soil geochemical surveys on the property highlight a pronounced, coincident, easterly trending copper-lead-zinc-silver anomaly for roughly 2500 m along the surface trace of the Discovery Horizon. Copper, lead and zinc exhibit the strongest contrast relative to the property background values. Response for all VHMS indicator elements is subdued on the VTEM grid over Anomaly D at the eastern end of the Discovery Horizon but this is not surprising considering the extensive organic and till cover at lower elevations near the Morley River.

Geochemical response in the vicinity of the SD Zone is spotty. The three known mineralized trends best coincide with a number of intermittent copper (up to 721 ppm) and silver (up to 2.6 ppm) point anomalies scattered along a 1500 m strike length. Lead and zinc response in this area is subdued.

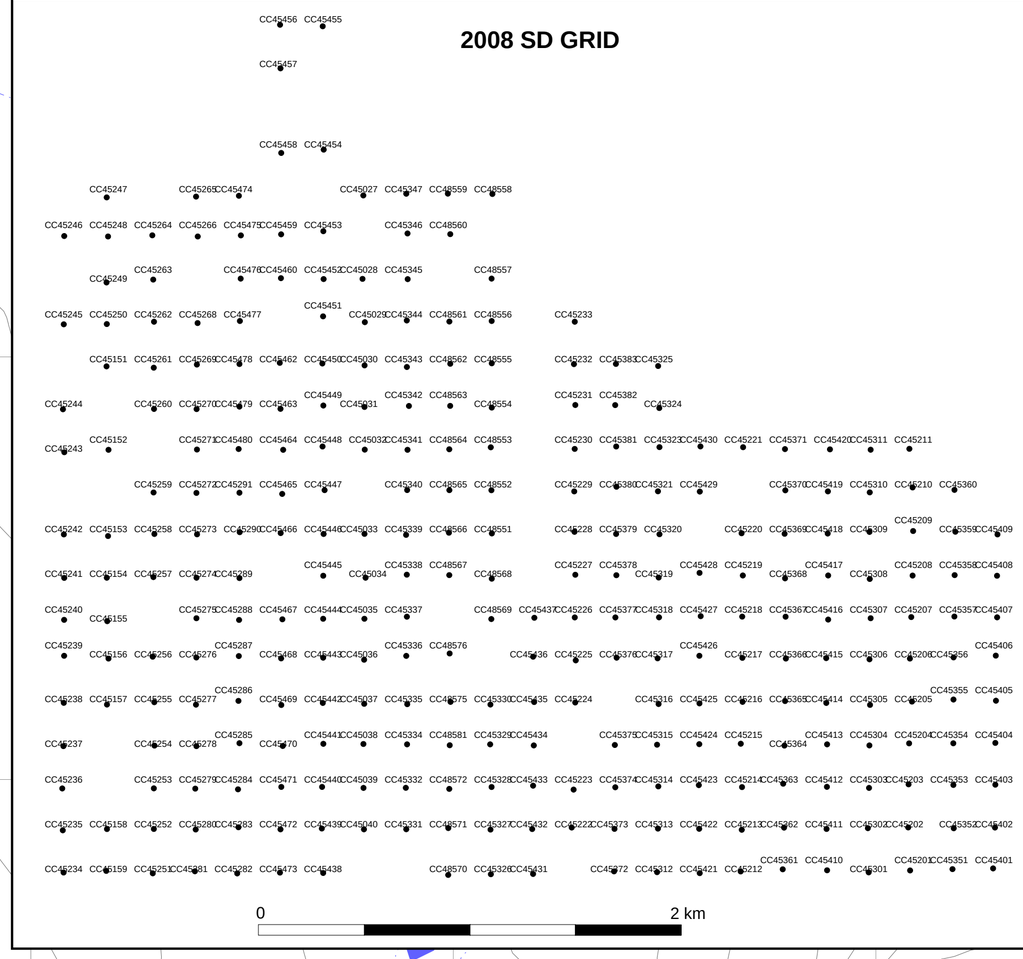
Sampling just above the creek valley 1000 m west of the Discovery Horizon and the SD Zone in 2007 identified copper-in-soil geochemical anomalies with peak values up to 448 ppm copper contained within broad zones up 500 m wide and 750 m long. The highest values are centred adjacent to the upland lake in the centre of the claimblock and form a roughly northwesterly trend. A secondary cluster of strongly to moderately anomalous response occurs along the slope of the western ridge. The northernmost of the anomalies coincides with the projected surface trace of the Discovery Horizon and also coincides with one of four EM conductors identified by the 2007 airborne VTEM survey. None of these anomalies have been fully delineated but prospecting the area in 2008 discovered pyritic felsic volcaniclastic talus in the vicinity of the VTEM anomaly.

Another cluster of weak to moderate response occurs to the southwest of the lake in a low-lying marshy area. Many of the proposed sites in this part of the property were not sampled due the absence of proper soil development and abundant organic material.

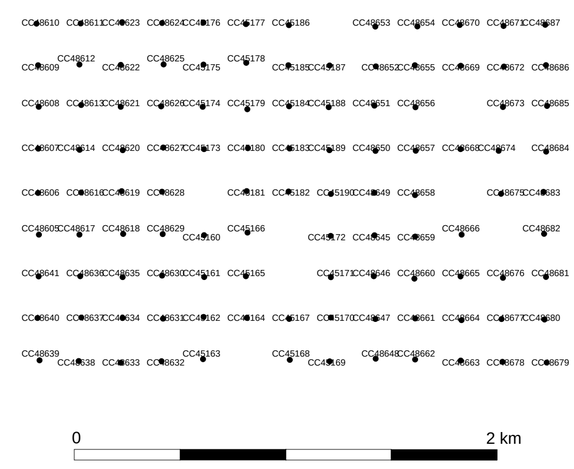
## GEOPHYSICAL SURVEYS

During the 2008 exploration season, two geophysical surveys were conducted across different parts of the MOR property. A 224 line km helicopter-borne Versatile Time Domain Electromagnetic (VTEM) survey was flown across the southern part of the MOR claim block as an extension to an earlier survey conducted in 2007. The survey was conducted by Geotech Ltd. of Ontario and a copy of this report is contained in Appendix III. The preliminary results of the VTEM survey were forwarded to Condor Consulting Inc. of Colorado which reduced and assessed the data for potential VHMS style targets. The rendered data suggests the Discovery Horizon and SD Zone are hosted by discrete EM features highlighted from the 2007 survey while the ground south of these showings covered by the 2008 survey identified only features that are likely attributed to formational conductivity.

## 2008 SD GRID




## 2008 VTEM SOIL ANOMALY D




PROPERTY BOUNDARY

6 665 000 mN

6 664 000 mN

6 663 000 mN

6 662 000 mN

6 661 000 mN

659 000 mE

660 000 mE

661 000 mE

662 000 mE

663 000 mE

2008 SD GRID

2008 VTEM SOIL ANOMALY D

T.N.

2°23'

23°22'

Grid north

Magnetic north

Annual change decreasing 22'

Historical soil sample site

# TARSIS CAPITAL CORP.

FIGURE 7

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## 2008 SOIL SAMPLE LOCATIONS

MOR PROPERTY

0 1 km

UTM ZONE 8, NAD 83, 105C/01

FILE: P:\2008\Mor\Figures\Ag_geochemistry.WOR

DATE: APRIL 2009

6 665 000 mN

6 664 000 mN

6 663 000 mN

6 662 000 mN

6 661 000 mN

659000 mE

660 000 mE

661 000 mE

662 000 mE

T.N.

2°23'

23°22'

Grid north

Magnetic north

Annual change decreasing 22'

2008 VTEM ANOMALY D

DISCOVERY HORIZON

SD HORIZON

BEAN HORIZON

MAG HORIZON

2008 SD GRID

Copper (ppm)

≥500

≥200 <500

≥100 <200

≥50 <100

≥25 <50

≥0 <25

Diamond drill hole

Mineralized horizon

Mineralized showing

# TARSIS CAPITAL CORP.

FIGURE 8

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## COPPER SOIL GEOCHEMISTRY

MOR PROPERTY

0 500 1000 m

UTM ZONE 8, NAD 83,

FILE: P:\2008\Mor\Figures\Ag_geochemistry.WOR

DATE: APRIL 2009

6 665 000 mN

6 664 000 mN

6 663 000 mN

6 662 000 mN

6 661 000 mN

659000 mE

660 000 mE

661 000 mE

662 000 mE

T.N.

2°23'

23°22'

Grid north

Magnetic north

Annual change decreasing 22'

2008 VTEM ANOMALY D

DISCOVERY HORIZON

SD HORIZON

BEAN HORIZON

MAG HORIZON

2008 SD GRID

Lead (ppm)

≥100

≥50 <100

≥20 <50

≥10 <20

≥5 <10

≥0 <5

Diamond drill hole

Mineralized horizon

Mineralized showing

# TARSIS CAPITAL CORP.

FIGURE 9

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## LEAD SOIL GEOCHEMISTRY

MOR PROPERTY

0 500 1000 m

UTM ZONE 8, NAD 83,

FILE: P:\2008\Mor\Figures\Zn_geochemistry.WOR

DATE: APRIL 2009

6 665 000 mN

6 664 000 mN

6 663 000 mN

6 662 000 mN

6 661 000 mN

659000 mE

660 000 mE

661 000 mE

662 000 mE

T.N.

2°23'

23°22'

Grid north

Magnetic north

Annual change decreasing 22'

2008 VTEM ANOMALY D

DISCOVERY HORIZON

SD HORIZON

MAG HORIZON

BEAN HORIZON

2008 SD GRID

Zinc (ppm)

≥500

≥200 <500

≥100 <200

≥50 <100

≥0 <50

Diamond drill hole

Mineralized horizon

Mineralized showing

# TARSIS CAPITAL CORP.

FIGURE 10

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## ZINC SOIL GEOCHEMISTRY

MOR PROPERTY

0 500 1000 m

UTM ZONE 8, NAD 83,

FILE: P:\2008\Mor\Figures\Zn_geochemistry.WOR

DATE: APRIL 2009

6 665 000 mN

6 664 000 mN

6 663 000 mN

6 662 000 mN

6 661 000 mN

659000 mE

660 000 mE

661 000 mE

662 000 mE

T.N.

2°23'

23°22'

Grid north

Magnetic north

Annual change decreasing 22'

2008 VTEM ANOMALY D

DISCOVERY HORIZON

SD HORIZON

MAG HORIZON

BEAN HORIZON

2008 SD GRID

1.3 1.3 1.9 1.7 1.2 1.8 1.6 3.0 1.2 1.6 4.4 4 1.2 1.5 1.4 1.5 1.7 1.6 2.6 1.6 2.6 2

Silver (ppm)

- ≥2.0
- ≥1.0 <2.0
- ≥0.5 <1.0
- ≥0.2 <0.5
- ≥0.1 <0.2
- ≥0 <0.1

- Diamond drill hole
- Mineralized horizon
- Mineralized showing

# TARSIS CAPITAL CORP.

FIGURE 11

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## SILVER SOIL GEOCHEMISTRY

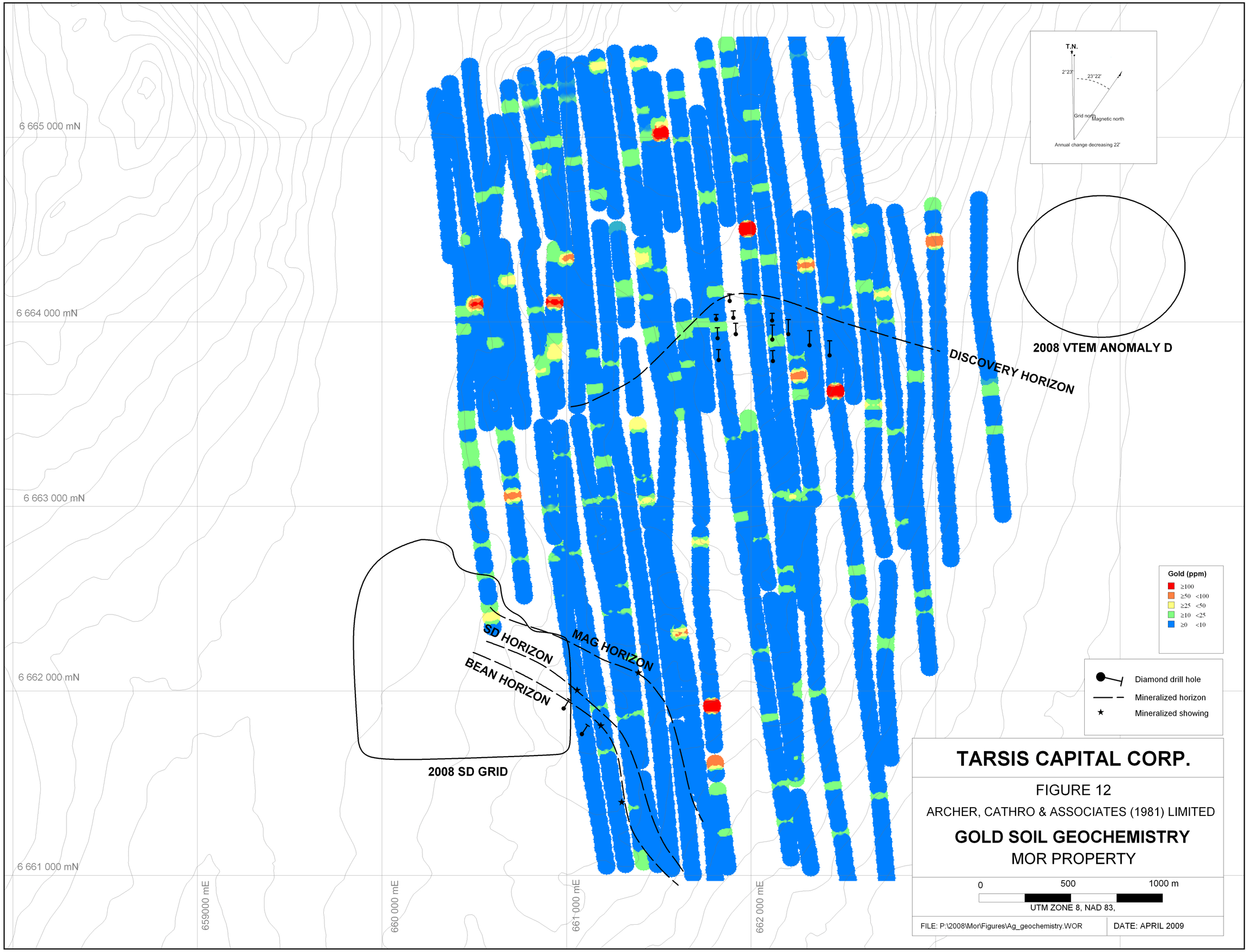
MOR PROPERTY

0 500 1000 m

UTM ZONE 8, NAD 83,

FILE: P:\2008\Mor\Figures\Ag_geochemistry.WOR

DATE: APRIL 2009


6 665 000 mN
6 664 000 mN
6 663 000 mN
6 662 000 mN
6 661 000 mN
659000 mE
660 000 mE
661 000 mE
662 000 mE
T.N.
2°23'
23°22'
Grid north
Magnetic north
Annual change decreasing 22'
2008 VTEM ANOMALY D
DISCOVERY HORIZON
SD HORIZON
MAG HORIZON
BEAN HORIZON
2008 SD GRID
Gold (ppm)
≥100
≥50 <100
≥25 <50
≥10 <25
≥0 <10
Diamond drill hole
Mineralized horizon
Mineralized showing
TARSIS CAPITAL CORP.
FIGURE 12
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
GOLD SOIL GEOCHEMISTRY
MOR PROPERTY
0
500
1000 m
UTM ZONE 8, NAD 83,
FILE: P:\2008\Mor\Figures\Ag_geochemistry.WOR
DATE: APRIL 2009

After the completion of diamond drilling in 2008, 2.5 line km's of ground based gravity surveys were conducted across the Discovery Horizon and SD Zone as illustrated on Figure 13. At the Discovery Zone, two lines were run along existing geophysical cut lines and coincident drill section lines which encountered cumulative sulphide intersections up to 15.5 m and 10.6 m thick. The Bouguer profiles indicate a 1 mgal anomaly roughly 100 m in length above the 10.6 m sulphide intersection. A 1 mgal anomaly is also indicated along the survey line located between the two drill holes at the SD Zone. This anomaly appears to be associated with a target stratigraphically deeper than the SD Horizon and possibly overlain by swamp. A report describing the survey parameters is contained in Appendix III.

## DIAMOND DRILLING AND PROSPECTING

A total of 14 diamond drills holes have tested two targets at the MOR property between 2004 and 2008. Twelve of the holes have tested the Discovery Horizon along a 600 m strike length and up to 250 m down dip while two holes have tested new mineralization discovered 2 km to the west referred to as the SD Zone.

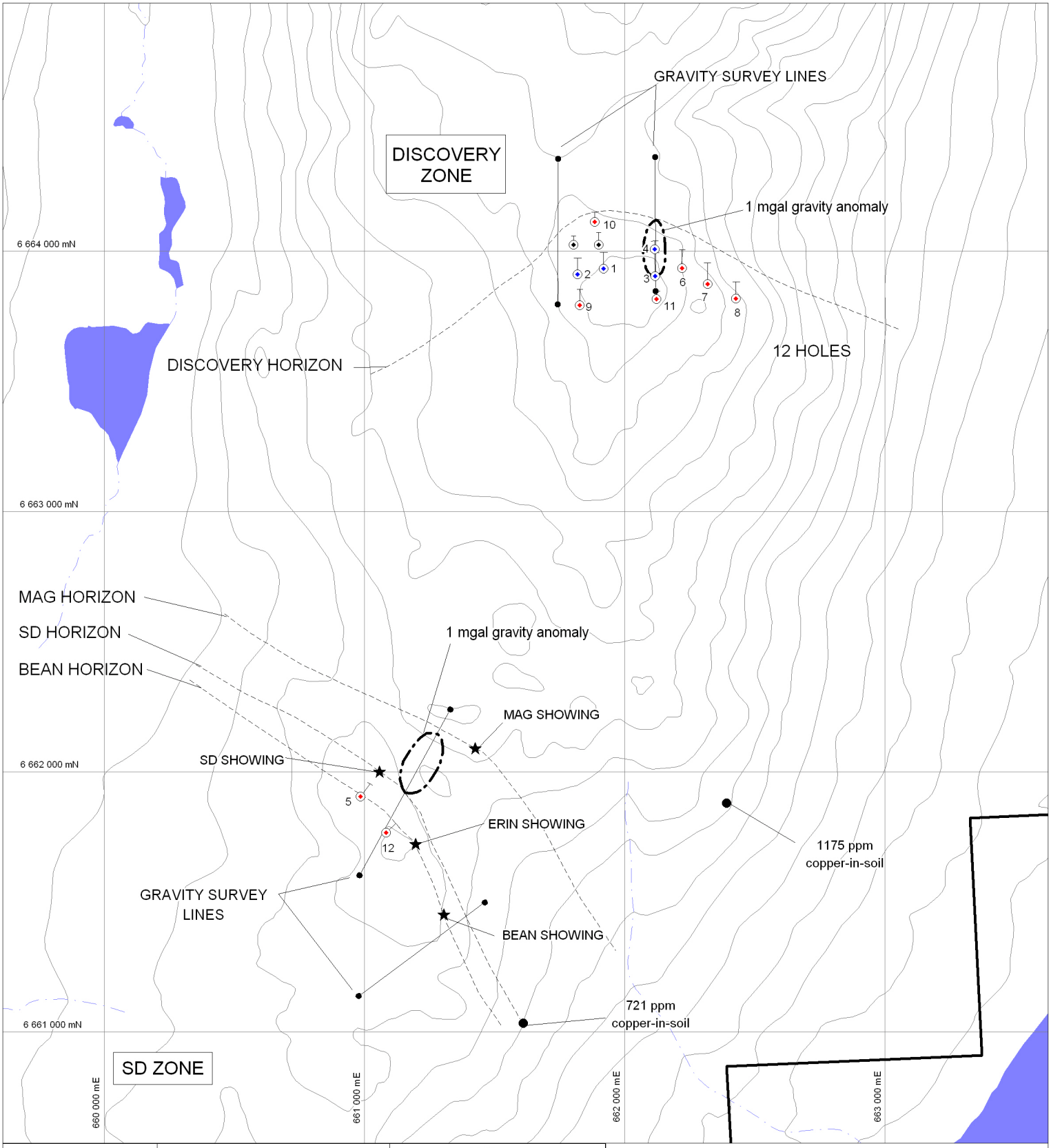
Diamond drilling was conducted at the MOR property between June 5 and July 22 and was contracted to Top Rank Diamond Drilling Ltd. of St. Rose Du Lac, Manitoba. A total of 1703 m was completed in eight holes (Figure 13) using a helicopter portable, diesel powered JKS 300 with BTW equipment. Drill hole data for holes drilled in 2008 is contained on Table II.

**Table II: Drill Hole Data**

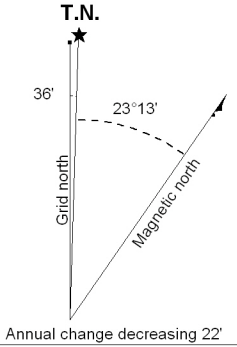
| Hole # | Northing (m) | Easting (m) | Elevation (m) | Azimuth | Inclination | Depth (m) |
|---|---|---|---|---|---|---|
| MOR-08-05 | 660985 | 6661905 | 1151 | 030 | 60 | 192.33 |
| MOR-08-06 | 662220 | 6663935 | 1287 | 355 | 60 | 218.54 |
| MOR-08-07 | 662318 | 6663873 | 1270 | 355 | 60 | 215.50 |
| MOR-08-08 | 662427 | 6663818 | 1245 | 355 | 58 | 230.13 |
| MOR-08-09 | 661826 | 6663793 | 1295 | 355 | 58 | 242.93 |
| MOR-08-10 | 661885 | 6664113 | 1292 | 355 | 85 | 108.81 |
| MOR-08-11 | 662122 | 6663816 | 1326 | 355 | 60 | 249.02 |
| MOR-08-12 | 661083 | 6661766 | 1158 | 030 | 50 | 245.98 |

The drill core was geotechnically and geologically logged on the property. Intervals of weak and moderate mineralization were split and processed on site while intervals of semi and massive sulphide were flown to the Morley River base camp and subsequently transported to the Archer Cathro's facility in Whitehorse. These mineralized intervals were sawn with one half returned to the box and the other half placed in plastic bags each containing a unique pre-numbered sample tag. All core from the 2008 program with the exception of the sawn material was stored on the property. Sawn intervals and all the core from the 2007 drill program is currently stored in Archer Cathro's Whitehorse facility.

All samples were shipped to ALS Chemex of North Vancouver where they were dried and fine crushed to better than 70% passing 2 mm. A 250 g split of the crushed material was pulverized to better than 85% passing 75 microns. A split was then subjected to aqua-regia digestion and




- Soil sample
- 2004 drillhole
- 2007 drillhole
- 2008 drillhole
- Showing




# TARSIS CAPITAL CORP.

FIGURE 13

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

## 2008 WORK AREAS

MOR PROPERTY

0 0.5 1.0 1.5 km

UTM ZONE 8V, NAD 83, 105C/01

FILE: ...2008/MOR/08_WORK.WOR

DATE: APRIL 2009

analysed for 34 elements using the ME-ICP41or ME-ICP41a procedure. If a sample exceeded the detection limit for copper, lead, zinc or silver it was reanalysed for total metal content using standard assay procedures. Certificates of Analysis are contained in Appendix II, geological and geotechnical logs are contained in Appendix IV.

To date, all holes drilled along the trace of the Discovery Horizon have intersected a series of near surface and deeper massive to semi-massive sulphide horizons dominantly mineralized with coarse re-crystallized pyrite and irregular accessory blebby, interstitial and disseminated chalcopyrite. The sulphide horizons are commonly hosted within a broad package of mafic dominant volcaniclastic stratigraphy with isolated pulses of felsic volcaniclastic material nearer the areas of higher sulphide content. All stratigraphy exhibits strong chlorite and sericite alteration. Sulphide lenses are often contained within a thick halo of moderate to strongly pyritic volcaniclastic strata ranging from several meters to over 100 m thick. Multiple zones of pyritic volcaniclastic strata are encountered within the stratigraphic column and likely indicate fold repeated mineralization or multiple mineralizing events.

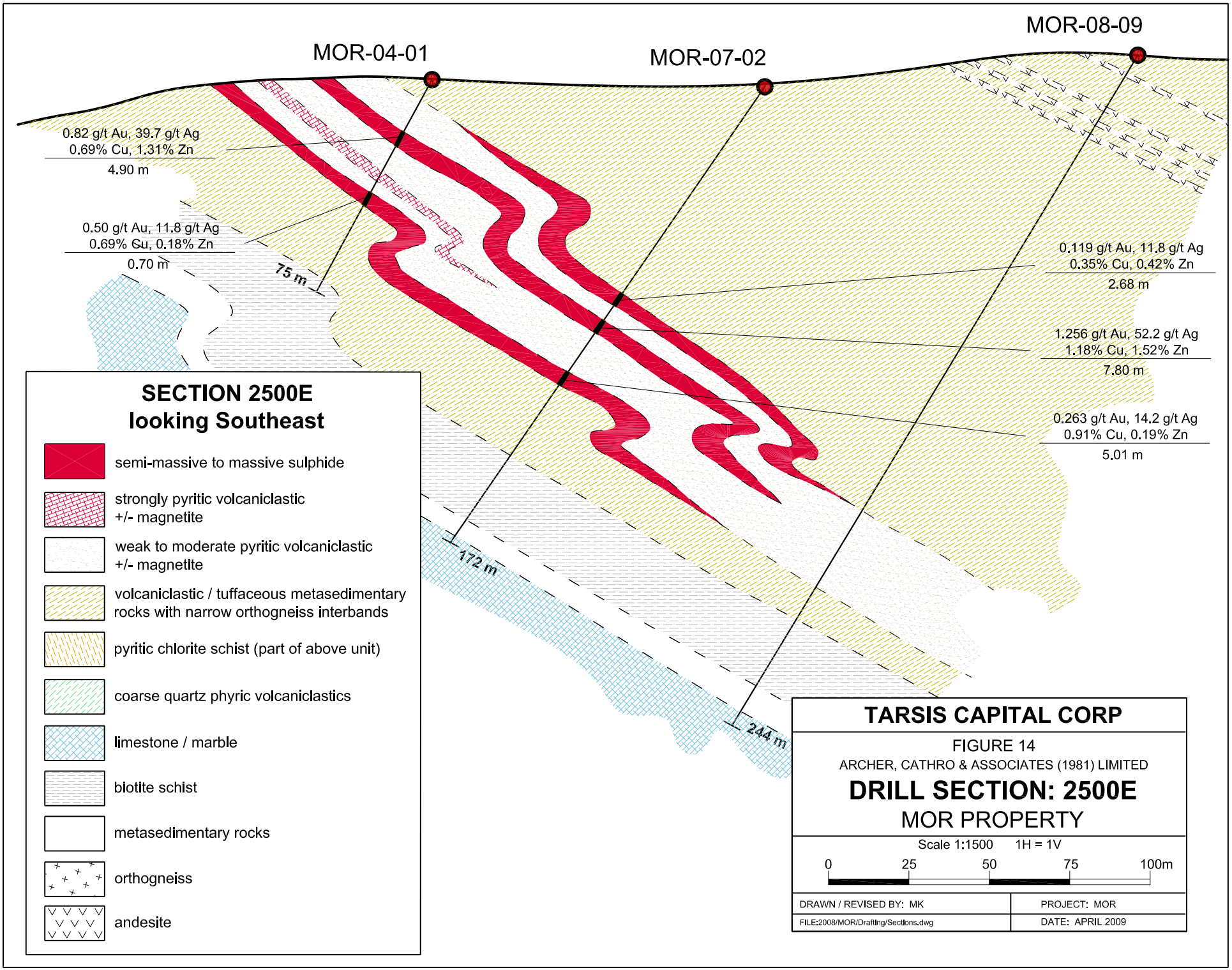
Drill sections for all drill holes testing the Discovery Horizon are shown on Figures 14 to 19 and results are contained in Table III.

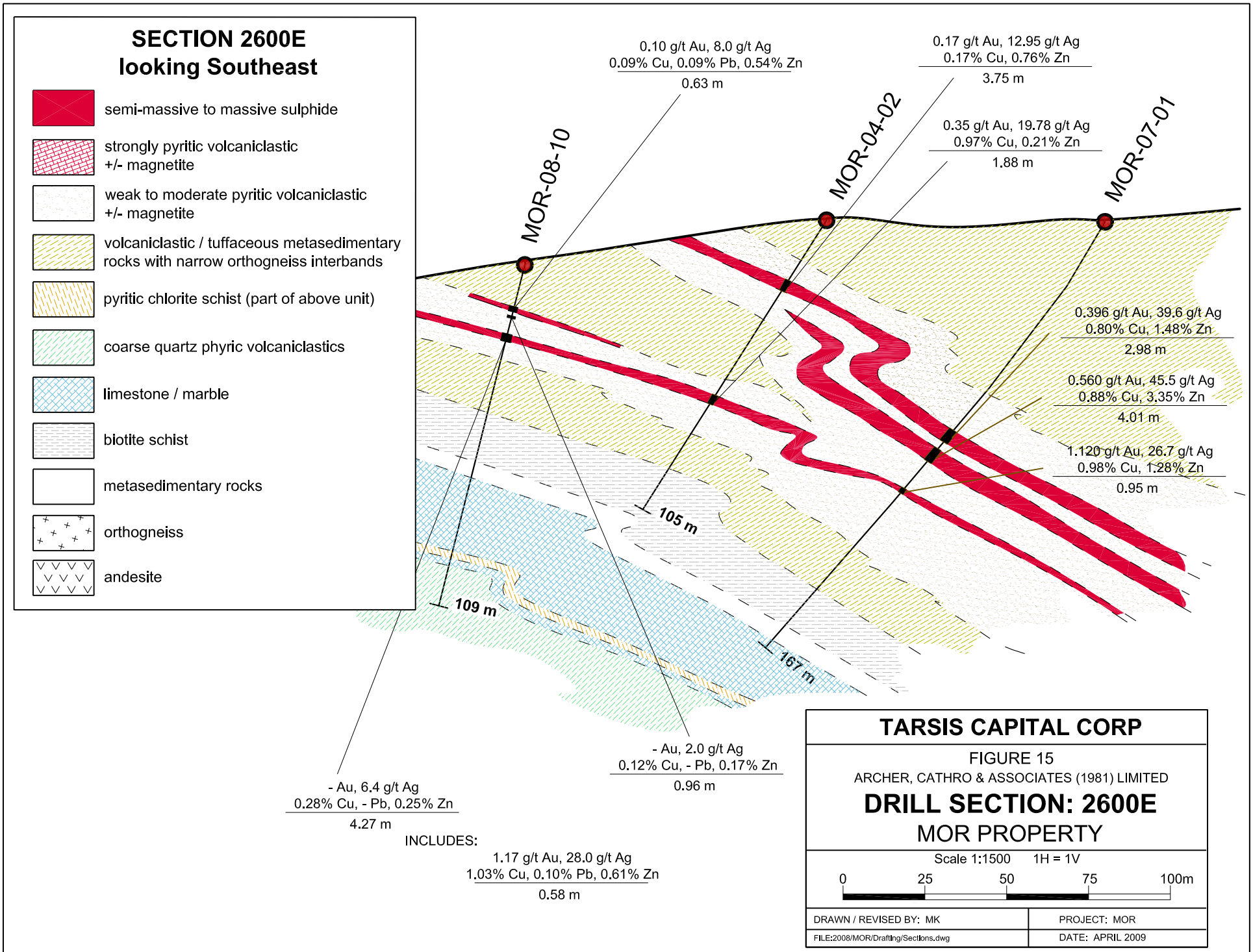
**Table III: Discovery Horizon**

| Hole # | From (m) | To (m) | Interval (m)* | Au g/t | Ag g/t | Cu % | Pb % | Zn % |
|---|---|---|---|---|---|---|---|---|
| Mor08-06 | 93.53 | 103.48 | 9.95 | 0.63 | 21.6 | 0.45 | 0.30 | 1.90 |
| *Including* | 95.09 | 100.05 | 4.96 | 0.64 | 31.3 | 0.24 | 0.58 | 3.65 |
| *Including* | 102.80 | 103.48 | 0.68 | 2.37 | 24.5 | 0.85 | 0.07 | 0.33 |
| *Including* | 96.17 | 97.32 | 1.15 | 0.58 | 51.0 | 0.24 | 0.93 | 6.74 |
| | | | | | | | | |
| Mor08-07 | 124.83 | 130.61 | 5.78 | 0.26 | 13.2 | 0.47 | 0.08 | 0.55 |
| *Including* | 126.97 | 127.97 | 1.00 | 0.70 | 44.1 | 0.97 | 0.18 | 1.23 |
| | 132.48 | 133.00 | 0.52 | 0.38 | 19.0 | 0.46 | 0.07 | 0.39 |
| | 136.42 | 138.36 | 1.94 | 0.39 | 18.4 | 0.25 | 0.13 | 0.60 |
| | | | | | | | | |
| Mor08-08 | 151.83 | 156.43 | 4.60 | 0.17 | 10.4 | 0.19 | 0.14 | 0.76 |
| *Including* | 153.56 | 155.40 | 1.84 | 0.28 | 22.0 | 0.19 | 0.35 | 1.79 |
| | | | | | | | | |
| Mor08-09 | No Significant Assays | | | | | | | |
| | | | | | | | | |
| Mor08-10 | 29.26 | 29.84 | 0.58 | 1.17 | 28.0 | 1.03 | 0.10 | 0.61 |
| | | | | | | | | |
| Mor08-11 | 204.01 | 205.00 | 0.99 | 0.14 | 3.0 | 0.53 | - | 0.03 |

*Thicknesses represent true thickness

The sulphide horizons appear to be moderately to strongly folded but do exhibit good lateral continuity near surface between section lines. Drilling downdip on the eastern and southernmost sections however, failed to encounter significant thicknesses of the sulphide associated with intervals intersected in the central part of the Discovery Horizon.


MOR-04-01
MOR-07-02
MOR-08-09
0.82 g/t Au, 39.7 g/t Ag
0.69% Cu, 1.31% Zn
4.90 m
0.50 g/t Au, 11.8 g/t Ag
0.69% Cu, 0.18% Zn
0.70 m
75 m
0.119 g/t Au, 11.8 g/t Ag
0.35% Cu, 0.42% Zn
2.68 m
1.256 g/t Au, 52.2 g/t Ag
1.18% Cu, 1.52% Zn
7.80 m
0.263 g/t Au, 14.2 g/t Ag
0.91% Cu, 0.19% Zn
5.01 m
172 m
244 m
SECTION 2500E
looking Southeast
semi-massive to massive sulphide
strongly pyritic volcaniclastic
+/- magnetite
weak to moderate pyritic volcaniclastic
+/- magnetite
volcaniclastic / tuffaceous metasedimentary
rocks with narrow orthogneiss interbands
pyritic chlorite schist (part of above unit)
coarse quartz phyric volcaniclastics
limestone / marble
biotite schist
metasedimentary rocks
orthogneiss
andesite
TARSIS CAPITAL CORP
FIGURE 14
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION: 2500E
MOR PROPERTY
Scale 1:1500 1H = 1V
0 25 50 75 100m
DRAWN / REVISED BY: MK
PROJECT: MOR
FILE:2008/MOR/Drafting/Sections.dwg
DATE: APRIL 2009




## TARSIS CAPITAL CORP

FIGURE 15

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

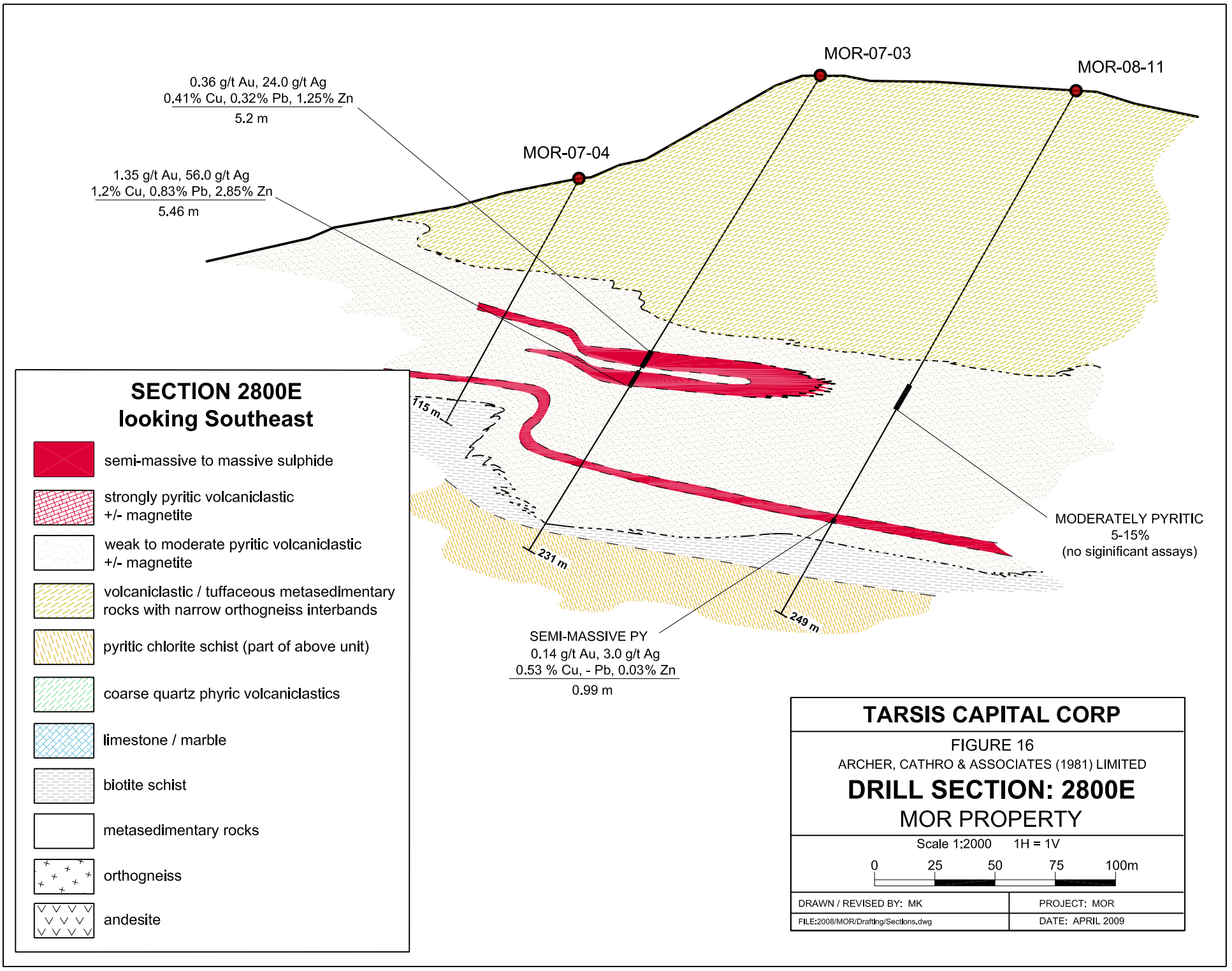
# DRILL SECTION: 2600E

## MOR PROPERTY

Scale 1:1500 1H = 1V

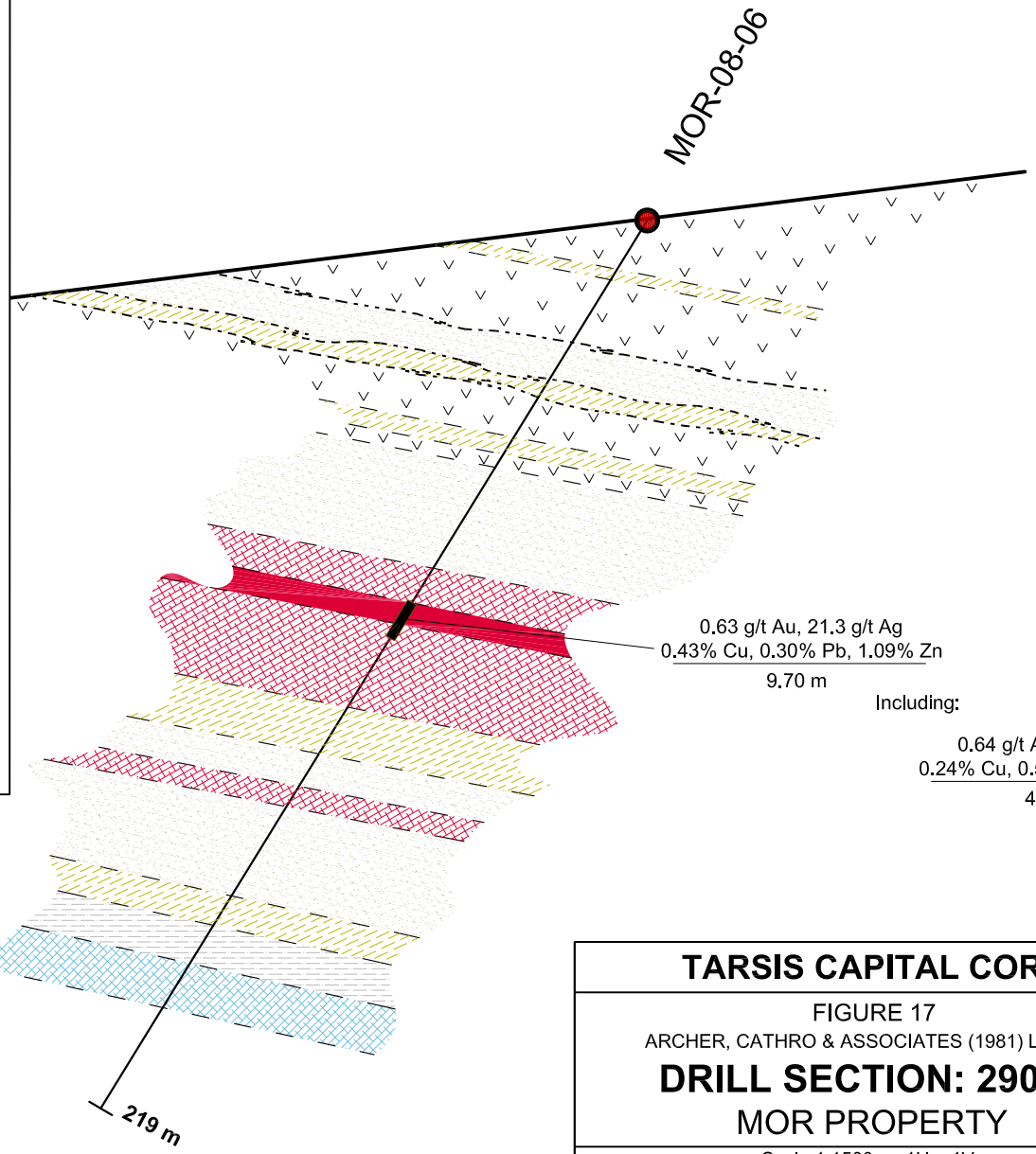
0 25 50 75 100m

| | |
|---|---|
| DRAWN / REVISED BY: MK | PROJECT: MOR |
| FILE:2008/MOR/Drafting/Sections.dwg | DATE: APRIL 2009 |


MOR-07-03
MOR-08-11
MOR-07-04
0.36 g/t Au, 24.0 g/t Ag
0.41% Cu, 0.32% Pb, 1.25% Zn
5.2 m
1.35 g/t Au, 56.0 g/t Ag
1.2% Cu, 0.83% Pb, 2.85% Zn
5.46 m
115 m
231 m
249 m
MODERATELY PYRITIC
5-15%
(no siginificant assays)
SEMI-MASSIVE PY
0.14 g/t Au, 3.0 g/t Ag
0.53 % Cu, - Pb, 0.03% Zn
0.99 m
SECTION 2800E
looking Southeast
semi-massive to massive sulphide
strongly pyritic volcaniclastic
+/- magnetite
weak to moderate pyritic volcaniclastic
+/- magnetite
volcaniclastic / tuffaceous metasedimentary
rocks with narrow orthogneiss interbands
pyritic chlorite schist (part of above unit)
coarse quartz phyric volcaniclastics
limestone / marble
biotite schist
metasedimentary rocks
orthogneiss
andesite
TARSIS CAPITAL CORP
FIGURE 16
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION: 2800E
MOR PROPERTY
Scale 1:2000 1H = 1V
0 25 50 75 100m
DRAWN / REVISED BY: MK
PROJECT: MOR
FILE:2008/MOR/Drafting/Sections.dwg
DATE: APRIL 2009

## SECTION 2900E
## looking Southeast

- semi-massive to massive sulphide
- strongly pyritic volcaniclastic +/- magnetite
- weak to moderate pyritic volcaniclastic +/- magnetite
- volcaniclastic / tuffaceous metasedimentary rocks with narrow orthogneiss interbands
- pyritic chlorite schist (part of above unit)
- coarse quartz phyric volcaniclastics
- limestone / marble
- biotite schist
- metasedimentary rocks
- orthogneiss
- andesite




## TARSIS CAPITAL CORP

FIGURE 17

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

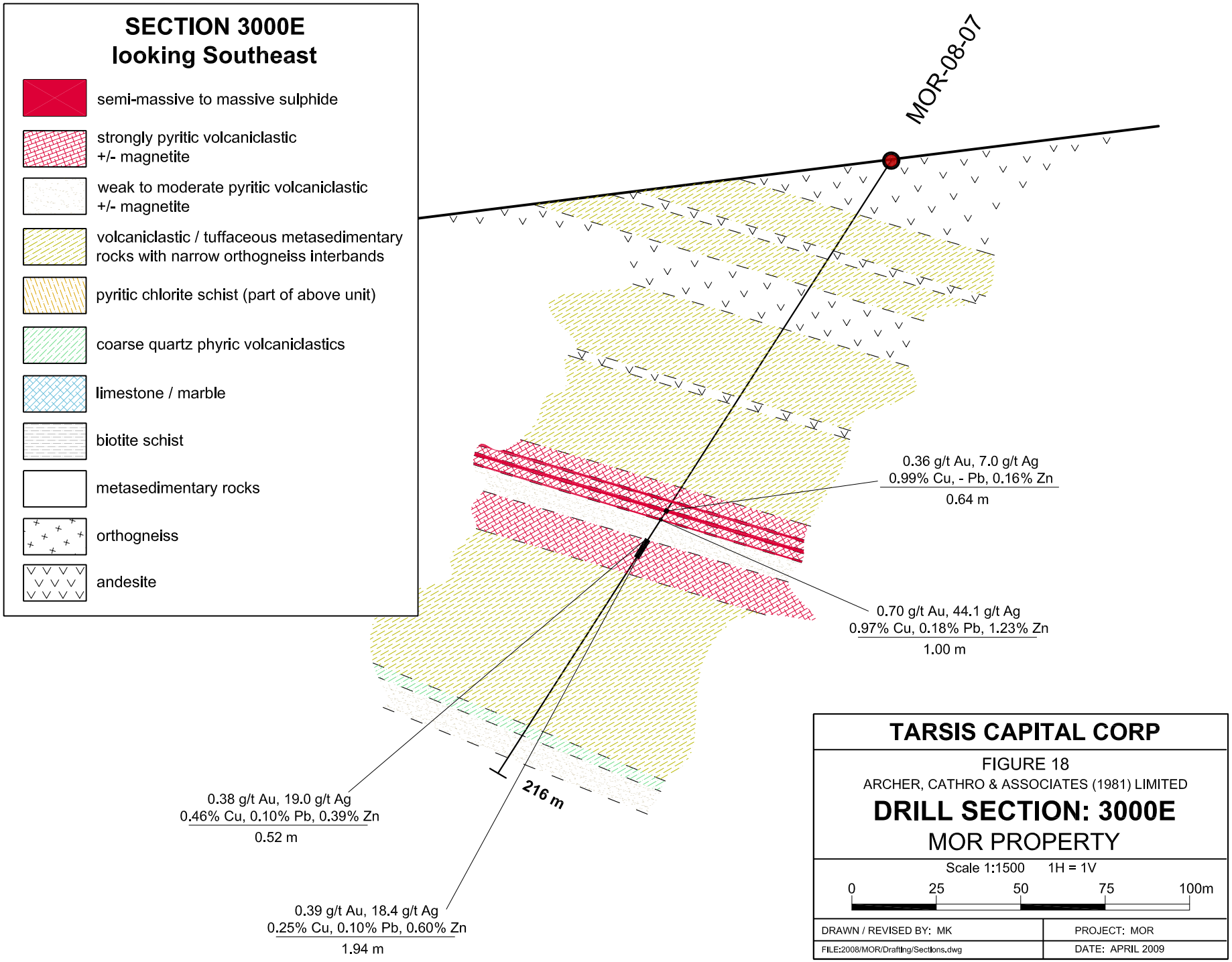
# DRILL SECTION: 2900E

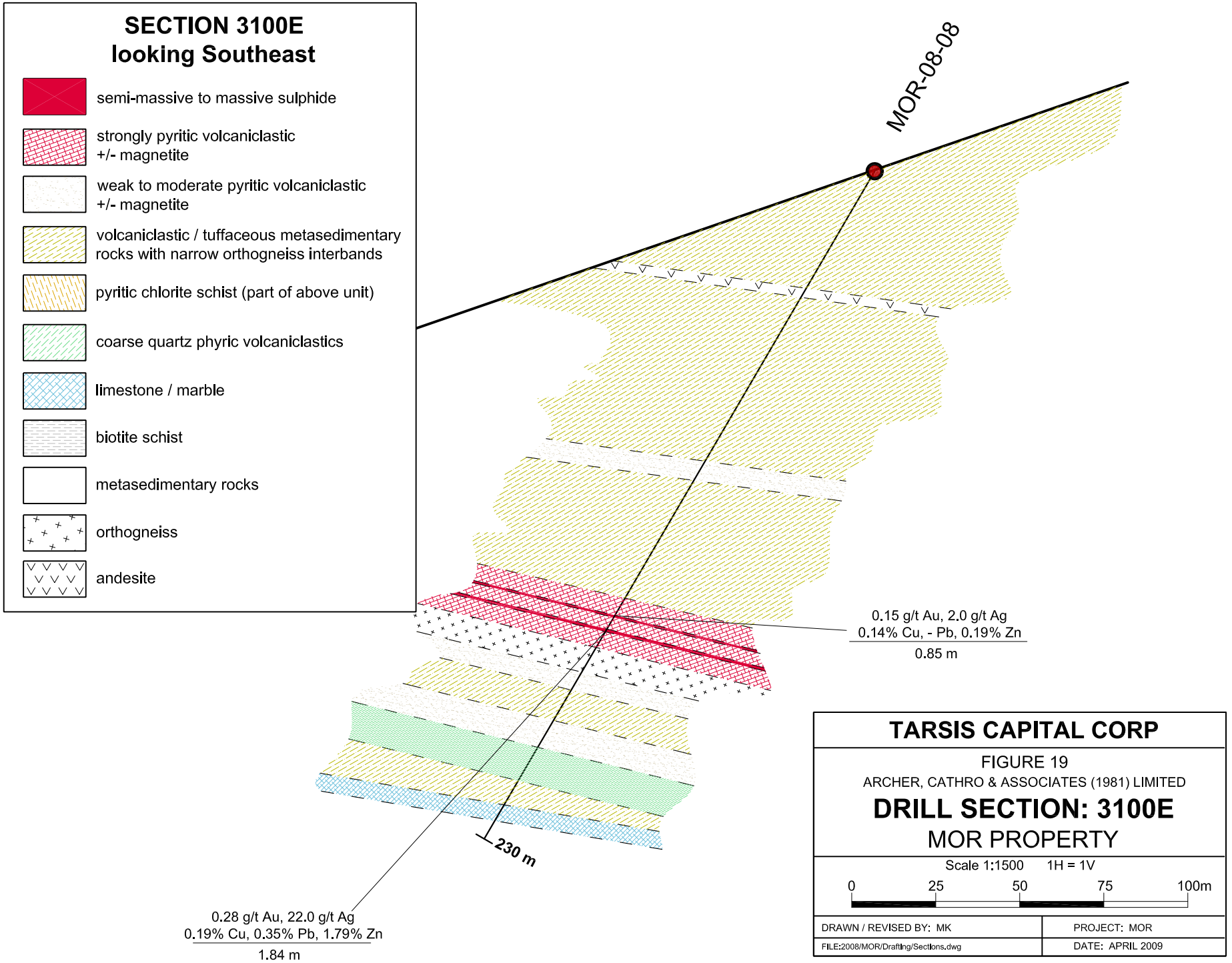
MOR PROPERTY

Scale 1:1500 1H = 1V

0 25 50 75 100m

| | |
|---|---|
| DRAWN / REVISED BY: MK | PROJECT: MOR |
| FILE:2008/MOR/Drafting/Sections.dwg | DATE: APRIL 2009 |


SECTION 3000E
looking Southeast
semi-massive to massive sulphide
strongly pyritic volcaniclastic
+/- magnetite
weak to moderate pyritic volcaniclastic
+/- magnetite
volcaniclastic / tuffaceous metasedimentary
rocks with narrow orthogneiss interbands
pyritic chlorite schist (part of above unit)
coarse quartz phyric volcaniclastics
limestone / marble
biotite schist
metasedimentary rocks
orthogneiss
andesite
MOR-08-07
0.36 g/t Au, 7.0 g/t Ag
0.99% Cu, - Pb, 0.16% Zn
0.64 m
0.70 g/t Au, 44.1 g/t Ag
0.97% Cu, 0.18% Pb, 1.23% Zn
1.00 m
216 m
0.38 g/t Au, 19.0 g/t Ag
0.46% Cu, 0.10% Pb, 0.39% Zn
0.52 m
0.39 g/t Au, 18.4 g/t Ag
0.25% Cu, 0.10% Pb, 0.60% Zn
1.94 m
TARSIS CAPITAL CORP
FIGURE 18
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION: 3000E
MOR PROPERTY
Scale 1:1500 1H = 1V
0 25 50 75 100m
DRAWN / REVISED BY: MK
PROJECT: MOR
FILE:2008/MOR/Drafting/Sections.dwg
DATE: APRIL 2009


SECTION 3100E
looking Southeast
semi-massive to massive sulphide
strongly pyritic volcaniclastic
+/- magnetite
weak to moderate pyritic volcaniclastic
+/- magnetite
volcaniclastic / tuffaceous metasedimentary
rocks with narrow orthogneiss interbands
pyritic chlorite schist (part of above unit)
coarse quartz phyric volcaniclastics
limestone / marble
biotite schist
metasedimentary rocks
orthogneiss
andesite
MOR-08-08
0.15 g/t Au, 2.0 g/t Ag
0.14% Cu, - Pb, 0.19% Zn
0.85 m
230 m
0.28 g/t Au, 22.0 g/t Ag
0.19% Cu, 0.35% Pb, 1.79% Zn
1.84 m
TARSIS CAPITAL CORP
FIGURE 19
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
DRILL SECTION: 3100E
MOR PROPERTY
Scale 1:1500 1H = 1V
0 25 50 75 100m
DRAWN / REVISED BY: MK
PROJECT: MOR
FILE:2008/MOR/Drafting/Sections.dwg
DATE: APRIL 2009

Diamond drilling at the SD Zone in 2008 targeted a strong localized VTEM conductor and coincident magnetic anomaly. Narrow massive sulphide intervals were intersected in two holes spaced 150 m apart on two section lines (Figures 20 and 21). The sulphide intercepts consist dominantly of strongly folded and finely laminated pyrrhotite, pyrite and minor visible chalcopyrite plus wispy magnetite. Significant assays for these intervals are shown below.

**Table IV: SD Zone**

| Hole # | From (m) | To (m) | Interval (m)* | Au g/t | Ag g/t | Cu % | Pb % | Zn % |
|---|---|---|---|---|---|---|---|---|
| Mor08-05 | 41.63 | 42.50 | 0.87 | 0.01 | 2.0 | 0.25 | - | - |
| | 47.00 | 48.20 | 1.20 | 0.01 | 1.0 | 0.16 | - | - |
| | | | | | | | | |
| Mor08-12 | 96.51 | 97.30 | 0.79 | 0.01 | - | 0.21 | - | - |
| | 102.03 | 102.51 | 0.48 | 0.01 | - | 0.13 | - | - |
| | 207.25 | 208.12 | 0.87 | 0.14 | 3.1 | 0.45 | - | - |

*Thicknesses represent true thickness

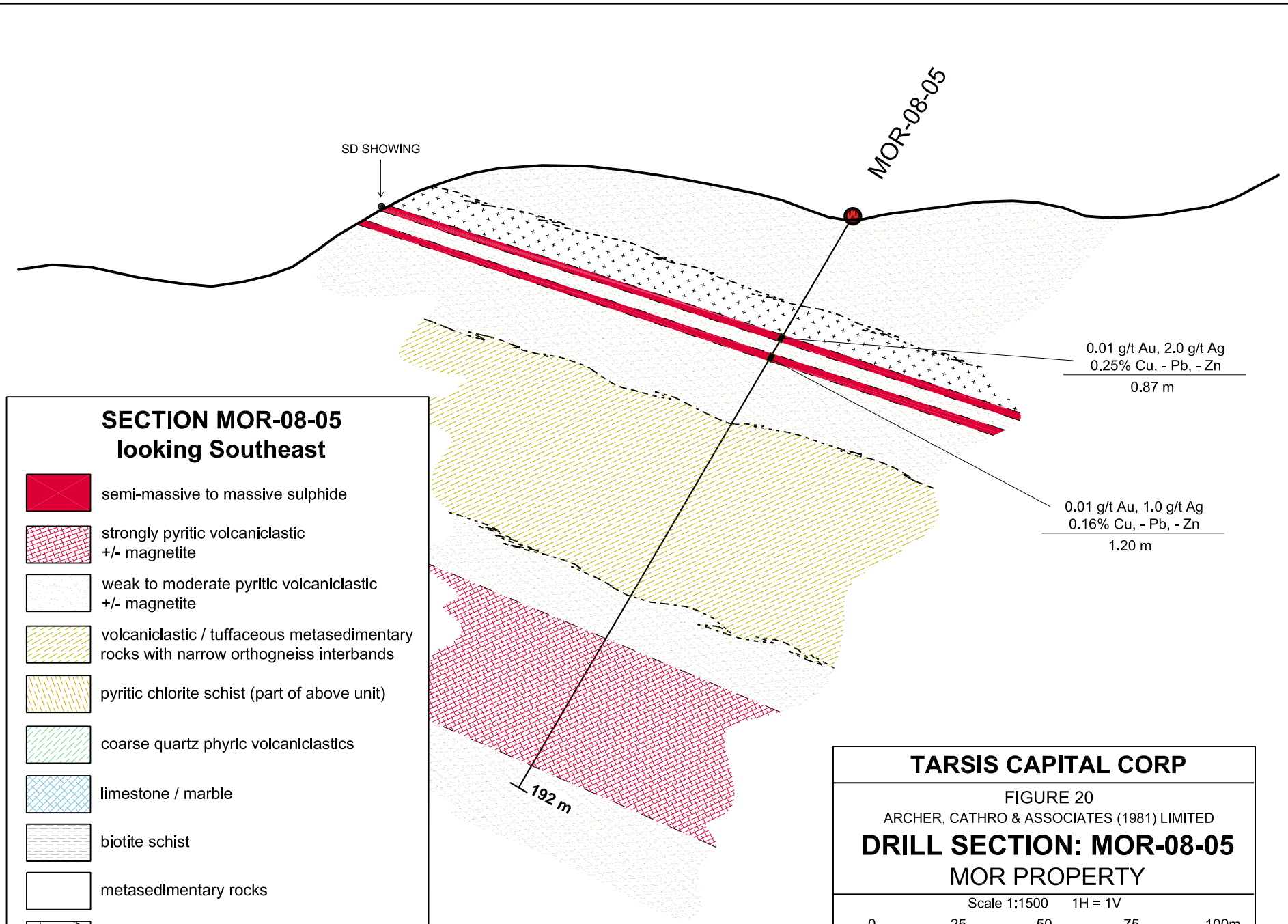
The two upper intervals in each of the holes correspond to the SD Horizon while the lower interval in Mor08-12 is believed to be the downdip expression of a surface showing 300 m to the northeast referred to as the Mag Horizon.

Prospecting 700 m southeast along strike of the SD Horizon discovered a kill zone referred to as the Bean Zone containing insitu semi-massive and heavily disseminated pyrite dominant chlorite altered mafic metavolcanic strata exposed across approximately 1 m true thickness. Sawn channel samples collected across the exposure returned only weakly elevated copper response to a peak value of 1135 ppm.

## DISCUSSION AND CONCLUSIONS

The MOR property covers a highly prospective Kuroko style VHMS target in southern Yukon, where remarkably little exploration has occurred during the 20th Century, despite a vast area of promising geology. Most of the known VHMS deposits in Yukon were discovered in the past decade within the evolving Finlayson Lake District, located in the southeastern part of the territory. These deposits are hosted within Yukon-Tanana Terrane, which comprises a composite collage of middle Paleozoic-age (Devonian to Carboniferous) bimodal arc volcanic rocks, metasedimentary and meta-igneous units. Regional geological mapping initiatives by the Yukon Geology Program have designated a vast area of Yukon to be underlain by Yukon-Tanana Terrane including the area occupied by the MOR prospect. Recent geochronological work conducted on select felsic to intermediate horizons from the MOR drill core yielded ages that categorize the MOR volcanism as time equivalent with the upper Finlayson to middle Wolverine Magmatic Cycles. These particular cycles hosts the Kudz Ze Kayah and Wolverine Deposits in the Finlayson Lake District.

The sulphide intervals defining the Discovery Horizon at the MOR property are pyrite dominant and appear to have been folded and coarsely recrystallized. The host rocks are classified as metavolcaniclastic, that likely represents a distal part of a VHMS mineralizing system. Typical




## SECTION MOR-08-05
## looking Southeast

- semi-massive to massive sulphide
- strongly pyritic volcaniclastic +/- magnetite
- weak to moderate pyritic volcaniclastic +/- magnetite
- volcaniclastic / tuffaceous metasedimentary rocks with narrow orthogneiss interbands
- pyritic chlorite schist (part of above unit)
- coarse quartz phyric volcaniclastics
- limestone / marble
- biotite schist
- metasedimentary rocks
- orthogneiss
- andesite

## TARSIS CAPITAL CORP

FIGURE 20

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# DRILL SECTION: MOR-08-05

MOR PROPERTY

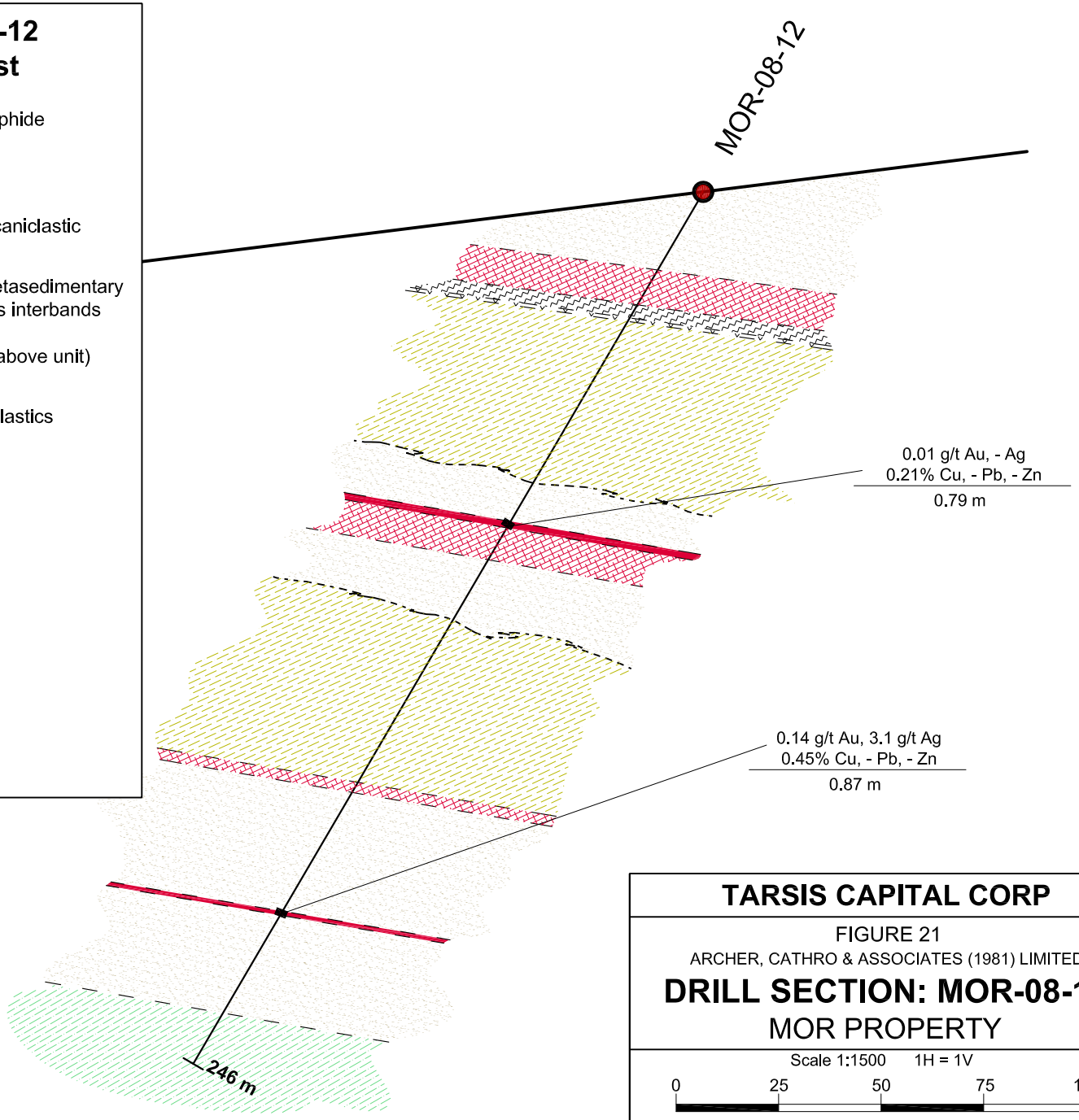
Scale 1:1500 1H = 1V

0 25 50 75 100m

| | |
|---|---|
| DRAWN / REVISED BY: MK | PROJECT: MOR |
| FILE:2008/MOR/Drafting/Sections.dwg | DATE: APRIL 2009 |

## SECTION MOR-08-12
## looking Southeast

- semi-massive to massive sulphide
- strongly pyritic volcaniclastic +/- magnetite
- weak to moderate pyritic volcaniclastic +/- magnetite
- volcaniclastic / tuffaceous metasedimentary rocks with narrow orthogneiss interbands
- pyritic chlorite schist (part of above unit)
- coarse quartz phyric volcaniclastics
- limestone / marble
- biotite schist
- metasedimentary rocks
- orthogneiss
- andesite
- fractured-rubble-gouge




## TARSIS CAPITAL CORP

FIGURE 21

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

# DRILL SECTION: MOR-08-12

MOR PROPERTY

Scale 1:1500 1H = 1V

0 25 50 75 100m

| | |
|---|---|
| DRAWN / REVISED BY: MK | PROJECT: MOR |
| FILE:2008/MOR/Drafting/Sections.dwg | DATE: APRIL 2009 |

barite, silica and/or magnetite-rich exhalative sequences have not yet been documented above or below the sulphide horizons, however, disseminated magnetite is noted in the stratigraphy overlying the Discovery Horizon mineralization and may represent the waning stages of an exhalative iron formation, which supports a distal VHMS environment. At the Kutcho Creek VHMS deposit located in northern British Columbia, a similar setting is described where these indicators in addition to the copper-rich stockwork footwall zone are absent. Recent remodelling of Kutcho Creek suggests the copper was remobilized from the footwall stockwork zone into the massive sulphide as it cooled.

Possible displacement of the MOR massive sulphide lenses from the origin of deposition is not known but the presence of significant amounts of chalcopyrite in portions of the mineralized horizons suggests displacement is likely minor and this mineralization may be of similar origin to the Kutcho Creek copper-rich sulphide. The MOR property covers an extensive VHMS system with excellent potential for the discovery of additional mineralization. The character of alteration and mineralization at the newly discovered SD Zone is indicative of a higher temperature setting than the Discovery Horizon. Although grades of the narrow sulphide intercepts at the SD Zone were generally low, alteration vectors suggest this part of the system is likely more vent proximal than the Discovery Horizon.

Exploration to date at the Discovery Horizon has identified narrow accumulations of massive sulphide that likely represent a “vent distal” depositional environment. Future exploration should focus on identifying new targets within the current project boundary by implementing techniques such as lithogeochemistry utilizing the existing data to establish vectors into potentially fertile basins within the MOR VHMS system. Additional grid soil geochemical sampling, geological mapping and prospecting should also be completed to expand the target base especially in the vicinity of the SD Zone.

Respectfully submitted,

Archer, Cathro & Associates (1981) Limited

W.A. Wengzynowski, P.Eng.

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# APPENDIX I

# STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

I, William A. Wengzynowski, geological engineer, with business addresses in Vancouver, British Columbia and Whitehorse, Yukon Territory and residential address at 301 Fairway Drive, North Vancouver, British Columbia, V7G 1L4 do hereby certify that:

1. I am President of Archer, Cathro & Associates (1981) Limited.

2. I graduated from the University of British Columbia in 1993 with a B.A.Sc in Geological Engineering, Option l, mineral and fuel exploration.

3. I registered as a Professional Engineer in the Province of British Columbia on December 12, 1998 (Licence Number 24119).

4. From 1983 to present, I have been actively engaged in mineral exploration in the Yukon Territory, Northwest Territories, northern British Columbia and Mexico.

5. I have personally participated in and supervised the fieldwork reported herein.

William A. Wengzynowski, B.A.Sc., P. Eng.

# APPENDIX II

# CERTIFICATES OF ANALYSIS

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# CERTIFICATE VA08134465

Project: MOR (MOR-08-12)

P.O. No.:

This report is for 25 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 22-SEP-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

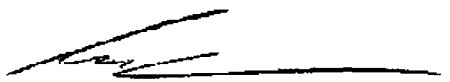
| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| CRU-QC | Crushing QC Test |
| PUL-QC | Pulverizing QC Test |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:** 

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 11-OCT-2008
Account: F

Project: MOR (MOR-08-12)

## CERTIFICATE OF ANALYSIS VA08134465

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.02 | 0.005 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 |
| G004231 | | 5.81 | <0.005 | 0.5 | 2.15 | 2 | <10 | 120 | <0.5 | <2 | 1.16 | 1.4 | 10 | 5 | 101 | 3.64 |
| G004232 | | 5.90 | 0.006 | 0.5 | 3.42 | 5 | <10 | 30 | <0.5 | <2 | 0.99 | <0.5 | 23 | 9 | 286 | 6.90 |
| G004233 | | 6.05 | <0.005 | 0.3 | 3.03 | 9 | <10 | 40 | <0.5 | <2 | 0.92 | <0.5 | 17 | 4 | 68 | 6.89 |
| G004234 | | 3.69 | 0.005 | 0.9 | 3.05 | 8 | <10 | 40 | <0.5 | <2 | 1.16 | <0.5 | 20 | 5 | 589 | 7.00 |
| G004235 | | 4.13 | <0.005 | 0.7 | 2.99 | 7 | <10 | 20 | <0.5 | <2 | 1.50 | <0.5 | 26 | 3 | 712 | 7.52 |
| G004236 | | 1.52 | <0.005 | | | | | | | | | | | | | |
| G004237 | | 2.22 | 0.007 | | | | | | | | | | | | | |
| G004238 | | 1.58 | 0.008 | | | | | | | | | | | | | |
| G004239 | | 1.45 | <0.005 | | | | | | | | | | | | | |
| G004240 | | 1.91 | 0.006 | | | | | | | | | | | | | |
| G004241 | | 1.62 | <0.005 | | | | | | | | | | | | | |
| G004242 | | 2.61 | 0.021 | | | | | | | | | | | | | |
| G004243 | | 5.30 | <0.005 | | | | | | | | | | | | | |
| G004244 | | 1.76 | <0.005 | <0.2 | 1.03 | <2 | <10 | 40 | <0.5 | <2 | 1.44 | <0.5 | 4 | 4 | 3 | 1.01 |
| G004245 | | 0.93 | 0.007 | | | | | | | | | | | | | |
| G004246 | | 1.85 | <0.005 | 0.2 | 4.22 | 3 | <10 | 40 | <0.5 | <2 | 5.58 | <0.5 | 31 | 216 | 94 | 5.71 |
| G004247 | | 0.84 | <0.005 | <0.2 | 2.12 | <2 | <10 | 50 | <0.5 | <2 | 1.59 | <0.5 | 11 | 29 | 81 | 3.50 |
| G004248 | | 2.14 | 0.006 | <0.2 | 2.04 | <2 | <10 | 100 | <0.5 | <2 | 1.34 | <0.5 | 13 | 22 | 51 | 3.71 |
| G004249 | | 1.78 | 0.137 | 3.1 | 3.49 | 5 | <10 | 40 | <0.5 | 3 | 1.47 | <0.5 | 43 | 174 | 4500 | 8.20 |
| G004250 | | 2.03 | 0.005 | 0.2 | 1.50 | 2 | <10 | 130 | <0.5 | <2 | 1.70 | <0.5 | 7 | 7 | 43 | 2.27 |
| G005751 | | 3.79 | 0.006 | <0.2 | 1.91 | <2 | <10 | 110 | <0.5 | <2 | 1.24 | <0.5 | 9 | 7 | 130 | 3.49 |
| G005752 | | 4.35 | <0.005 | <0.2 | 3.76 | <2 | <10 | 50 | <0.5 | <2 | 2.04 | <0.5 | 24 | 48 | 351 | 6.16 |
| G005753 | | 4.96 | 0.007 | 0.3 | 3.86 | 2 | <10 | 50 | <0.5 | <2 | 2.02 | <0.5 | 23 | 62 | 759 | 5.91 |
| G005754 | | 4.73 | <0.005 | 0.3 | 2.80 | <2 | <10 | 50 | <0.5 | <2 | 1.22 | <0.5 | 16 | 33 | 371 | 5.08 |
| G005755 | | 4.31 | <0.005 | <0.2 | 2.50 | <2 | <10 | 110 | <0.5 | <2 | 0.91 | <0.5 | 10 | 49 | 93 | 4.17 |

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Finalized Date: 11-OCT-2008
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| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Ga | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr |
| | Units | ppm | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm |
| | LOR | 10 | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 |
| G004231 | | 10 | <1 | 0.20 | <10 | 1.46 | 1290 | 2 | 0.04 | 2 | 630 | 11 | 0.31 | <2 | 5 | 30 |
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| G004235 | | 10 | <1 | 0.11 | <10 | 2.02 | 1460 | 2 | 0.04 | 2 | 690 | 14 | 3.25 | <2 | 11 | 41 |
| G004236 | | | | | | | | | | | | | | | | |
| G004237 | | | | | | | | | | | | | | | | |
| G004238 | | | | | | | | | | | | | | | | |
| G004239 | | | | | | | | | | | | | | | | |
| G004240 | | | | | | | | | | | | | | | | |
| G004241 | | | | | | | | | | | | | | | | |
| G004242 | | | | | | | | | | | | | | | | |
| G004243 | | | | | | | | | | | | | | | | |
| G004244 | | <10 | <1 | 0.05 | <10 | 0.77 | 143 | 2 | 0.06 | <1 | 330 | <2 | 0.02 | <2 | 1 | 48 |
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| G005753 | | 10 | 1 | 0.04 | <10 | 3.77 | 1910 | <1 | 0.05 | 23 | 690 | 2 | 1.13 | <2 | 16 | 38 |
| G005754 | | 10 | 1 | 0.13 | <10 | 2.67 | 1410 | 2 | 0.06 | 10 | 460 | 2 | 2.33 | <2 | 11 | 24 |
| G005755 | | 10 | 1 | 0.20 | 10 | 2.42 | 1175 | 1 | 0.05 | 10 | 380 | 4 | 1.67 | <2 | 9 | 24 |

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## CERTIFICATE OF ANALYSIS VA08134465

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
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| G004234 | | <20 | 0.15 | <10 | <10 | 97 | <10 | 241 | | | | | | | | |
| G004235 | | <20 | 0.13 | <10 | <10 | 137 | <10 | 114 | | | | | | | | |
| G004236 | | | | | | | | | 3 | 2.32 | <50 | 230 | <10 | <20 | 2.54 | <10 |
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| G004238 | | | | | | | | | <1 | 3.32 | <50 | <50 | <10 | 20 | 3.24 | <10 |
| G004239 | | | | | | | | | 5 | 2.50 | <50 | <50 | <10 | <20 | 2.99 | <10 |
| G004240 | | | | | | | | | <1 | 0.84 | <50 | <50 | <10 | 20 | 1.71 | <10 |
| G004241 | | | | | | | | | <1 | 0.16 | <50 | <50 | <10 | <20 | 21.2 | <10 |
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| G004245 | | | | | | | | | <1 | 4.20 | <50 | <50 | <10 | <20 | 3.56 | <10 |
| G004246 | | <20 | 0.03 | <10 | <10 | 132 | <10 | 66 | | | | | | | | |
| G004247 | | <20 | 0.01 | <10 | <10 | 36 | <10 | 32 | | | | | | | | |
| G004248 | | <20 | 0.02 | <10 | <10 | 34 | <10 | 41 | | | | | | | | |
| G004249 | | <20 | 0.08 | <10 | <10 | 131 | <10 | 66 | | | | | | | | |
| G004250 | | <20 | 0.05 | <10 | <10 | 31 | <10 | 25 | | | | | | | | |
| G005751 | | <20 | 0.01 | <10 | <10 | 32 | <10 | 44 | | | | | | | | |
| G005752 | | <20 | 0.01 | <10 | <10 | 123 | <10 | 100 | | | | | | | | |
| G005753 | | <20 | 0.03 | <10 | <10 | 142 | <10 | 126 | | | | | | | | |
| G005754 | | <20 | 0.02 | <10 | <10 | 81 | <10 | 126 | | | | | | | | |
| G005755 | | <20 | 0.02 | <10 | <10 | 48 | <10 | 171 | | | | | | | | |

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| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Co | Cr | Cu | Fe | Ga | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S |
| | Units | ppm | ppm | ppm | % | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % |
| | LOR | 10 | 10 | 10 | 0.05 | 50 | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 |
| G004231 | | | | | | | | | | | | | | | | |
| G004232 | | | | | | | | | | | | | | | | |
| G004233 | | | | | | | | | | | | | | | | |
| G004234 | | | | | | | | | | | | | | | | |
| G004235 | | | | | | | | | | | | | | | | |
| G004236 | | 10 | 10 | 290 | 3.19 | <50 | 0.5 | <50 | 0.72 | 450 | <10 | 2.31 | 20 | 560 | <20 | 0.1 |
| G004237 | | 120 | 20 | 1640 | 31.3 | <50 | <0.1 | <50 | 2.01 | 1180 | <10 | 0.35 | 20 | 400 | <20 | 10.1 |
| G004238 | | 70 | 20 | 700 | 27.1 | <50 | <0.1 | <50 | 2.05 | 1280 | 10 | 0.50 | 30 | 330 | <20 | 11.2 |
| G004239 | | 20 | 40 | 450 | 10.95 | <50 | <0.1 | <50 | 1.47 | 1060 | <10 | 0.40 | 30 | 230 | <20 | 4.4 |
| G004240 | | 30 | 10 | 2070 | 35.9 | <50 | <0.1 | <50 | 1.33 | 1030 | <10 | 0.41 | 20 | 240 | <20 | 17.2 |
| G004241 | | <10 | <10 | 10 | 0.54 | <50 | <0.1 | <50 | 12.10 | 190 | <10 | 0.07 | 10 | 300 | 30 | 0.1 |
| G004242 | | 40 | 10 | 440 | 30.9 | <50 | 0.1 | <50 | 2.41 | 1900 | 10 | 0.39 | 20 | 270 | <20 | 15.7 |
| G004243 | | 30 | 20 | 390 | 7.51 | <50 | <0.1 | <50 | 2.79 | 1170 | <10 | 2.79 | 30 | 400 | <20 | 0.6 |
| G004244 | | | | | | | | | | | | | | | | |
| G004245 | | 20 | 50 | 1250 | 14.30 | <50 | <0.1 | <50 | 2.55 | 1210 | <10 | 0.85 | 10 | 200 | <20 | 6.4 |
| G004246 | | | | | | | | | | | | | | | | |
| G004247 | | | | | | | | | | | | | | | | |
| G004248 | | | | | | | | | | | | | | | | |
| G004249 | | | | | | | | | | | | | | | | |
| G004250 | | | | | | | | | | | | | | | | |
| G005751 | | | | | | | | | | | | | | | | |
| G005752 | | | | | | | | | | | | | | | | |
| G005753 | | | | | | | | | | | | | | | | |
| G005754 | | | | | | | | | | | | | | | | |
| G005755 | | | | | | | | | | | | | | | | |

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Phone: 604 984 0221 Fax: 604 984 0218 www.alschemex.com

To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 11-OCT-2008
Account: F

Project: MOR (MOR-08-12)

## CERTIFICATE OF ANALYSIS VA08134465

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Sb | Sc | Sr | Th | Ti | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 10 | 10 | 50 | 0.05 | 50 | 50 | 10 | 50 | 20 |
| G004231 | | | | | | | | | | | |
| G004232 | | | | | | | | | | | |
| G004233 | | | | | | | | | | | |
| G004234 | | | | | | | | | | | |
| G004235 | | | | | | | | | | | |
| G004236 | | <50 | <10 | 150 | <50 | 0.27 | <50 | <50 | 60 | <50 | 20 |
| G004237 | | <50 | 10 | 50 | <50 | 0.16 | <50 | <50 | 60 | <50 | 20 |
| G004238 | | <50 | 10 | 70 | <50 | 0.17 | <50 | <50 | 70 | <50 | 40 |
| G004239 | | <50 | 10 | 90 | <50 | 0.13 | <50 | <50 | 30 | <50 | 20 |
| G004240 | | <50 | <10 | 20 | <50 | <0.05 | <50 | <50 | 20 | <50 | <20 |
| G004241 | | <50 | <10 | 40 | <50 | <0.05 | <50 | <50 | <10 | <50 | <20 |
| G004242 | | <50 | 10 | 90 | <50 | 0.09 | <50 | <50 | 30 | <50 | 20 |
| G004243 | | <50 | 20 | 320 | <50 | 0.37 | <50 | <50 | 210 | <50 | 30 |
| G004244 | | | | | | | | | | | |
| G004245 | | <50 | 20 | 120 | <50 | 0.14 | <50 | <50 | 120 | <50 | 80 |
| G004246 | | | | | | | | | | | |
| G004247 | | | | | | | | | | | |
| G004248 | | | | | | | | | | | |
| G004249 | | | | | | | | | | | |
| G004250 | | | | | | | | | | | |
| G005751 | | | | | | | | | | | |
| G005752 | | | | | | | | | | | |
| G005753 | | | | | | | | | | | |
| G005754 | | | | | | | | | | | |
| G005755 | | | | | | | | | | | |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 11-SEP-2008
Account: F

# CERTIFICATE VA08112830

Project: MOR Project

P.O. No.:

This report is for 28 Rock samples submitted to our lab in Vancouver, BC, Canada on 12-AUG-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

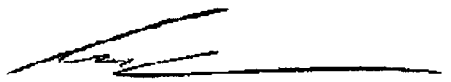
| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |
| ME-OG46 | Ore Grade Elements - AquaRegia | ICP-AES |
| Cu-OG46 | Ore Grade Cu - Aqua Regia | VARIABLE |
| Pb-OG46 | Ore Grade Pb - Aqua Regia | VARIABLE |
| Zn-OG46 | Ore Grade Zn - Aqua Regia | VARIABLE |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:** 

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 11-SEP-2008
Account: F

Project: MOR Project

## CERTIFICATE OF ANALYSIS VA08112830

| Sample Description | Method / Analyte / Units / LOR | WEI-21 Recvd Wt. kg 0.02 | Au-AA23 Au ppm 0.005 | ME-ICP41 Ag ppm 0.2 | ME-ICP41 Al % 0.01 | ME-ICP41 As ppm 2 | ME-ICP41 B ppm 10 | ME-ICP41 Ba ppm 10 | ME-ICP41 Be ppm 0.5 | ME-ICP41 Bi ppm 2 | ME-ICP41 Ca % 0.01 | ME-ICP41 Cd ppm 0.5 | ME-ICP41 Co ppm 1 | ME-ICP41 Cr ppm 1 | ME-ICP41 Cu ppm 1 | ME-ICP41 Fe % 0.01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G004070 | | 2.50 | 0.021 | 1.5 | 1.39 | 18 | <10 | 90 | <0.5 | 4 | 0.37 | 4.5 | 7 | 4 | 205 | 4.25 |
| G004071 | | 3.28 | 0.008 | 0.4 | 1.35 | 4 | <10 | 80 | <0.5 | 2 | 1.32 | 1.3 | 7 | 9 | 56 | 2.55 |
| G004072 | | 0.92 | 0.038 | 1.1 | 1.56 | 7 | <10 | 150 | <0.5 | <2 | 1.17 | 6.8 | 11 | 8 | 139 | 4.17 |
| G004073 | | 2.50 | <0.005 | <0.2 | 1.25 | 3 | <10 | 160 | <0.5 | <2 | 0.74 | <0.5 | 6 | 4 | 9 | 1.99 |
| G004074 | | 1.42 | 0.143 | 8.6 | 1.83 | 13 | <10 | 40 | <0.5 | 14 | 0.70 | 8.4 | 25 | 7 | 1250 | 5.21 |
| G004075 | | 1.82 | 0.011 | 0.4 | 2.65 | 14 | <10 | 700 | <0.5 | <2 | 1.59 | <0.5 | 15 | 27 | 67 | 3.58 |
| G004076 | | 2.70 | 0.320 | 10.9 | 2.80 | 25 | <10 | 100 | <0.5 | 8 | 0.61 | 5.0 | 27 | 6 | 8830 | 8.09 |
| G004078 | | 2.68 | 1.145 | 43.9 | 0.79 | 132 | <10 | 70 | <0.5 | 86 | 0.63 | 71.0 | 9 | 4 | 3800 | 23.1 |
| G004079 | | 2.38 | <0.005 | 0.2 | 0.01 | 5 | <10 | 10 | <0.5 | <2 | 0.69 | <0.5 | 1 | 1 | 63 | 0.29 |
| G004080 | | 3.14 | 0.576 | 51.0 | 0.31 | 111 | <10 | 60 | <0.5 | 77 | 0.76 | 183.5 | 5 | 1 | 2350 | 23.0 |
| G004081 | | 1.28 | 0.700 | 27.6 | 2.61 | 43 | <10 | 30 | <0.5 | 39 | 0.43 | 130.5 | 13 | 8 | 2980 | 20.1 |
| G004082 | | 1.06 | 0.014 | 1.2 | 2.52 | 13 | <10 | 180 | <0.5 | <2 | 0.39 | 2.3 | 13 | 10 | 157 | 4.87 |
| G004083 | | 1.24 | 0.983 | 23.5 | 2.18 | 56 | <10 | 30 | <0.5 | 26 | 0.31 | 116.0 | 18 | 11 | 2170 | 25.2 |
| G004084 | | 0.74 | 0.290 | 2.9 | 1.98 | 8 | <10 | 40 | <0.5 | 3 | 0.43 | 13.5 | 9 | 14 | 93 | 5.10 |
| G004085 | | 1.14 | 0.468 | 38.0 | 2.21 | 53 | <10 | 50 | <0.5 | 55 | 0.65 | 126.5 | 8 | 9 | 4240 | 24.6 |
| G004086 | | 2.48 | <0.005 | 0.2 | 0.05 | <2 | <10 | 20 | <0.5 | <2 | 18.8 | <0.5 | 2 | 1 | 13 | 0.43 |
| G004087 | | 2.66 | 0.259 | 9.1 | 3.11 | 26 | <10 | 40 | <0.5 | 12 | 0.15 | 4.4 | 36 | 5 | 4930 | 11.65 |
| G004088 | | 2.68 | 0.485 | 9.7 | 2.97 | 21 | <10 | 100 | <0.5 | 10 | 0.79 | 4.0 | 28 | 7 | 4580 | 8.76 |
| G004089 | | 1.20 | 2.37 | 24.5 | 2.63 | 25 | <10 | 30 | <0.5 | 43 | 1.20 | 11.1 | 67 | 16 | 8460 | 11.65 |
| G004119 | | 2.60 | 0.203 | 8.6 | 3.20 | 22 | <10 | 60 | <0.5 | 127 | 1.03 | 4.9 | 45 | 45 | 6450 | 10.25 |
| G004120 | | 2.86 | 0.702 | 44.1 | 0.51 | 53 | <10 | 20 | <0.5 | 154 | 0.38 | 37.3 | 58 | 2 | >10000 | 23.3 |
| G004121 | | 2.32 | 0.008 | 0.2 | 0.07 | <2 | <10 | 20 | <0.5 | 2 | 19.0 | <0.5 | 2 | 3 | 41 | 0.46 |
| G004122 | | 2.64 | 0.010 | 0.6 | 1.58 | 6 | <10 | 210 | <0.5 | <2 | 0.79 | <0.5 | 7 | 7 | 102 | 2.34 |
| G004123 | | 1.26 | 0.281 | 14.8 | 2.97 | 11 | <10 | 50 | <0.5 | 20 | 1.37 | 40.7 | 17 | 17 | 1280 | 8.44 |
| G004124 | | 1.10 | 0.032 | 1.9 | 1.17 | 4 | <10 | 470 | <0.5 | 3 | 0.89 | 2.4 | 5 | 5 | 314 | 2.35 |
| C105465 | | 4.82 | <0.005 | 0.4 | 2.11 | 9 | <10 | 50 | <0.5 | 7 | 0.34 | <0.5 | 24 | 31 | 697 | 20.6 |
| C105466 | | 6.20 | <0.005 | 0.2 | 2.80 | 4 | <10 | 40 | <0.5 | 2 | 0.60 | <0.5 | 10 | 38 | 277 | 13.00 |
| C105467 | | 9.66 | <0.005 | 0.3 | 3.37 | 21 | <10 | 20 | <0.5 | 4 | 0.27 | <0.5 | 19 | 33 | 1135 | 24.1 |

Comments: Additional Au-AA23 check results for sample G004078 are 0.737 ppm and 0.872 ppm.

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 11-SEP-2008
Account: F

Project: MOR Project

## CERTIFICATE OF ANALYSIS VA08112830

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Ga | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr |
| | Units | ppm | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm |
| | LOR | 10 | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 |
| G004070 | | <10 | <1 | 0.23 | 10 | 1.24 | 696 | 1 | 0.01 | 3 | 410 | 161 | 3.43 | <2 | 2 | 6 |
| G004071 | | <10 | <1 | 0.18 | 10 | 1.10 | 673 | <1 | 0.04 | 3 | 430 | 38 | 0.83 | <2 | 3 | 18 |
| G004072 | | <10 | 3 | 0.16 | <10 | 1.32 | 604 | <1 | 0.04 | 6 | 410 | 440 | 2.58 | <2 | 4 | 17 |
| G004073 | | <10 | <1 | 0.15 | 10 | 1.05 | 391 | <1 | 0.05 | 1 | 370 | 15 | 0.11 | <2 | 2 | 12 |
| G004074 | | 10 | 3 | 0.17 | 10 | 1.73 | 539 | 1 | 0.03 | 6 | 370 | 548 | 3.70 | <2 | 3 | 21 |
| G004075 | | 10 | <1 | 0.22 | 10 | 2.68 | 800 | <1 | 0.03 | 14 | 430 | 25 | 0.23 | 2 | 11 | 36 |
| G004076 | | 10 | 1 | 0.15 | 10 | 2.67 | 943 | <1 | 0.02 | 3 | 330 | 172 | 3.37 | 2 | 5 | 7 |
| G004078 | | 10 | 11 | 0.03 | <10 | 0.76 | 402 | <1 | 0.01 | 1 | 80 | 1630 | >10.0 | 40 | 2 | 14 |
| G004079 | | <10 | <1 | 0.01 | <10 | 2.10 | 74 | <1 | <0.01 | 2 | 80 | 3 | 0.04 | <2 | <1 | 26 |
| G004080 | | 10 | 24 | <0.01 | <10 | 0.32 | 299 | <1 | <0.01 | 2 | 20 | 9290 | >10.0 | 60 | 1 | 15 |
| G004081 | | 10 | 21 | 0.04 | <10 | 2.58 | 821 | 5 | 0.01 | 8 | 240 | >10000 | >10.0 | 17 | 8 | 26 |
| G004082 | | 10 | 1 | 0.06 | 10 | 2.40 | 859 | <1 | 0.05 | 3 | 540 | 328 | 1.23 | 2 | 8 | 10 |
| G004083 | | 10 | 12 | 0.07 | <10 | 1.98 | 787 | 9 | 0.01 | 6 | 290 | 6060 | >10.0 | 5 | 4 | 17 |
| G004084 | | 10 | 1 | 0.04 | 10 | 1.85 | 739 | <1 | 0.05 | 6 | 410 | 1980 | 2.86 | <2 | 6 | 10 |
| G004085 | | 10 | 14 | 0.05 | <10 | 2.01 | 755 | 6 | 0.02 | 7 | 290 | 7380 | >10.0 | 14 | 5 | 10 |
| G004086 | | <10 | 1 | 0.02 | <10 | 11.75 | 175 | <1 | 0.01 | <1 | 210 | 20 | <0.01 | <2 | <1 | 57 |
| G004087 | | 10 | <1 | 0.12 | <10 | 2.79 | 942 | 1 | 0.01 | 1 | 260 | 259 | 5.02 | <2 | 2 | 3 |
| G004088 | | 10 | 1 | 0.12 | <10 | 2.75 | 913 | <1 | 0.03 | 3 | 430 | 227 | 3.64 | <2 | 6 | 12 |
| G004089 | | 10 | 2 | 0.10 | <10 | 2.52 | 918 | 4 | 0.01 | 10 | 340 | 702 | 9.92 | <2 | 6 | 15 |
| G004119 | | 10 | 2 | 0.10 | <10 | 2.82 | 771 | <1 | 0.03 | 13 | 420 | 219 | 6.44 | <2 | 9 | 19 |
| G004120 | | <10 | 7 | 0.07 | <10 | 0.36 | 190 | <1 | 0.01 | 2 | 30 | 1820 | >10.0 | <2 | 1 | 7 |
| G004121 | | <10 | <1 | 0.04 | <10 | 11.90 | 189 | <1 | 0.01 | 3 | 180 | 7 | <0.01 | <2 | <1 | 53 |
| G004122 | | <10 | <1 | 0.12 | 10 | 1.45 | 445 | <1 | 0.03 | 5 | 360 | 38 | 0.29 | <2 | 3 | 15 |
| G004123 | | 10 | 11 | 0.10 | <10 | 2.89 | 979 | 3 | 0.01 | 18 | 440 | 2630 | 6.79 | 3 | 6 | 36 |
| G004124 | | <10 | <1 | 0.12 | 10 | 1.02 | 436 | <1 | 0.02 | 3 | 340 | 152 | 0.76 | <2 | 2 | 25 |
| C105465 | | 10 | <1 | 0.03 | <10 | 1.80 | 613 | 1 | 0.02 | 22 | 740 | 7 | 6.51 | <2 | 2 | 23 |
| C105466 | | 10 | <1 | 0.02 | <10 | 2.22 | 645 | 2 | 0.01 | 24 | 440 | 2 | 2.92 | <2 | 2 | 42 |
| C105467 | | 10 | <1 | 0.01 | <10 | 2.79 | 973 | 3 | 0.01 | 20 | 420 | <2 | >10.0 | <2 | 2 | 19 |

Comments: Additional Au-AA23 check results for sample G004078 are 0.737 ppm and 0.872 ppm.

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 11-SEP-2008
Account: F

Project: MOR Project

## CERTIFICATE OF ANALYSIS VA08112830

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | Cu-OG46 | Pb-OG46 | Zn-OG46 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Th | Ti | Tl | U | V | W | Zn | Cu | Pb | Zn |
| | Units | ppm | % | ppm | ppm | ppm | ppm | ppm | % | % | % |
| | LOR | 20 | 0.01 | 10 | 10 | 1 | 10 | 2 | 0.01 | 0.01 | 0.01 |
| G004070 | | <20 | <0.01 | <10 | <10 | 8 | <10 | 1260 | | | |
| G004071 | | <20 | 0.01 | <10 | <10 | 14 | <10 | 342 | | | |
| G004072 | | <20 | 0.02 | <10 | <10 | 24 | <10 | 2960 | | | |
| G004073 | | <20 | 0.03 | <10 | <10 | 12 | <10 | 120 | | | |
| G004074 | | <20 | 0.02 | <10 | <10 | 23 | <10 | 3020 | | | |
| G004075 | | <20 | 0.10 | <10 | <10 | 84 | <10 | 218 | | | |
| G004076 | | <20 | 0.02 | <10 | <10 | 32 | <10 | 1410 | | | |
| G004078 | | <20 | <0.01 | <10 | <10 | 19 | <10 | >10000 | | | 2.63 |
| G004079 | | <20 | <0.01 | <10 | <10 | 2 | <10 | 269 | | | |
| G004080 | | <20 | <0.01 | <10 | <10 | 11 | 10 | >10000 | | | 6.74 |
| G004081 | | <20 | 0.01 | <10 | <10 | 60 | 10 | >10000 | | 1.37 | 5.54 |
| G004082 | | <20 | 0.01 | <10 | <10 | 56 | <10 | 1600 | | | |
| G004083 | | <20 | 0.01 | <10 | <10 | 51 | 10 | >10000 | | | 3.62 |
| G004084 | | <20 | 0.01 | <10 | <10 | 39 | <10 | 5490 | | | |
| G004085 | | <20 | 0.01 | <10 | <10 | 55 | <10 | >10000 | | | 4.06 |
| G004086 | | <20 | <0.01 | <10 | <10 | 2 | <10 | 136 | | | |
| G004087 | | <20 | 0.01 | <10 | <10 | 19 | <10 | 1400 | | | |
| G004088 | | <20 | 0.02 | <10 | <10 | 67 | <10 | 1420 | | | |
| G004089 | | <20 | 0.02 | <10 | <10 | 46 | <10 | 3340 | | | |
| G004119 | | <20 | 0.01 | <10 | <10 | 63 | <10 | 2490 | | | |
| G004120 | | <20 | <0.01 | <10 | <10 | 11 | 10 | >10000 | 0.97 | | 1.23 |
| G004121 | | <20 | <0.01 | <10 | <10 | 3 | <10 | 48 | | | |
| G004122 | | <20 | 0.01 | <10 | <10 | 23 | <10 | 221 | | | |
| G004123 | | <20 | 0.01 | <10 | <10 | 39 | <10 | >10000 | | | 1.49 |
| G004124 | | <20 | 0.01 | <10 | <10 | 13 | <10 | 966 | | | |
| C105465 | | <20 | 0.07 | <10 | <10 | 47 | <10 | 70 | | | |
| C105466 | | <20 | 0.07 | <10 | <10 | 41 | <10 | 48 | | | |
| C105467 | | <20 | 0.06 | <10 | <10 | 44 | <10 | 60 | | | |

Comments: Additional Au-AA23 check results for sample G004078 are 0.737 ppm and 0.872 ppm.

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 19-AUG-2008**
**Account: F**

# CERTIFICATE VA08106775

Project: MOR (MOR-08-11)

P.O. No.:

This report is for 18 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 23-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

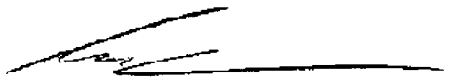
| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:** 
Colin Ramshaw, Vancouver Laboratory Manager

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 19-AUG-2008**
**Account: F**

Project: MOR (MOR-08-11)

# CERTIFICATE OF ANALYSIS VA08106775

| Sample Description | Method / Analyte / Units / LOR | WEI-21 Recvd Wt. kg 0.02 | Au-AA23 Au ppm 0.005 | ME-ICP61a Ag ppm 1 | ME-ICP61a Al % 0.05 | ME-ICP61a As ppm 50 | ME-ICP61a Ba ppm 50 | ME-ICP61a Be ppm 10 | ME-ICP61a Bi ppm 20 | ME-ICP61a Ca % 0.05 | ME-ICP61a Cd ppm 10 | ME-ICP61a Co ppm 10 | ME-ICP61a Cr ppm 10 | ME-ICP61a Cu ppm 10 | ME-ICP61a Fe % 0.05 | ME-ICP61a Ga ppm 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G004213 | | 3.88 | 0.006 | 1 | 5.82 | <50 | 680 | <10 | <20 | 0.91 | <10 | 20 | 40 | 10 | 7.01 | <50 |
| G004214 | | 4.00 | 0.008 | <1 | 6.30 | <50 | 680 | <10 | <20 | 0.80 | <10 | 20 | 30 | 50 | 7.50 | <50 |
| G004215 | | 6.46 | <0.005 | <1 | 6.44 | <50 | 630 | <10 | 20 | 0.75 | <10 | 20 | 80 | 10 | 7.74 | <50 |
| G004216 | | 6.02 | 0.009 | <1 | 5.85 | <50 | 840 | <10 | 20 | 0.38 | <10 | 20 | 30 | 30 | 6.97 | <50 |
| G004217 | | 3.60 | 0.005 | <1 | 5.10 | <50 | 860 | <10 | 30 | 1.31 | <10 | 10 | 20 | 30 | 5.22 | <50 |
| G004218 | | 6.00 | <0.005 | <1 | 4.92 | <50 | 560 | <10 | 20 | 1.94 | <10 | 10 | 10 | 10 | 4.59 | <50 |
| G004219 | | 1.58 | 0.087 | 2 | 5.68 | <50 | 500 | <10 | 30 | 0.78 | <10 | 30 | 20 | 970 | 13.05 | <50 |
| G004220 | | 2.66 | 0.069 | 1 | 3.86 | <50 | 650 | <10 | 20 | 0.81 | <10 | 40 | <10 | 720 | 9.65 | <50 |
| G004221 | | 2.16 | 0.007 | <1 | 2.25 | <50 | 550 | <10 | <20 | 0.91 | <10 | 10 | <10 | 90 | 3.54 | <50 |
| G004222 | | 2.14 | <0.005 | <1 | 0.13 | <50 | <50 | <10 | <20 | 21.6 | <10 | <10 | <10 | 20 | 0.49 | <50 |
| G004223 | | 3.70 | 0.014 | <1 | 4.00 | <50 | 520 | <10 | <20 | 0.88 | <10 | 20 | <10 | 500 | 8.36 | <50 |
| G004224 | | 4.00 | 0.032 | <1 | 5.03 | <50 | 380 | <10 | <20 | 0.97 | <10 | 30 | <10 | 2710 | 8.69 | <50 |
| G004225 | | 2.08 | 0.144 | 3 | 5.34 | <50 | 450 | <10 | <20 | 1.07 | <10 | 40 | <10 | 5250 | 7.78 | <50 |
| G004226 | | 4.80 | 0.005 | <1 | 6.23 | <50 | 220 | <10 | <20 | 2.93 | <10 | 20 | 40 | 80 | 6.07 | <50 |
| G004227 | | 6.08 | 0.007 | <1 | 5.65 | <50 | 540 | <10 | <20 | 1.00 | <10 | 20 | <10 | 120 | 7.51 | <50 |
| G004228 | | 2.70 | <0.005 | <1 | 0.12 | <50 | <50 | <10 | <20 | 21.4 | <10 | <10 | <10 | 10 | 0.47 | <50 |
| G004229 | | 5.64 | <0.005 | <1 | 4.99 | <50 | 510 | <10 | <20 | 0.91 | <10 | 20 | <10 | 20 | 7.37 | <50 |
| G004230 | | 4.28 | 0.005 | <1 | 5.64 | <50 | 660 | <10 | <20 | 1.41 | <10 | 20 | <10 | 30 | 6.78 | <50 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 19-AUG-2008**
**Account: F**

Project: MOR (MOR-08-11)

## CERTIFICATE OF ANALYSIS VA08106775

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004213 | | 1.0 | <50 | 3.37 | 1320 | <10 | 1.07 | <10 | 690 | <20 | 0.4 | <50 | 10 | 40 | <50 | 0.12 |
| G004214 | | 1.2 | <50 | 3.30 | 1310 | <10 | 0.52 | 10 | 700 | <20 | 0.5 | <50 | 10 | 30 | <50 | 0.15 |
| G004215 | | 1.1 | <50 | 3.70 | 1310 | <10 | 0.40 | 20 | 580 | <20 | 0.2 | <50 | 20 | 30 | <50 | 0.16 |
| G004216 | | 1.3 | <50 | 3.05 | 1210 | <10 | 0.13 | <10 | 710 | <20 | 0.4 | <50 | 10 | 20 | <50 | 0.16 |
| G004217 | | 1.2 | <50 | 2.12 | 1080 | <10 | 1.83 | <10 | 500 | <20 | 0.6 | <50 | 10 | 50 | <50 | 0.13 |
| G004218 | | 0.8 | <50 | 1.71 | 860 | <10 | 2.92 | <10 | 530 | <20 | 0.1 | <50 | 10 | 60 | <50 | 0.16 |
| G004219 | | 1.8 | <50 | 1.30 | 700 | <10 | 1.78 | <10 | 280 | 100 | 6.7 | <50 | 10 | 60 | <50 | 0.10 |
| G004220 | | 1.2 | <50 | 1.46 | 700 | <10 | 2.29 | 10 | 330 | 80 | 4.3 | <50 | 10 | 40 | <50 | 0.08 |
| G004221 | | 0.8 | <50 | 0.84 | 480 | <10 | 3.46 | <10 | 350 | 20 | 0.7 | <50 | <10 | 40 | <50 | 0.12 |
| G004222 | | <0.1 | <50 | 12.30 | 190 | <10 | 0.06 | <10 | 200 | <20 | <0.1 | <50 | <10 | 50 | <50 | <0.05 |
| G004223 | | 1.0 | <50 | 2.58 | 930 | <10 | 0.96 | <10 | 320 | 30 | 2.5 | <50 | 10 | 40 | <50 | 0.09 |
| G004224 | | 0.7 | <50 | 3.40 | 1040 | <10 | 1.04 | <10 | 370 | 20 | 2.1 | <50 | 10 | 40 | <50 | 0.08 |
| G004225 | | 0.7 | <50 | 3.37 | 990 | <10 | 1.30 | <10 | 510 | 30 | 2.2 | <50 | 10 | 60 | <50 | 0.08 |
| G004226 | | 0.4 | <50 | 3.36 | 1390 | <10 | 2.90 | 10 | 590 | <20 | 0.1 | <50 | 20 | 80 | <50 | 0.15 |
| G004227 | | 1.0 | <50 | 3.65 | 1290 | <10 | 0.81 | <10 | 540 | <20 | 0.8 | <50 | 10 | 30 | <50 | 0.11 |
| G004228 | | <0.1 | <50 | 12.40 | 210 | <10 | 0.05 | <10 | 140 | <20 | <0.1 | <50 | <10 | 40 | <50 | <0.05 |
| G004229 | | 1.0 | <50 | 3.54 | 1240 | <10 | 0.86 | <10 | 600 | <20 | 1.0 | <50 | 10 | 40 | <50 | 0.13 |
| G004230 | | 1.1 | <50 | 3.40 | 1160 | <10 | 1.78 | <10 | 500 | <20 | 0.7 | <50 | 10 | 50 | <50 | 0.16 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 19-AUG-2008**
**Account: F**

Project: MOR (MOR-08-11)

# CERTIFICATE OF ANALYSIS VA08106775

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004213 | | <50 | <50 | 140 | <50 | 110 |
| G004214 | | <50 | <50 | 110 | <50 | 90 |
| G004215 | | <50 | <50 | 130 | <50 | 80 |
| G004216 | | <50 | <50 | 70 | <50 | 120 |
| G004217 | | <50 | <50 | 80 | <50 | 130 |
| G004218 | | <50 | <50 | 100 | <50 | 100 |
| G004219 | | <50 | <50 | 30 | <50 | 730 |
| G004220 | | <50 | <50 | 40 | <50 | 470 |
| G004221 | | <50 | <50 | 30 | <50 | 100 |
| G004222 | | <50 | <50 | <10 | <50 | <20 |
| G004223 | | <50 | <50 | 40 | <50 | 200 |
| G004224 | | <50 | <50 | 80 | <50 | 130 |
| G004225 | | <50 | <50 | 110 | <50 | 260 |
| G004226 | | <50 | <50 | 170 | <50 | 110 |
| G004227 | | <50 | <50 | 110 | <50 | 100 |
| G004228 | | <50 | <50 | <10 | <50 | <20 |
| G004229 | | <50 | <50 | 130 | <50 | 100 |
| G004230 | | <50 | <50 | 120 | <50 | 110 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

## CERTIFICATE VA08096084

Project: MOR-VTEM ANOMALY D

P.O. No.:

This report is for 108 Soil samples submitted to our lab in Vancouver, BC, Canada on 14-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| SCR-41 | Screen to -180um and save both |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |

To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45160 | | 0.26 | <0.2 | 1.59 | 2 | <10 | 230 | <0.5 | 2 | 0.76 | 0.6 | 12 | 42 | 39 | 3.02 | <10 |
| CC45161 | | 0.24 | 0.2 | 1.67 | 8 | <10 | 280 | <0.5 | 2 | 0.91 | 0.6 | 15 | 42 | 42 | 3.03 | 10 |
| CC45162 | | 0.28 | <0.2 | 1.19 | 4 | <10 | 180 | <0.5 | <2 | 0.73 | <0.5 | 10 | 37 | 24 | 2.60 | <10 |
| CC45163 | | 0.26 | <0.2 | 1.34 | 3 | <10 | 240 | <0.5 | <2 | 1.25 | <0.5 | 11 | 37 | 36 | 2.56 | <10 |
| CC45164 | | 0.24 | <0.2 | 1.00 | <2 | <10 | 150 | <0.5 | <2 | 0.55 | <0.5 | 11 | 33 | 21 | 2.10 | <10 |
| CC45165 | | 0.26 | <0.2 | 1.53 | <2 | <10 | 200 | <0.5 | <2 | 0.57 | <0.5 | 11 | 38 | 28 | 2.97 | 10 |
| CC45166 | | 0.36 | <0.2 | 1.63 | 6 | <10 | 230 | <0.5 | <2 | 0.65 | <0.5 | 12 | 46 | 36 | 3.17 | <10 |
| CC45167 | | 0.28 | <0.2 | 1.62 | 3 | <10 | 290 | <0.5 | <2 | 1.55 | <0.5 | 11 | 42 | 40 | 2.84 | <10 |
| CC45168 | | 0.30 | <0.2 | 1.55 | 2 | <10 | 220 | <0.5 | <2 | 0.73 | <0.5 | 10 | 45 | 39 | 2.97 | <10 |
| CC45169 | | 0.28 | <0.2 | 1.43 | 2 | <10 | 230 | <0.5 | <2 | 0.88 | <0.5 | 11 | 41 | 42 | 2.70 | <10 |
| CC45170 | | 0.34 | <0.2 | 1.33 | 2 | <10 | 180 | <0.5 | <2 | 0.63 | <0.5 | 10 | 38 | 19 | 2.70 | <10 |
| CC45171 | | 0.24 | <0.2 | 1.69 | 2 | <10 | 260 | <0.5 | <2 | 0.72 | <0.5 | 12 | 45 | 30 | 3.13 | <10 |
| CC45172 | | 0.26 | <0.2 | 1.29 | <2 | <10 | 200 | <0.5 | <2 | 0.86 | <0.5 | 11 | 32 | 22 | 2.68 | <10 |
| CC45173 | | 0.20 | <0.2 | 1.62 | 18 | <10 | 230 | <0.5 | <2 | 1.13 | <0.5 | 17 | 51 | 46 | 3.50 | <10 |
| CC45174 | | 0.18 | <0.2 | 1.55 | 10 | <10 | 220 | <0.5 | <2 | 1.28 | <0.5 | 14 | 47 | 42 | 3.02 | <10 |
| CC45175 | | 0.16 | <0.2 | 1.93 | 10 | <10 | 230 | <0.5 | 2 | 1.13 | <0.5 | 17 | 54 | 37 | 3.48 | 10 |
| CC45176 | | 0.20 | <0.2 | 1.40 | 5 | <10 | 160 | <0.5 | <2 | 0.77 | <0.5 | 12 | 45 | 20 | 2.82 | <10 |
| CC45177 | | 0.18 | 0.2 | 1.41 | 5 | <10 | 160 | <0.5 | 2 | 1.14 | <0.5 | 10 | 45 | 38 | 2.75 | <10 |
| CC45178 | | 0.28 | <0.2 | 1.55 | 10 | <10 | 200 | <0.5 | 2 | 0.93 | 0.5 | 13 | 48 | 40 | 3.07 | <10 |
| CC45179 | | 0.18 | <0.2 | 1.39 | 8 | <10 | 210 | <0.5 | <2 | 1.37 | <0.5 | 11 | 44 | 47 | 2.59 | <10 |
| CC45180 | | 0.20 | <0.2 | 1.29 | 11 | <10 | 160 | <0.5 | <2 | 1.10 | <0.5 | 12 | 45 | 31 | 2.75 | <10 |
| CC45181 | | 0.28 | <0.2 | 1.47 | 3 | <10 | 210 | <0.5 | <2 | 1.04 | <0.5 | 12 | 41 | 35 | 2.80 | <10 |
| CC45182 | | 0.22 | <0.2 | 1.33 | 5 | <10 | 200 | <0.5 | <2 | 0.94 | <0.5 | 10 | 38 | 35 | 2.62 | 10 |
| CC45183 | | 0.20 | <0.2 | 1.29 | 8 | <10 | 160 | <0.5 | <2 | 0.94 | <0.5 | 11 | 44 | 30 | 2.56 | <10 |
| CC45184 | | 0.20 | <0.2 | 1.27 | 7 | <10 | 160 | <0.5 | 2 | 1.25 | <0.5 | 11 | 45 | 30 | 2.69 | <10 |
| CC45185 | | 0.22 | <0.2 | 1.56 | 7 | <10 | 230 | <0.5 | <2 | 1.67 | <0.5 | 11 | 47 | 48 | 2.75 | <10 |
| CC45186 | | 0.32 | <0.2 | 1.54 | 11 | <10 | 200 | <0.5 | 2 | 1.39 | <0.5 | 18 | 47 | 67 | 3.36 | <10 |
| CC45187 | | 0.32 | <0.2 | 1.38 | 6 | <10 | 190 | <0.5 | <2 | 1.25 | <0.5 | 10 | 45 | 38 | 2.64 | <10 |
| CC45188 | | 0.20 | <0.2 | 1.49 | 11 | <10 | 190 | <0.5 | <2 | 1.14 | <0.5 | 14 | 49 | 39 | 3.19 | <10 |
| CC45189 | | 0.20 | <0.2 | 1.74 | 7 | <10 | 290 | <0.5 | <2 | 1.47 | <0.5 | 14 | 54 | 44 | 3.00 | <10 |
| CC45190 | | 0.28 | <0.2 | 1.22 | 4 | <10 | 200 | <0.5 | 2 | 0.60 | <0.5 | 14 | 40 | 33 | 2.88 | <10 |
| CC48605 | | 0.18 | 0.2 | 1.35 | 3 | <10 | 230 | <0.5 | <2 | 1.12 | <0.5 | 10 | 35 | 48 | 2.35 | 10 |
| CC48606 | | 0.10 | 0.5 | 1.08 | <2 | <10 | 520 | <0.5 | <2 | 2.71 | 0.5 | 9 | 27 | 47 | 1.32 | <10 |
| CC48607 | | 0.20 | 0.4 | 1.90 | 3 | <10 | 390 | 0.8 | <2 | 1.09 | 0.5 | 10 | 48 | 104 | 3.26 | 10 |
| CC48608 | | 0.24 | 0.2 | 1.59 | <2 | <10 | 190 | <0.5 | 2 | 0.60 | <0.5 | 10 | 42 | 24 | 3.09 | 10 |
| CC48609 | | 0.22 | <0.2 | 1.44 | 13 | <10 | 190 | <0.5 | <2 | 1.19 | <0.5 | 14 | 49 | 40 | 2.92 | <10 |
| CC48610 | | 0.14 | <0.2 | 1.34 | 12 | <10 | 170 | <0.5 | <2 | 1.23 | <0.5 | 12 | 41 | 36 | 2.60 | <10 |
| CC48611 | | 0.16 | <0.2 | 1.64 | 14 | <10 | 220 | <0.5 | 2 | 1.21 | <0.5 | 14 | 51 | 37 | 2.88 | <10 |
| CC48612 | | 0.18 | <0.2 | 1.39 | 9 | <10 | 180 | <0.5 | <2 | 1.28 | <0.5 | 11 | 42 | 37 | 2.62 | <10 |
| CC48613 | | 0.12 | <0.2 | 1.29 | 14 | <10 | 180 | <0.5 | <2 | 1.27 | <0.5 | 12 | 44 | 35 | 2.67 | <10 |

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

# CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45160 | | <1 | 0.10 | 10 | 0.85 | 457 | <1 | 0.02 | 39 | 770 | 6 | 0.02 | 3 | 5 | 37 | <20 |
| CC45161 | | <1 | 0.10 | 10 | 0.83 | 744 | 1 | 0.02 | 39 | 850 | 6 | 0.04 | <2 | 5 | 41 | <20 |
| CC45162 | | <1 | 0.07 | 10 | 0.69 | 354 | <1 | 0.02 | 34 | 760 | 5 | 0.03 | 2 | 4 | 32 | <20 |
| CC45163 | | <1 | 0.09 | 10 | 0.71 | 550 | <1 | 0.02 | 39 | 700 | 5 | 0.06 | <2 | 4 | 48 | <20 |
| CC45164 | | <1 | 0.05 | 10 | 0.64 | 500 | <1 | 0.02 | 33 | 750 | 3 | 0.01 | 3 | 3 | 28 | <20 |
| CC45165 | | <1 | 0.12 | 10 | 0.88 | 480 | <1 | 0.02 | 35 | 760 | 4 | 0.01 | <2 | 5 | 29 | <20 |
| CC45166 | | <1 | 0.12 | 10 | 0.92 | 534 | <1 | 0.03 | 45 | 780 | 5 | 0.01 | 2 | 6 | 35 | <20 |
| CC45167 | | <1 | 0.11 | 10 | 0.86 | 615 | 1 | 0.02 | 45 | 790 | 5 | 0.07 | <2 | 5 | 61 | <20 |
| CC45168 | | <1 | 0.12 | 10 | 0.85 | 454 | <1 | 0.02 | 47 | 770 | 5 | 0.02 | <2 | 5 | 36 | <20 |
| CC45169 | | <1 | 0.09 | 10 | 0.80 | 329 | <1 | 0.02 | 40 | 720 | 6 | 0.03 | <2 | 5 | 43 | <20 |
| CC45170 | | <1 | 0.09 | 10 | 0.82 | 431 | <1 | 0.02 | 34 | 770 | 4 | 0.01 | <2 | 4 | 31 | <20 |
| CC45171 | | <1 | 0.11 | 10 | 0.88 | 486 | <1 | 0.03 | 42 | 790 | 5 | 0.02 | 2 | 5 | 36 | <20 |
| CC45172 | | <1 | 0.09 | 10 | 0.77 | 573 | <1 | 0.03 | 32 | 580 | 3 | 0.03 | <2 | 4 | 39 | <20 |
| CC45173 | | <1 | 0.12 | 10 | 1.26 | 1345 | 1 | 0.03 | 65 | 950 | 5 | 0.03 | <2 | 5 | 42 | <20 |
| CC45174 | | <1 | 0.10 | 10 | 0.96 | 777 | <1 | 0.03 | 52 | 830 | 6 | 0.04 | 2 | 5 | 43 | <20 |
| CC45175 | | <1 | 0.12 | 10 | 1.18 | 740 | 1 | 0.03 | 57 | 620 | 6 | 0.05 | <2 | 6 | 40 | <20 |
| CC45176 | | <1 | 0.09 | 10 | 1.01 | 713 | 1 | 0.02 | 45 | 950 | 4 | 0.02 | 3 | 4 | 30 | <20 |
| CC45177 | | <1 | 0.07 | 10 | 0.89 | 366 | 1 | 0.02 | 42 | 730 | 4 | 0.04 | <2 | 4 | 34 | <20 |
| CC45178 | | <1 | 0.09 | 10 | 0.92 | 447 | 1 | 0.02 | 46 | 790 | 5 | 0.03 | 2 | 5 | 35 | <20 |
| CC45179 | | <1 | 0.08 | 10 | 0.83 | 604 | 1 | 0.02 | 49 | 730 | 3 | 0.06 | <2 | 4 | 40 | <20 |
| CC45180 | | <1 | 0.09 | 10 | 1.00 | 566 | <1 | 0.02 | 48 | 640 | 3 | 0.04 | <2 | 4 | 34 | <20 |
| CC45181 | | <1 | 0.10 | 10 | 0.84 | 500 | <1 | 0.02 | 42 | 780 | 4 | 0.04 | <2 | 5 | 37 | <20 |
| CC45182 | | <1 | 0.09 | 10 | 0.78 | 436 | <1 | 0.02 | 39 | 790 | 4 | 0.03 | <2 | 4 | 37 | <20 |
| CC45183 | | <1 | 0.07 | 10 | 0.94 | 322 | <1 | 0.02 | 46 | 590 | 4 | 0.04 | 2 | 4 | 31 | <20 |
| CC45184 | | <1 | 0.09 | 10 | 1.00 | 429 | 1 | 0.02 | 43 | 810 | 3 | 0.04 | <2 | 4 | 38 | <20 |
| CC45185 | | <1 | 0.09 | 10 | 0.90 | 338 | <1 | 0.02 | 47 | 840 | 4 | 0.09 | <2 | 5 | 49 | <20 |
| CC45186 | | <1 | 0.08 | 10 | 1.01 | 364 | 1 | 0.02 | 60 | 940 | 4 | 0.06 | 3 | 5 | 39 | <20 |
| CC45187 | | <1 | 0.09 | 10 | 0.89 | 393 | <1 | 0.02 | 43 | 830 | 5 | 0.05 | <2 | 4 | 39 | <20 |
| CC45188 | | <1 | 0.10 | 10 | 0.97 | 289 | 1 | 0.02 | 47 | 870 | 5 | 0.08 | <2 | 5 | 40 | <20 |
| CC45189 | | <1 | 0.09 | 10 | 0.90 | 803 | 1 | 0.02 | 56 | 960 | 7 | 0.06 | <2 | 5 | 49 | <20 |
| CC45190 | | <1 | 0.10 | 10 | 0.81 | 687 | 1 | 0.02 | 49 | 850 | 4 | 0.02 | <2 | 4 | 29 | <20 |
| CC48605 | | <1 | 0.07 | 10 | 0.68 | 422 | <1 | 0.02 | 40 | 700 | 5 | 0.05 | <2 | 4 | 46 | <20 |
| CC48606 | | <1 | 0.04 | 10 | 0.50 | 335 | <1 | 0.02 | 35 | 830 | 4 | 0.10 | <2 | 4 | 125 | <20 |
| CC48607 | | <1 | 0.07 | 20 | 0.59 | 308 | 1 | 0.02 | 59 | 400 | 7 | 0.04 | <2 | 6 | 48 | <20 |
| CC48608 | | <1 | 0.08 | 10 | 0.68 | 298 | <1 | 0.02 | 35 | 410 | 3 | 0.02 | <2 | 4 | 30 | <20 |
| CC48609 | | <1 | 0.11 | 10 | 1.10 | 448 | <1 | 0.03 | 53 | 890 | 7 | 0.05 | 2 | 5 | 40 | <20 |
| CC48610 | | <1 | 0.08 | 10 | 0.81 | 494 | <1 | 0.02 | 42 | 830 | 8 | 0.04 | 2 | 4 | 49 | <20 |
| CC48611 | | <1 | 0.08 | 10 | 0.89 | 717 | <1 | 0.02 | 47 | 800 | 7 | 0.03 | 2 | 5 | 37 | <20 |
| CC48612 | | <1 | 0.10 | 10 | 0.88 | 321 | <1 | 0.02 | 42 | 780 | 4 | 0.06 | 2 | 4 | 46 | <20 |
| CC48613 | | <1 | 0.10 | 10 | 1.00 | 505 | <1 | 0.02 | 45 | 850 | 6 | 0.05 | <2 | 4 | 45 | <20 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

# CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45160 | | 0.14 | <10 | <10 | 56 | <10 | 67 |
| CC45161 | | 0.13 | <10 | <10 | 57 | <10 | 65 |
| CC45162 | | 0.11 | <10 | <10 | 52 | <10 | 46 |
| CC45163 | | 0.10 | <10 | <10 | 47 | <10 | 54 |
| CC45164 | | 0.11 | <10 | <10 | 44 | <10 | 42 |
| CC45165 | | 0.12 | <10 | <10 | 53 | <10 | 62 |
| CC45166 | | 0.13 | <10 | <10 | 59 | <10 | 68 |
| CC45167 | | 0.10 | <10 | <10 | 51 | <10 | 68 |
| CC45168 | | 0.13 | <10 | <10 | 56 | <10 | 59 |
| CC45169 | | 0.12 | <10 | <10 | 54 | <10 | 55 |
| CC45170 | | 0.12 | <10 | <10 | 51 | <10 | 52 |
| CC45171 | | 0.15 | <10 | <10 | 57 | <10 | 61 |
| CC45172 | | 0.11 | <10 | <10 | 48 | <10 | 48 |
| CC45173 | | 0.14 | <10 | <10 | 66 | <10 | 66 |
| CC45174 | | 0.13 | <10 | <10 | 61 | <10 | 62 |
| CC45175 | | 0.13 | <10 | <10 | 64 | <10 | 83 |
| CC45176 | | 0.11 | <10 | <10 | 55 | <10 | 52 |
| CC45177 | | 0.10 | <10 | <10 | 53 | <10 | 46 |
| CC45178 | | 0.12 | <10 | <10 | 58 | <10 | 59 |
| CC45179 | | 0.10 | <10 | <10 | 48 | <10 | 51 |
| CC45180 | | 0.12 | <10 | <10 | 54 | <10 | 53 |
| CC45181 | | 0.11 | <10 | <10 | 52 | <10 | 54 |
| CC45182 | | 0.11 | <10 | <10 | 49 | <10 | 53 |
| CC45183 | | 0.12 | <10 | <10 | 55 | <10 | 49 |
| CC45184 | | 0.11 | <10 | <10 | 54 | <10 | 51 |
| CC45185 | | 0.10 | <10 | <10 | 52 | <10 | 61 |
| CC45186 | | 0.11 | <10 | <10 | 65 | <10 | 56 |
| CC45187 | | 0.11 | <10 | <10 | 52 | <10 | 53 |
| CC45188 | | 0.12 | <10 | <10 | 63 | <10 | 60 |
| CC45189 | | 0.11 | <10 | <10 | 57 | <10 | 67 |
| CC45190 | | 0.12 | <10 | <10 | 59 | <10 | 53 |
| CC48605 | | 0.10 | <10 | <10 | 45 | <10 | 44 |
| CC48606 | | 0.06 | <10 | <10 | 23 | <10 | 21 |
| CC48607 | | 0.13 | <10 | <10 | 63 | <10 | 43 |
| CC48608 | | 0.15 | <10 | <10 | 68 | <10 | 58 |
| CC48609 | | 0.13 | <10 | <10 | 60 | <10 | 62 |
| CC48610 | | 0.09 | <10 | <10 | 51 | <10 | 54 |
| CC48611 | | 0.10 | <10 | <10 | 57 | <10 | 54 |
| CC48612 | | 0.10 | <10 | <10 | 45 | <10 | 61 |
| CC48613 | | 0.10 | <10 | <10 | 50 | <10 | 67 |

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Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC48614 | | 0.14 | 0.9 | 1.82 | 5 | <10 | 570 | 1.0 | <2 | 3.29 | <0.5 | 10 | 35 | 99 | 2.27 | <10 |
| CC48616 | | 0.06 | 0.3 | 0.75 | 2 | <10 | 450 | <0.5 | <2 | 3.43 | 1.1 | 4 | 14 | 40 | 1.06 | <10 |
| CC48617 | | 0.08 | 0.3 | 1.10 | 2 | <10 | 340 | <0.5 | <2 | 3.12 | 0.5 | 7 | 31 | 48 | 1.42 | <10 |
| CC48618 | | 0.18 | 0.2 | 1.42 | 8 | <10 | 340 | <0.5 | <2 | 2.11 | <0.5 | 13 | 39 | 46 | 2.73 | <10 |
| CC48619 | | 0.16 | 0.4 | 0.99 | 4 | <10 | 430 | <0.5 | <2 | 3.49 | 0.8 | 7 | 28 | 67 | 1.57 | <10 |
| CC48620 | | 0.16 | 0.2 | 1.45 | 13 | <10 | 260 | <0.5 | <2 | 2.01 | <0.5 | 12 | 43 | 42 | 2.59 | <10 |
| CC48621 | | 0.16 | <0.2 | 1.28 | 11 | <10 | 170 | <0.5 | <2 | 1.30 | <0.5 | 13 | 42 | 43 | 2.69 | <10 |
| CC48622 | | 0.10 | 0.4 | 0.79 | 7 | 10 | 260 | <0.5 | <2 | 4.31 | <0.5 | 6 | 20 | 41 | 1.24 | <10 |
| CC48623 | | 0.28 | <0.2 | 1.50 | 12 | <10 | 200 | <0.5 | <2 | 0.98 | <0.5 | 13 | 45 | 37 | 2.76 | <10 |
| CC48624 | | 0.24 | <0.2 | 1.56 | 17 | <10 | 230 | <0.5 | <2 | 1.22 | <0.5 | 14 | 45 | 43 | 2.84 | 10 |
| CC48625 | | 0.18 | <0.2 | 1.52 | 14 | <10 | 150 | <0.5 | <2 | 1.06 | <0.5 | 13 | 47 | 32 | 2.91 | <10 |
| CC48626 | | 0.18 | <0.2 | 1.44 | 13 | <10 | 200 | <0.5 | <2 | 1.24 | <0.5 | 13 | 47 | 34 | 2.85 | <10 |
| CC48627 | | 0.18 | 0.3 | 1.49 | 18 | <10 | 210 | <0.5 | <2 | 1.68 | <0.5 | 14 | 45 | 44 | 2.80 | <10 |
| CC48628 | | 0.14 | 0.3 | 0.40 | <2 | 10 | 440 | <0.5 | <2 | 3.71 | 0.6 | 4 | 8 | 42 | 0.47 | <10 |
| CC48629 | | 0.18 | 0.2 | 1.13 | 5 | <10 | 370 | <0.5 | <2 | 3.29 | <0.5 | 8 | 29 | 46 | 1.82 | <10 |
| CC48630 | | 0.10 | 0.2 | 1.10 | 3 | <10 | 320 | <0.5 | <2 | 2.98 | <0.5 | 8 | 27 | 32 | 1.87 | <10 |
| CC48631 | | 0.16 | 0.2 | 1.48 | 3 | <10 | 310 | 0.5 | <2 | 1.82 | <0.5 | 13 | 39 | 45 | 2.82 | <10 |
| CC48632 | | 0.18 | <0.2 | 1.45 | 3 | <10 | 260 | <0.5 | <2 | 1.19 | <0.5 | 10 | 38 | 28 | 2.53 | <10 |
| CC48633 | | 0.24 | <0.2 | 1.71 | 7 | <10 | 270 | <0.5 | <2 | 1.03 | <0.5 | 13 | 45 | 42 | 2.94 | 10 |
| CC48634 | | 0.18 | <0.2 | 1.51 | 7 | <10 | 230 | <0.5 | <2 | 0.81 | <0.5 | 13 | 42 | 37 | 2.93 | <10 |
| CC48635 | | 0.16 | <0.2 | 1.47 | 4 | <10 | 240 | <0.5 | <2 | 1.24 | <0.5 | 11 | 39 | 35 | 2.62 | <10 |
| CC48636 | | 0.12 | 0.2 | 1.06 | 4 | <10 | 360 | <0.5 | <2 | 2.94 | <0.5 | 10 | 26 | 37 | 1.93 | <10 |
| CC48637 | | 0.26 | 0.2 | 1.32 | 6 | <10 | 210 | <0.5 | <2 | 0.94 | <0.5 | 11 | 38 | 29 | 2.64 | <10 |
| CC48638 | | 0.12 | <0.2 | 1.58 | 2 | <10 | 310 | <0.5 | <2 | 1.93 | <0.5 | 13 | 41 | 43 | 2.66 | <10 |
| CC48639 | | 0.22 | <0.2 | 1.54 | 7 | <10 | 230 | <0.5 | <2 | 1.13 | <0.5 | 10 | 40 | 34 | 2.74 | 10 |
| CC48640 | | 0.12 | <0.2 | 1.42 | 3 | <10 | 210 | <0.5 | <2 | 1.15 | <0.5 | 11 | 37 | 35 | 2.54 | <10 |
| CC48641 | | 0.18 | 0.2 | 1.31 | 5 | <10 | 250 | <0.5 | <2 | 1.15 | <0.5 | 10 | 35 | 28 | 2.40 | <10 |
| CC48646 | | 0.30 | <0.2 | 1.57 | 5 | <10 | 240 | <0.5 | <2 | 0.84 | <0.5 | 12 | 44 | 31 | 2.97 | 10 |
| CC48647 | | 0.28 | <0.2 | 1.32 | 5 | <10 | 220 | <0.5 | <2 | 0.86 | <0.5 | 13 | 40 | 31 | 2.55 | <10 |
| CC48648 | | 0.36 | <0.2 | 1.67 | 5 | <10 | 270 | <0.5 | <2 | 0.77 | <0.5 | 12 | 43 | 37 | 3.05 | <10 |
| CC48649 | | 0.38 | <0.2 | 1.74 | 4 | <10 | 250 | <0.5 | <2 | 0.85 | <0.5 | 14 | 42 | 28 | 3.04 | 10 |
| CC48650 | | 0.42 | <0.2 | 1.74 | 5 | <10 | 250 | <0.5 | <2 | 0.63 | <0.5 | 13 | 51 | 44 | 3.25 | <10 |
| CC48651 | | 0.26 | 0.2 | 1.45 | 13 | <10 | 200 | <0.5 | <2 | 1.28 | <0.5 | 13 | 42 | 33 | 2.77 | <10 |
| CC48652 | | 0.40 | <0.2 | 1.44 | 9 | <10 | 220 | <0.5 | <2 | 1.07 | <0.5 | 14 | 46 | 43 | 2.73 | <10 |
| CC48653 | | 0.22 | 0.2 | 1.20 | 8 | <10 | 170 | <0.5 | <2 | 1.76 | <0.5 | 14 | 41 | 31 | 2.44 | <10 |
| CC48654 | | 0.30 | 0.2 | 1.62 | 9 | <10 | 180 | <0.5 | <2 | 0.84 | <0.5 | 13 | 43 | 46 | 3.14 | <10 |
| CC48655 | | 0.26 | <0.2 | 1.34 | 9 | <10 | 220 | <0.5 | <2 | 1.05 | <0.5 | 12 | 40 | 19 | 2.70 | <10 |
| CC48656 | | 0.30 | 0.2 | 1.41 | 7 | <10 | 170 | <0.5 | <2 | 1.55 | <0.5 | 12 | 44 | 38 | 2.87 | <10 |
| CC48657 | | 0.40 | <0.2 | 1.28 | 8 | <10 | 180 | <0.5 | <2 | 0.85 | <0.5 | 11 | 41 | 33 | 2.24 | <10 |
| CC48658 | | 0.24 | 0.2 | 1.62 | 7 | <10 | 250 | 0.5 | <2 | 1.06 | <0.5 | 14 | 44 | 51 | 2.81 | <10 |

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| Sample Description LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC48614 | <1 | 0.05 | 20 | 0.56 | 694 | <1 | 0.03 | 68 | 1390 | 4 | 0.14 | <2 | 4 | 135 | <20 |
| CC48616 | <1 | 0.03 | 10 | 0.27 | 2170 | 2 | 0.04 | 26 | 1200 | 2 | 0.21 | <2 | 2 | 136 | <20 |
| CC48617 | <1 | 0.06 | 10 | 0.59 | 416 | <1 | 0.03 | 31 | 1020 | 4 | 0.23 | <2 | 2 | 122 | <20 |
| CC48618 | <1 | 0.08 | 10 | 0.75 | 957 | 1 | 0.02 | 38 | 900 | 6 | 0.12 | 2 | 4 | 86 | <20 |
| CC48619 | <1 | 0.05 | 10 | 0.47 | 2510 | 1 | 0.03 | 40 | 1090 | 4 | 0.27 | 3 | 3 | 135 | <20 |
| CC48620 | <1 | 0.10 | 10 | 0.82 | 1135 | 1 | 0.02 | 45 | 920 | 5 | 0.10 | 3 | 4 | 60 | <20 |
| CC48621 | 1 | 0.09 | 10 | 1.03 | 507 | <1 | 0.02 | 48 | 860 | 5 | 0.06 | 3 | 4 | 46 | <20 |
| CC48622 | <1 | 0.04 | 10 | 0.43 | 539 | <1 | 0.02 | 32 | 810 | 3 | 0.15 | 2 | 1 | 101 | <20 |
| CC48623 | <1 | 0.08 | 10 | 0.83 | 503 | <1 | 0.02 | 43 | 710 | 6 | 0.01 | <2 | 5 | 38 | <20 |
| CC48624 | <1 | 0.08 | 10 | 0.86 | 742 | <1 | 0.02 | 49 | 750 | 5 | 0.03 | 3 | 5 | 44 | <20 |
| CC48625 | <1 | 0.10 | 10 | 0.97 | 484 | <1 | 0.02 | 44 | 650 | 6 | 0.03 | 2 | 5 | 34 | <20 |
| CC48626 | <1 | 0.10 | 10 | 1.12 | 796 | <1 | 0.02 | 48 | 930 | 6 | 0.02 | <2 | 4 | 41 | <20 |
| CC48627 | <1 | 0.10 | 10 | 1.01 | 986 | <1 | 0.02 | 53 | 650 | 5 | 0.06 | <2 | 5 | 45 | <20 |
| CC48628 | <1 | 0.02 | <10 | 0.28 | 2480 | 2 | 0.04 | 30 | 1000 | 2 | 0.23 | 3 | <1 | 138 | <20 |
| CC48629 | <1 | 0.07 | 10 | 0.66 | 973 | <1 | 0.03 | 36 | 970 | 3 | 0.20 | 2 | 2 | 122 | <20 |
| CC48630 | <1 | 0.07 | 10 | 0.65 | 678 | <1 | 0.03 | 32 | 820 | 5 | 0.18 | 2 | 3 | 101 | <20 |
| CC48631 | <1 | 0.09 | 10 | 0.74 | 1285 | <1 | 0.02 | 46 | 750 | 5 | 0.09 | 3 | 5 | 66 | <20 |
| CC48632 | <1 | 0.08 | 10 | 0.69 | 407 | <1 | 0.02 | 34 | 520 | 4 | 0.05 | <2 | 4 | 47 | <20 |
| CC48633 | <1 | 0.10 | 10 | 0.86 | 475 | <1 | 0.03 | 46 | 590 | 5 | 0.02 | 2 | 6 | 46 | <20 |
| CC48634 | <1 | 0.11 | 10 | 0.84 | 837 | <1 | 0.03 | 48 | 780 | 6 | 0.01 | <2 | 5 | 39 | <20 |
| CC48635 | <1 | 0.09 | 10 | 0.76 | 607 | <1 | 0.02 | 37 | 740 | 6 | 0.05 | 2 | 4 | 57 | <20 |
| CC48636 | <1 | 0.06 | 10 | 0.58 | 2120 | <1 | 0.02 | 32 | 760 | 5 | 0.13 | 3 | 2 | 102 | <20 |
| CC48637 | <1 | 0.10 | 10 | 0.78 | 787 | <1 | 0.02 | 41 | 760 | 4 | 0.02 | <2 | 4 | 41 | <20 |
| CC48638 | <1 | 0.11 | 10 | 0.83 | 1220 | <1 | 0.03 | 48 | 810 | 5 | 0.09 | <2 | 4 | 78 | <20 |
| CC48639 | <1 | 0.10 | 10 | 0.81 | 496 | <1 | 0.02 | 39 | 710 | 5 | 0.04 | 3 | 5 | 52 | <20 |
| CC48640 | <1 | 0.09 | 10 | 0.73 | 730 | <1 | 0.03 | 40 | 620 | 5 | 0.04 | <2 | 4 | 49 | <20 |
| CC48641 | <1 | 0.07 | 10 | 0.63 | 593 | 1 | 0.02 | 30 | 620 | 5 | 0.05 | <2 | 4 | 58 | <20 |
| CC48646 | <1 | 0.11 | 10 | 0.80 | 515 | <1 | 0.02 | 37 | 760 | 5 | 0.01 | 2 | 5 | 39 | <20 |
| CC48647 | <1 | 0.10 | 10 | 0.74 | 677 | <1 | 0.02 | 41 | 790 | 5 | 0.01 | <2 | 4 | 40 | <20 |
| CC48648 | <1 | 0.11 | 10 | 0.85 | 591 | <1 | 0.03 | 44 | 810 | 6 | <0.01 | 3 | 6 | 38 | <20 |
| CC48649 | <1 | 0.12 | 10 | 0.89 | 543 | <1 | 0.02 | 38 | 790 | 4 | 0.02 | <2 | 5 | 40 | <20 |
| CC48650 | <1 | 0.13 | 10 | 0.94 | 605 | <1 | 0.03 | 55 | 800 | 6 | <0.01 | <2 | 6 | 36 | <20 |
| CC48651 | 1 | 0.08 | 10 | 0.87 | 592 | <1 | 0.01 | 43 | 550 | 5 | 0.01 | 2 | 4 | 41 | <20 |
| CC48652 | <1 | 0.09 | 10 | 0.97 | 895 | <1 | 0.01 | 49 | 730 | 5 | 0.02 | <2 | 5 | 37 | <20 |
| CC48653 | <1 | 0.08 | 10 | 1.11 | 363 | <1 | 0.01 | 45 | 810 | 3 | 0.04 | <2 | 4 | 43 | <20 |
| CC48654 | <1 | 0.10 | 10 | 0.99 | 450 | <1 | 0.01 | 42 | 850 | 3 | <0.01 | <2 | 6 | 31 | <20 |
| CC48655 | <1 | 0.07 | 10 | 0.96 | 983 | <1 | 0.01 | 40 | 810 | 2 | <0.01 | <2 | 4 | 38 | <20 |
| CC48656 | 1 | 0.09 | 10 | 1.28 | 352 | <1 | <0.01 | 41 | 840 | 3 | 0.01 | 2 | 5 | 40 | <20 |
| CC48657 | <1 | 0.07 | 10 | 0.76 | 326 | <1 | <0.01 | 36 | 680 | 4 | 0.02 | <2 | 4 | 32 | <20 |
| CC48658 | <1 | 0.07 | 10 | 0.83 | 688 | <1 | 0.01 | 49 | 740 | 6 | 0.01 | 3 | 5 | 38 | <20 |

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Ti | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC48614 | | 0.03 | <10 | 10 | 30 | <10 | 27 |
| CC48616 | | 0.01 | <10 | 20 | 18 | <10 | 12 |
| CC48617 | | 0.05 | <10 | 10 | 23 | <10 | 29 |
| CC48618 | | 0.09 | <10 | 10 | 44 | <10 | 52 |
| CC48619 | | 0.05 | <10 | 20 | 24 | <10 | 29 |
| CC48620 | | 0.09 | <10 | <10 | 45 | <10 | 59 |
| CC48621 | | 0.10 | <10 | <10 | 49 | <10 | 56 |
| CC48622 | | 0.04 | <10 | 10 | 20 | <10 | 22 |
| CC48623 | | 0.12 | <10 | <10 | 56 | <10 | 53 |
| CC48624 | | 0.11 | <10 | <10 | 58 | <10 | 58 |
| CC48625 | | 0.12 | <10 | <10 | 57 | <10 | 71 |
| CC48626 | | 0.12 | <10 | <10 | 56 | <10 | 63 |
| CC48627 | | 0.11 | <10 | <10 | 52 | <10 | 64 |
| CC48628 | | 0.01 | <10 | 10 | 7 | <10 | 6 |
| CC48629 | | 0.05 | <10 | 10 | 28 | <10 | 42 |
| CC48630 | | 0.06 | <10 | 10 | 30 | <10 | 44 |
| CC48631 | | 0.09 | <10 | <10 | 52 | <10 | 55 |
| CC48632 | | 0.10 | <10 | <10 | 43 | <10 | 48 |
| CC48633 | | 0.13 | <10 | <10 | 59 | <10 | 58 |
| CC48634 | | 0.13 | <10 | <10 | 55 | <10 | 62 |
| CC48635 | | 0.10 | <10 | <10 | 47 | <10 | 51 |
| CC48636 | | 0.05 | <10 | <10 | 32 | <10 | 31 |
| CC48637 | | 0.11 | <10 | <10 | 49 | <10 | 56 |
| CC48638 | | 0.09 | <10 | <10 | 47 | <10 | 60 |
| CC48639 | | 0.11 | <10 | <10 | 53 | <10 | 60 |
| CC48640 | | 0.10 | <10 | <10 | 49 | <10 | 53 |
| CC48641 | | 0.09 | <10 | <10 | 49 | <10 | 40 |
| CC48646 | | 0.13 | <10 | <10 | 56 | <10 | 62 |
| CC48647 | | 0.12 | <10 | <10 | 51 | <10 | 55 |
| CC48648 | | 0.15 | <10 | <10 | 59 | <10 | 64 |
| CC48649 | | 0.15 | <10 | <10 | 58 | <10 | 61 |
| CC48650 | | 0.16 | <10 | <10 | 63 | <10 | 71 |
| CC48651 | | 0.10 | <10 | <10 | 53 | <10 | 51 |
| CC48652 | | 0.11 | <10 | <10 | 59 | <10 | 57 |
| CC48653 | | 0.09 | <10 | <10 | 48 | <10 | 47 |
| CC48654 | | 0.13 | <10 | <10 | 68 | <10 | 58 |
| CC48655 | | 0.10 | <10 | <10 | 53 | <10 | 50 |
| CC48656 | | 0.11 | <10 | <10 | 55 | <10 | 53 |
| CC48657 | | 0.11 | <10 | <10 | 49 | <10 | 50 |
| CC48658 | | 0.10 | <10 | <10 | 55 | <10 | 59 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC48659 | | 0.40 | 0.2 | 1.48 | 4 | <10 | 210 | <0.5 | <2 | 0.77 | <0.5 | 11 | 41 | 32 | 2.80 | <10 |
| CC48660 | | 0.38 | <0.2 | 1.49 | 5 | <10 | 240 | <0.5 | <2 | 0.81 | <0.5 | 12 | 43 | 38 | 2.86 | <10 |
| CC48661 | | 0.40 | 0.2 | 1.51 | 6 | <10 | 220 | <0.5 | <2 | 0.70 | <0.5 | 12 | 43 | 26 | 2.99 | 10 |
| CC48662 | | 0.26 | <0.2 | 1.46 | 4 | <10 | 220 | <0.5 | <2 | 0.87 | <0.5 | 10 | 41 | 30 | 2.72 | <10 |
| CC48663 | | 0.40 | <0.2 | 1.59 | 6 | <10 | 220 | <0.5 | <2 | 0.91 | <0.5 | 12 | 41 | 24 | 2.91 | 10 |
| CC48664 | | 0.32 | 0.2 | 1.62 | 4 | <10 | 240 | <0.5 | <2 | 0.75 | <0.5 | 14 | 47 | 31 | 3.03 | <10 |
| CC48665 | | 0.34 | 0.2 | 1.49 | 6 | <10 | 250 | <0.5 | <2 | 0.94 | <0.5 | 12 | 45 | 41 | 2.80 | <10 |
| CC48666 | | 0.38 | 0.3 | 1.52 | 3 | <10 | 270 | <0.5 | <2 | 0.90 | <0.5 | 12 | 39 | 39 | 2.83 | <10 |
| CC48668 | | 0.28 | 0.2 | 1.44 | 10 | <10 | 210 | <0.5 | <2 | 0.86 | <0.5 | 14 | 43 | 36 | 2.78 | <10 |
| CC48669 | | 0.54 | 0.2 | 1.48 | 9 | <10 | 170 | <0.5 | <2 | 0.78 | <0.5 | 12 | 47 | 36 | 3.06 | <10 |
| CC48670 | | 0.36 | <0.2 | 1.53 | 8 | <10 | 200 | <0.5 | <2 | 0.89 | <0.5 | 12 | 45 | 41 | 2.86 | <10 |
| CC48671 | | 0.30 | 0.2 | 1.46 | 11 | <10 | 210 | <0.5 | <2 | 0.90 | <0.5 | 13 | 43 | 32 | 2.78 | <10 |
| CC48672 | | 0.36 | <0.2 | 1.50 | 7 | <10 | 200 | <0.5 | <2 | 0.76 | <0.5 | 12 | 47 | 36 | 2.93 | <10 |
| CC48673 | | 0.30 | <0.2 | 1.25 | 6 | <10 | 180 | <0.5 | <2 | 1.23 | <0.5 | 10 | 38 | 35 | 2.35 | <10 |
| CC48674 | | 0.34 | <0.2 | 1.92 | 5 | <10 | 170 | <0.5 | <2 | 0.38 | <0.5 | 12 | 42 | 22 | 3.14 | 10 |
| CC48675 | | 0.38 | <0.2 | 1.35 | 2 | <10 | 220 | <0.5 | <2 | 0.76 | <0.5 | 13 | 41 | 37 | 2.73 | <10 |
| CC48676 | | 0.50 | 0.2 | 1.64 | 4 | <10 | 290 | 0.5 | <2 | 0.99 | <0.5 | 14 | 42 | 36 | 2.97 | 10 |
| CC48677 | | 0.34 | 0.2 | 1.65 | 5 | <10 | 250 | <0.5 | <2 | 0.69 | <0.5 | 13 | 46 | 32 | 3.05 | <10 |
| CC48678 | | 0.48 | 0.2 | 1.46 | 5 | <10 | 200 | <0.5 | <2 | 0.62 | <0.5 | 13 | 41 | 34 | 2.82 | <10 |
| CC48679 | | 0.44 | 0.2 | 1.59 | 2 | <10 | 240 | <0.5 | <2 | 0.69 | <0.5 | 14 | 47 | 38 | 3.05 | <10 |
| CC48680 | | 0.42 | <0.2 | 1.48 | 6 | <10 | 200 | <0.5 | <2 | 0.58 | <0.5 | 12 | 43 | 30 | 2.85 | <10 |
| CC48681 | | 0.34 | <0.2 | 1.40 | 3 | <10 | 170 | <0.5 | <2 | 0.62 | <0.5 | 12 | 37 | 16 | 2.56 | <10 |
| CC48682 | | 0.24 | <0.2 | 1.61 | 5 | <10 | 230 | <0.5 | <2 | 0.81 | <0.5 | 13 | 39 | 27 | 3.03 | 10 |
| CC48683 | | 0.44 | 0.2 | 1.72 | 6 | <10 | 230 | <0.5 | <2 | 0.76 | <0.5 | 14 | 50 | 52 | 3.23 | <10 |
| CC48684 | | 0.50 | 0.2 | 1.92 | 5 | <10 | 330 | <0.5 | <2 | 0.84 | <0.5 | 14 | 40 | 31 | 3.10 | <10 |
| CC48685 | | 0.34 | 0.2 | 1.39 | 8 | <10 | 290 | <0.5 | <2 | 1.34 | <0.5 | 13 | 39 | 41 | 2.60 | <10 |
| CC48686 | | 0.34 | <0.2 | 1.25 | 10 | <10 | 200 | <0.5 | <2 | 1.27 | <0.5 | 14 | 41 | 33 | 2.79 | <10 |
| CC48687 | | 0.24 | 0.2 | 1.45 | 5 | <10 | 240 | <0.5 | <2 | 1.27 | <0.5 | 11 | 41 | 41 | 2.61 | <10 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method / Analyte / Units / LOR | ME-ICP41 Hg ppm 1 | ME-ICP41 K % 0.01 | ME-ICP41 La ppm 10 | ME-ICP41 Mg % 0.01 | ME-ICP41 Mn ppm 5 | ME-ICP41 Mo ppm 1 | ME-ICP41 Na % 0.01 | ME-ICP41 Ni ppm 1 | ME-ICP41 P ppm 10 | ME-ICP41 Pb ppm 2 | ME-ICP41 S % 0.01 | ME-ICP41 Sb ppm 2 | ME-ICP41 Sc ppm 1 | ME-ICP41 Sr ppm 1 | ME-ICP41 Th ppm 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CC48659 | | <1 | 0.10 | 10 | 0.78 | 390 | <1 | 0.01 | 34 | 750 | 3 | <0.01 | <2 | 5 | 32 | <20 |
| CC48660 | | <1 | 0.10 | 10 | 0.82 | 480 | <1 | 0.01 | 41 | 650 | 5 | <0.01 | 2 | 5 | 40 | <20 |
| CC48661 | | <1 | 0.11 | 10 | 0.86 | 457 | <1 | 0.01 | 40 | 710 | 3 | <0.01 | 2 | 5 | 36 | <20 |
| CC48662 | | <1 | 0.11 | 10 | 0.81 | 407 | <1 | 0.01 | 38 | 740 | 2 | <0.01 | 2 | 5 | 41 | <20 |
| CC48663 | | <1 | 0.12 | 10 | 0.94 | 650 | <1 | 0.01 | 39 | 970 | 3 | <0.01 | 3 | 4 | 40 | <20 |
| CC48664 | | <1 | 0.11 | 10 | 0.90 | 552 | <1 | 0.01 | 43 | 780 | 4 | <0.01 | 2 | 5 | 40 | <20 |
| CC48665 | | <1 | 0.11 | 10 | 0.81 | 519 | <1 | 0.01 | 48 | 770 | 4 | <0.01 | 2 | 5 | 47 | <20 |
| CC48666 | | <1 | 0.09 | 10 | 0.76 | 518 | <1 | 0.01 | 41 | 650 | 4 | <0.01 | 2 | 5 | 43 | <20 |
| CC48668 | | <1 | 0.08 | 10 | 0.85 | 717 | <1 | 0.01 | 43 | 650 | 3 | <0.01 | <2 | 5 | 35 | <20 |
| CC48669 | | 1 | 0.08 | 10 | 1.02 | 433 | <1 | 0.01 | 39 | 770 | 3 | <0.01 | 2 | 5 | 31 | <20 |
| CC48670 | | <1 | 0.09 | 10 | 0.97 | 655 | <1 | 0.01 | 45 | 800 | 5 | <0.01 | 3 | 5 | 36 | <20 |
| CC48671 | | <1 | 0.07 | 10 | 0.88 | 697 | <1 | 0.01 | 41 | 660 | 4 | <0.01 | 2 | 4 | 37 | <20 |
| CC48672 | | <1 | 0.07 | 10 | 0.92 | 573 | <1 | <0.01 | 45 | 780 | 4 | <0.01 | <2 | 5 | 32 | <20 |
| CC48673 | | <1 | 0.08 | 10 | 0.73 | 345 | <1 | 0.01 | 35 | 630 | 3 | 0.02 | <2 | 4 | 41 | <20 |
| CC48674 | | <1 | 0.08 | 10 | 0.64 | 299 | <1 | <0.01 | 34 | 250 | 3 | <0.01 | <2 | 4 | 18 | <20 |
| CC48675 | | <1 | 0.11 | 10 | 0.83 | 475 | <1 | 0.01 | 47 | 720 | 3 | <0.01 | <2 | 5 | 36 | <20 |
| CC48676 | | <1 | 0.09 | 10 | 0.82 | 707 | <1 | 0.01 | 43 | 700 | 4 | 0.01 | <2 | 5 | 47 | <20 |
| CC48677 | | <1 | 0.10 | 10 | 0.89 | 530 | <1 | 0.01 | 44 | 700 | 4 | <0.01 | <2 | 5 | 37 | <20 |
| CC48678 | | <1 | 0.11 | 10 | 0.87 | 522 | <1 | 0.01 | 47 | 720 | 5 | <0.01 | <2 | 5 | 35 | <20 |
| CC48679 | | <1 | 0.12 | 10 | 0.94 | 583 | <1 | 0.01 | 48 | 740 | 5 | <0.01 | 2 | 5 | 37 | <20 |
| CC48680 | | <1 | 0.09 | 10 | 0.90 | 485 | <1 | 0.01 | 42 | 660 | 4 | <0.01 | 3 | 5 | 31 | <20 |
| CC48681 | | <1 | 0.06 | 10 | 0.76 | 502 | <1 | <0.01 | 27 | 560 | 2 | <0.01 | <2 | 3 | 28 | <20 |
| CC48682 | | <1 | 0.08 | 10 | 0.78 | 490 | <1 | 0.01 | 39 | 690 | 5 | <0.01 | <2 | 4 | 39 | <20 |
| CC48683 | | <1 | 0.14 | 10 | 1.03 | 530 | <1 | 0.01 | 56 | 800 | 4 | <0.01 | 2 | 6 | 36 | <20 |
| CC48684 | | <1 | 0.08 | 10 | 0.81 | 450 | <1 | <0.01 | 34 | 340 | 3 | <0.01 | <2 | 4 | 29 | <20 |
| CC48685 | | <1 | 0.06 | 10 | 0.81 | 1425 | 1 | 0.01 | 46 | 720 | 4 | 0.01 | <2 | 4 | 46 | <20 |
| CC48686 | | <1 | 0.08 | 10 | 0.93 | 661 | 1 | 0.01 | 42 | 830 | 4 | 0.02 | <2 | 4 | 38 | <20 |
| CC48687 | | <1 | 0.08 | 10 | 0.84 | 660 | <1 | 0.01 | 41 | 740 | 3 | 0.02 | <2 | 4 | 46 | <20 |

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1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-VTEM ANOMALY D

## CERTIFICATE OF ANALYSIS VA08096084

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC48659 | | 0.13 | <10 | <10 | 54 | <10 | 64 |
| CC48660 | | 0.13 | <10 | <10 | 54 | <10 | 57 |
| CC48661 | | 0.13 | <10 | <10 | 57 | <10 | 56 |
| CC48662 | | 0.12 | <10 | <10 | 52 | <10 | 56 |
| CC48663 | | 0.15 | <10 | <10 | 58 | <10 | 59 |
| CC48664 | | 0.14 | <10 | <10 | 58 | <10 | 57 |
| CC48665 | | 0.13 | <10 | <10 | 55 | <10 | 56 |
| CC48666 | | 0.13 | <10 | <10 | 54 | <10 | 52 |
| CC48668 | | 0.11 | <10 | <10 | 56 | <10 | 52 |
| CC48669 | | 0.12 | <10 | <10 | 62 | <10 | 54 |
| CC48670 | | 0.12 | <10 | <10 | 57 | <10 | 57 |
| CC48671 | | 0.11 | <10 | <10 | 55 | <10 | 52 |
| CC48672 | | 0.12 | <10 | <10 | 60 | <10 | 54 |
| CC48673 | | 0.10 | <10 | <10 | 47 | <10 | 46 |
| CC48674 | | 0.15 | <10 | <10 | 66 | <10 | 55 |
| CC48675 | | 0.13 | <10 | <10 | 55 | <10 | 57 |
| CC48676 | | 0.14 | <10 | <10 | 56 | <10 | 57 |
| CC48677 | | 0.14 | <10 | <10 | 59 | <10 | 57 |
| CC48678 | | 0.14 | <10 | <10 | 55 | <10 | 59 |
| CC48679 | | 0.14 | <10 | <10 | 59 | <10 | 64 |
| CC48680 | | 0.13 | <10 | <10 | 56 | <10 | 54 |
| CC48681 | | 0.14 | <10 | <10 | 57 | <10 | 51 |
| CC48682 | | 0.16 | <10 | <10 | 57 | <10 | 55 |
| CC48683 | | 0.15 | <10 | <10 | 64 | <10 | 72 |
| CC48684 | | 0.13 | <10 | <10 | 65 | <10 | 47 |
| CC48685 | | 0.09 | <10 | <10 | 53 | <10 | 44 |
| CC48686 | | 0.10 | <10 | <10 | 54 | <10 | 51 |
| CC48687 | | 0.10 | <10 | <10 | 52 | <10 | 53 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**


**Finalized Date: 9-AUG-2008**
**Account: F**

# CERTIFICATE VA08096083

Project: MOR-CLAIM SAMPLES

P.O. No.:

This report is for 28 Soil samples submitted to our lab in Vancouver, BC, Canada on 14-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| SCR-41 | Screen to -180um and save both |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

# ALS Chemex

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Finalized Date: 9-AUG-2008
Account: F

Project: MOR-CLAIM SAMPLES

## CERTIFICATE OF ANALYSIS VA08096083

| Sample Description | Method / Analyte / Units / LOR | WEI-21 Recvd Wt. kg 0.02 | ME-ICP41 Ag ppm 0.2 | ME-ICP41 Al % 0.01 | ME-ICP41 As ppm 2 | ME-ICP41 B ppm 10 | ME-ICP41 Ba ppm 10 | ME-ICP41 Be ppm 0.5 | ME-ICP41 Bi ppm 2 | ME-ICP41 Ca % 0.01 | ME-ICP41 Cd ppm 0.5 | ME-ICP41 Co ppm 1 | ME-ICP41 Cr ppm 1 | ME-ICP41 Cu ppm 1 | ME-ICP41 Fe % 0.01 | ME-ICP41 Ga ppm 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CC45481 | | 0.22 | 0.4 | 1.95 | 3 | <10 | 120 | <0.5 | <2 | 0.14 | <0.5 | 9 | 36 | 21 | 3.28 | 10 |
| CC45482 | | 0.28 | 0.3 | 1.01 | <2 | <10 | 110 | <0.5 | <2 | 0.12 | <0.5 | 7 | 25 | 15 | 2.90 | 10 |
| CC48577 | | 0.38 | <0.2 | 1.60 | <2 | <10 | 180 | <0.5 | <2 | 0.33 | <0.5 | 8 | 33 | 11 | 2.37 | 10 |
| CC48578 | | 0.30 | 0.3 | 1.15 | <2 | <10 | 110 | <0.5 | <2 | 0.24 | 0.7 | 9 | 29 | 9 | 2.79 | 10 |
| CC48579 | | 0.24 | <0.2 | 1.20 | <2 | <10 | 150 | <0.5 | <2 | 0.37 | <0.5 | 7 | 30 | 12 | 2.05 | <10 |
| CC48580 | | 0.18 | <0.2 | 1.15 | <2 | <10 | 370 | <0.5 | <2 | 0.93 | <0.5 | 8 | 20 | 73 | 2.19 | <10 |
| CC48582 | | 0.38 | 0.3 | 0.98 | <2 | <10 | 260 | <0.5 | <2 | 0.55 | <0.5 | 9 | 30 | 25 | 1.87 | <10 |
| CC48594 | | 0.34 | 0.2 | 1.25 | <2 | <10 | 160 | <0.5 | 2 | 0.24 | 0.5 | 10 | 33 | 24 | 2.83 | 10 |
| CC48595 | | 0.26 | 0.6 | 0.63 | <2 | <10 | 90 | <0.5 | 2 | 0.05 | 0.7 | 9 | 24 | 12 | 3.76 | 10 |
| CC48596 | | 0.36 | <0.2 | 1.60 | 3 | <10 | 200 | <0.5 | <2 | 0.71 | <0.5 | 12 | 42 | 27 | 2.77 | <10 |
| CC48597 | | 0.30 | 0.4 | 1.58 | 2 | <10 | 280 | 0.6 | <2 | 0.38 | 1.1 | 20 | 38 | 34 | 3.20 | 10 |
| CC48598 | | 0.32 | 0.2 | 0.76 | <2 | <10 | 220 | <0.5 | <2 | 0.38 | 0.5 | 5 | 24 | 8 | 1.79 | <10 |
| CC48599 | | 0.24 | 0.2 | 0.99 | <2 | <10 | 170 | <0.5 | <2 | 1.19 | <0.5 | 6 | 29 | 22 | 1.80 | <10 |
| CC48600 | | 0.40 | 0.3 | 1.86 | <2 | <10 | 270 | 0.5 | <2 | 0.47 | 0.9 | 14 | 39 | 19 | 3.65 | 10 |
| CC48601 | | 0.32 | 0.5 | 1.82 | <2 | <10 | 360 | 0.6 | <2 | 0.32 | <0.5 | 14 | 31 | 70 | 2.95 | 10 |
| CC48602 | | 0.28 | 0.5 | 1.94 | 39 | <10 | 200 | <0.5 | 2 | 0.24 | <0.5 | 12 | 49 | 73 | 3.46 | 10 |
| CC48603 | | 0.32 | 0.3 | 2.02 | 3 | <10 | 250 | <0.5 | 2 | 0.18 | <0.5 | 10 | 35 | 10 | 3.47 | 10 |
| CC48604 | | 0.28 | 0.3 | 0.84 | 4 | <10 | 80 | <0.5 | 3 | 0.09 | <0.5 | 7 | 29 | 10 | 3.76 | 10 |
| CC48644 | | 0.20 | 0.4 | 1.17 | 4 | <10 | 210 | <0.5 | <2 | 0.22 | <0.5 | 21 | 22 | 29 | 3.53 | 10 |
| CC48645 | | 0.20 | <0.2 | 1.49 | 4 | <10 | 290 | <0.5 | 3 | 0.41 | 0.6 | 19 | 35 | 22 | 3.31 | 10 |
| CC49432 | | 0.36 | 0.2 | 1.38 | 3 | <10 | 100 | <0.5 | <2 | 0.26 | <0.5 | 8 | 34 | 18 | 2.42 | <10 |
| CC49433 | | 0.24 | <0.2 | 1.03 | 5 | <10 | 270 | <0.5 | 4 | 0.23 | <0.5 | 9 | 29 | 8 | 3.27 | 10 |
| CC49434 | | 0.28 | 0.2 | 1.63 | 4 | <10 | 160 | <0.5 | <2 | 0.19 | <0.5 | 9 | 31 | 18 | 2.68 | <10 |
| CC49435 | | 0.30 | 0.4 | 1.90 | 5 | <10 | 270 | <0.5 | <2 | 0.30 | <0.5 | 10 | 44 | 35 | 3.15 | 10 |
| CC49436 | | 0.32 | 0.2 | 1.20 | 2 | <10 | 160 | <0.5 | <2 | 0.20 | <0.5 | 6 | 29 | 12 | 2.09 | <10 |
| CC49437 | | 0.22 | <0.2 | 1.00 | 4 | <10 | 110 | <0.5 | <2 | 0.29 | <0.5 | 8 | 34 | 9 | 2.35 | 10 |
| CC49438 | | 0.24 | <0.2 | 1.44 | 5 | <10 | 210 | <0.5 | <2 | 0.85 | <0.5 | 12 | 40 | 34 | 2.48 | <10 |
| CC49439 | | 0.20 | 0.2 | 1.58 | 6 | <10 | 250 | <0.5 | <2 | 1.56 | <0.5 | 11 | 46 | 38 | 2.71 | <10 |

Comments: The sample submittal indicates a sample subset from CC48595 to CC48599, with a sample total of 28. Samples received does total 28, but this subset starts from CC48594.

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VANCOUVER BC V6B 1L8


Finalized Date: 9-AUG-2008
Account: F

Project: MOR-CLAIM SAMPLES

## CERTIFICATE OF ANALYSIS VA08096083

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45481 | | <1 | 0.07 | 10 | 0.70 | 353 | <1 | 0.01 | 20 | 340 | 6 | 0.01 | <2 | 3 | 13 | <20 |
| CC45482 | | <1 | 0.05 | 10 | 0.38 | 383 | 1 | 0.01 | 12 | 790 | 9 | 0.01 | <2 | 2 | 11 | <20 |
| CC48577 | | <1 | 0.04 | 10 | 0.57 | 282 | <1 | 0.01 | 19 | 270 | 6 | <0.01 | <2 | 3 | 22 | <20 |
| CC48578 | | <1 | 0.06 | 10 | 0.32 | 583 | <1 | 0.01 | 12 | 490 | 8 | <0.01 | <2 | 2 | 15 | <20 |
| CC48579 | | <1 | 0.05 | 10 | 0.42 | 229 | <1 | 0.01 | 21 | 210 | 3 | <0.01 | <2 | 3 | 21 | <20 |
| CC48580 | | <1 | 0.10 | 10 | 0.79 | 362 | <1 | 0.02 | 22 | 710 | 4 | 0.03 | <2 | 3 | 49 | <20 |
| CC48582 | | 1 | 0.06 | 10 | 0.61 | 373 | <1 | 0.01 | 28 | 840 | 4 | 0.02 | <2 | 3 | 31 | <20 |
| CC48594 | | <1 | 0.05 | 10 | 0.78 | 597 | 1 | <0.01 | 21 | 420 | 7 | 0.01 | <2 | 2 | 17 | <20 |
| CC48595 | | <1 | 0.03 | 10 | 0.15 | 437 | 1 | <0.01 | 10 | 1170 | 8 | 0.01 | <2 | 1 | 8 | <20 |
| CC48596 | | <1 | 0.10 | 10 | 0.71 | 585 | <1 | 0.02 | 29 | 530 | 7 | 0.01 | <2 | 5 | 41 | <20 |
| CC48597 | | <1 | 0.10 | 10 | 0.45 | 2120 | <1 | 0.02 | 39 | 1080 | 10 | 0.01 | <2 | 3 | 26 | <20 |
| CC48598 | | <1 | 0.05 | 10 | 0.24 | 413 | <1 | 0.01 | 12 | 310 | 6 | 0.01 | <2 | 2 | 26 | <20 |
| CC48599 | | <1 | 0.04 | 10 | 0.49 | 279 | <1 | 0.02 | 28 | 510 | 6 | 0.07 | <2 | 2 | 83 | <20 |
| CC48600 | | <1 | 0.08 | 10 | 0.58 | 1255 | <1 | 0.02 | 28 | 510 | 10 | 0.01 | <2 | 4 | 21 | <20 |
| CC48601 | | <1 | 0.07 | 10 | 0.46 | 206 | 1 | 0.01 | 38 | 320 | 13 | 0.01 | <2 | 3 | 34 | <20 |
| CC48602 | | 1 | 0.11 | 20 | 0.91 | 329 | 1 | <0.01 | 66 | 620 | 20 | 0.01 | <2 | 4 | 23 | <20 |
| CC48603 | | <1 | 0.04 | 10 | 0.41 | 317 | <1 | <0.01 | 20 | 300 | 8 | <0.01 | 3 | 3 | 17 | <20 |
| CC48604 | | <1 | 0.04 | 10 | 0.24 | 322 | 1 | <0.01 | 10 | 790 | 12 | <0.01 | 2 | 1 | 7 | <20 |
| CC48644 | | <1 | 0.13 | 10 | 0.48 | 1625 | 1 | <0.01 | 10 | 890 | 8 | <0.01 | <2 | 2 | 16 | <20 |
| CC48645 | | <1 | 0.11 | 10 | 0.54 | 850 | 1 | <0.01 | 23 | 550 | 10 | <0.01 | <2 | 3 | 29 | <20 |
| CC49432 | | <1 | 0.04 | 10 | 0.61 | 279 | <1 | <0.01 | 21 | 580 | 5 | <0.01 | <2 | 2 | 15 | <20 |
| CC49433 | | <1 | 0.05 | 10 | 0.34 | 550 | 1 | <0.01 | 12 | 540 | 7 | <0.01 | <2 | 2 | 15 | <20 |
| CC49434 | | <1 | 0.05 | 10 | 0.54 | 307 | <1 | <0.01 | 21 | 570 | 4 | <0.01 | <2 | 2 | 13 | <20 |
| CC49435 | | <1 | 0.09 | 10 | 0.69 | 433 | 1 | <0.01 | 33 | 670 | 6 | <0.01 | 2 | 4 | 22 | <20 |
| CC49436 | | 1 | 0.05 | 10 | 0.37 | 218 | <1 | <0.01 | 17 | 310 | 5 | <0.01 | <2 | 2 | 16 | <20 |
| CC49437 | | 1 | 0.07 | 10 | 0.55 | 253 | <1 | <0.01 | 20 | 200 | 6 | <0.01 | <2 | 2 | 18 | <20 |
| CC49438 | | 1 | 0.09 | 10 | 0.62 | 569 | 1 | <0.01 | 37 | 560 | 6 | 0.01 | <2 | 4 | 48 | <20 |
| CC49439 | | 1 | 0.11 | 10 | 0.86 | 589 | <1 | <0.01 | 43 | 760 | 6 | 0.05 | 2 | 5 | 76 | <20 |

Comments: The sample submittal indicates a sample subset from CC48595 to CC48599, with a sample total of 28. Samples received does total 28, but this subset starts from CC48594.

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 9-AUG-2008**
**Account: F**

Project: MOR-CLAIM SAMPLES

## CERTIFICATE OF ANALYSIS VA08096083

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45481 | | 0.20 | <10 | <10 | 69 | <10 | 56 |
| CC45482 | | 0.30 | <10 | <10 | 71 | <10 | 56 |
| CC48577 | | 0.17 | <10 | <10 | 64 | <10 | 43 |
| CC48578 | | 0.21 | <10 | <10 | 71 | <10 | 133 |
| CC48579 | | 0.11 | <10 | <10 | 48 | <10 | 30 |
| CC48580 | | 0.10 | <10 | <10 | 46 | <10 | 42 |
| CC48582 | | 0.08 | <10 | <10 | 36 | <10 | 39 |
| CC48594 | | 0.13 | <10 | <10 | 53 | <10 | 61 |
| CC48595 | | 0.39 | <10 | <10 | 80 | <10 | 108 |
| CC48596 | | 0.16 | <10 | <10 | 62 | <10 | 58 |
| CC48597 | | 0.20 | <10 | <10 | 62 | <10 | 163 |
| CC48598 | | 0.17 | <10 | <10 | 57 | <10 | 49 |
| CC48599 | | 0.09 | <10 | <10 | 37 | <10 | 25 |
| CC48600 | | 0.28 | <10 | <10 | 81 | <10 | 168 |
| CC48601 | | 0.15 | <10 | <10 | 60 | <10 | 48 |
| CC48602 | | 0.10 | <10 | <10 | 46 | <10 | 125 |
| CC48603 | | 0.22 | <10 | <10 | 90 | <10 | 54 |
| CC48604 | | 0.48 | <10 | <10 | 117 | <10 | 62 |
| CC48644 | | 0.22 | <10 | <10 | 75 | <10 | 81 |
| CC48645 | | 0.19 | <10 | <10 | 74 | <10 | 81 |
| CC49432 | | 0.15 | <10 | <10 | 54 | <10 | 40 |
| CC49433 | | 0.21 | <10 | <10 | 79 | <10 | 50 |
| CC49434 | | 0.14 | <10 | <10 | 63 | <10 | 49 |
| CC49435 | | 0.15 | <10 | <10 | 66 | <10 | 53 |
| CC49436 | | 0.14 | <10 | <10 | 49 | <10 | 39 |
| CC49437 | | 0.20 | <10 | <10 | 65 | <10 | 40 |
| CC49438 | | 0.11 | <10 | <10 | 49 | <10 | 47 |
| CC49439 | | 0.12 | <10 | <10 | 52 | <10 | 60 |

Comments: The sample submittal indicates a sample subset from CC48595 to CC48599, with a sample total of 28. Samples received does total 28, but this subset starts from CC48594.

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1016-510 W HASTINGS ST
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**Finalized Date: 5-AUG-2008**
**Account: F**

## CERTIFICATE VA08096082

Project: MOR-SD ZONE

P.O. No.:

This report is for 299 Soil samples submitted to our lab in Vancouver, BC, Canada on 14-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| SCR-41 | Screen to -180um and save both |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45027 | | 0.10 | <0.2 | 1.69 | 5 | <10 | 410 | <0.5 | <2 | 1.95 | <0.5 | 15 | 37 | 50 | 2.87 | <10 |
| CC45028 | | 0.14 | <0.2 | 1.07 | 3 | <10 | 390 | 0.6 | <2 | 2.82 | <0.5 | 7 | 21 | 77 | 1.85 | <10 |
| CC45029 | | 0.14 | 0.2 | 1.04 | 2 | <10 | 360 | <0.5 | <2 | 3.25 | 0.6 | 6 | 18 | 42 | 1.39 | <10 |
| CC45030 | | 0.16 | 0.3 | 2.34 | 7 | <10 | 450 | 0.6 | <2 | 2.04 | <0.5 | 16 | 44 | 67 | 3.74 | 10 |
| CC45031 | | 0.12 | 0.2 | 0.62 | 2 | <10 | 440 | <0.5 | <2 | 3.63 | 1.2 | 8 | 10 | 33 | 0.93 | <10 |
| CC45032 | | 0.16 | 0.2 | 1.35 | 2 | <10 | 460 | <0.5 | <2 | 2.43 | <0.5 | 17 | 26 | 63 | 2.03 | <10 |
| CC45033 | | 0.14 | 0.2 | 1.14 | 3 | <10 | 1540 | 0.7 | <2 | 2.64 | 3.7 | 51 | 17 | 134 | 2.89 | <10 |
| CC45034 | | 0.12 | <0.2 | 0.50 | 3 | <10 | 630 | <0.5 | <2 | 3.81 | 2.3 | 11 | 7 | 35 | 1.47 | <10 |
| CC45035 | | 0.18 | 0.5 | 1.56 | 2 | <10 | 430 | 0.6 | <2 | 1.54 | <0.5 | 12 | 28 | 47 | 2.17 | <10 |
| CC45036 | | 0.12 | 1.0 | 0.80 | 3 | <10 | 220 | <0.5 | <2 | 2.23 | <0.5 | 4 | 16 | 23 | 1.21 | <10 |
| CC45037 | | 0.10 | 0.7 | 1.82 | 5 | <10 | 390 | 0.7 | <2 | 3.21 | 1.4 | 9 | 34 | 178 | 2.26 | <10 |
| CC45038 | | 0.16 | 0.5 | 1.45 | 2 | <10 | 260 | <0.5 | <2 | 0.99 | <0.5 | 5 | 23 | 26 | 1.68 | <10 |
| CC45039 | | 0.16 | 0.5 | 2.34 | 3 | <10 | 620 | 0.5 | <2 | 2.06 | 1.6 | 12 | 46 | 58 | 3.31 | 10 |
| CC45040 | | 0.16 | 0.3 | 0.82 | 4 | <10 | 510 | <0.5 | <2 | 3.59 | 1.4 | 10 | 18 | 49 | 1.41 | <10 |
| CC45151 | | 0.36 | <0.2 | 1.71 | 6 | <10 | 230 | <0.5 | <2 | 0.67 | <0.5 | 16 | 48 | 47 | 3.22 | <10 |
| CC45152 | | 0.24 | 0.2 | 1.65 | 6 | <10 | 270 | <0.5 | <2 | 0.71 | <0.5 | 15 | 52 | 45 | 3.34 | <10 |
| CC45153 | | 0.34 | 0.2 | 1.73 | 8 | <10 | 230 | <0.5 | <2 | 0.65 | <0.5 | 12 | 52 | 43 | 3.12 | 10 |
| CC45154 | | 0.26 | <0.2 | 1.31 | 2 | <10 | 180 | <0.5 | <2 | 0.46 | <0.5 | 9 | 39 | 24 | 2.49 | 10 |
| CC45155 | | 0.24 | 0.3 | 2.11 | 5 | <10 | 140 | 0.5 | <2 | 0.21 | <0.5 | 11 | 45 | 21 | 2.93 | <10 |
| CC45156 | | 0.30 | <0.2 | 1.84 | 5 | <10 | 210 | <0.5 | <2 | 0.36 | <0.5 | 13 | 46 | 24 | 2.98 | 10 |
| CC45157 | | 0.24 | <0.2 | 2.12 | 5 | <10 | 180 | <0.5 | <2 | 0.26 | <0.5 | 11 | 43 | 19 | 3.37 | 10 |
| CC45158 | | 0.44 | <0.2 | 1.74 | 6 | <10 | 230 | 0.5 | <2 | 0.76 | <0.5 | 15 | 51 | 48 | 3.21 | 10 |
| CC45159 | | 0.38 | 0.2 | 1.70 | 5 | <10 | 200 | 0.5 | <2 | 0.76 | <0.5 | 14 | 48 | 49 | 3.31 | <10 |
| CC45201 | | 0.20 | 0.2 | 2.06 | 6 | <10 | 170 | <0.5 | <2 | 0.26 | <0.5 | 13 | 42 | 24 | 3.79 | 10 |
| CC45202 | | 0.20 | 0.2 | 2.22 | 5 | <10 | 160 | <0.5 | <2 | 0.23 | <0.5 | 12 | 42 | 39 | 4.10 | 10 |
| CC45203 | | 0.22 | 0.2 | 1.85 | 4 | <10 | 200 | <0.5 | <2 | 0.33 | <0.5 | 11 | 41 | 17 | 3.13 | 10 |
| CC45204 | | 0.24 | 0.2 | 2.13 | 2 | <10 | 200 | <0.5 | <2 | 0.19 | <0.5 | 11 | 45 | 18 | 3.74 | 10 |
| CC45205 | | 0.20 | <0.2 | 1.83 | 6 | <10 | 140 | <0.5 | <2 | 0.18 | <0.5 | 9 | 37 | 13 | 3.26 | 10 |
| CC45206 | | 0.18 | 0.2 | 2.47 | 4 | <10 | 240 | 0.6 | <2 | 0.17 | <0.5 | 12 | 47 | 18 | 4.64 | 10 |
| CC45207 | | 0.28 | 0.2 | 3.22 | 8 | <10 | 220 | 0.7 | <2 | 0.18 | <0.5 | 16 | 59 | 34 | 4.54 | 10 |
| CC45208 | | 0.18 | 0.5 | 2.38 | 5 | <10 | 100 | <0.5 | <2 | 0.15 | <0.5 | 11 | 48 | 36 | 4.85 | 10 |
| CC45209 | | 0.22 | 0.2 | 1.79 | 4 | <10 | 160 | <0.5 | <2 | 0.22 | <0.5 | 8 | 38 | 13 | 3.30 | 10 |
| CC45210 | | 0.22 | 0.2 | 2.40 | 4 | <10 | 230 | 0.8 | <2 | 0.24 | <0.5 | 16 | 43 | 36 | 3.62 | 10 |
| CC45211 | | 0.24 | <0.2 | 1.88 | 6 | <10 | 90 | <0.5 | 2 | 0.27 | <0.5 | 11 | 41 | 20 | 3.78 | 10 |
| CC45212 | | 0.24 | 0.2 | 1.83 | 2 | <10 | 280 | <0.5 | <2 | 0.35 | <0.5 | 13 | 43 | 32 | 3.25 | 10 |
| CC45213 | | 0.22 | <0.2 | 1.79 | 6 | <10 | 150 | <0.5 | <2 | 0.33 | <0.5 | 10 | 45 | 20 | 3.33 | 10 |
| CC45214 | | 0.18 | 0.3 | 0.91 | <2 | <10 | 80 | <0.5 | <2 | 0.20 | 1.0 | 10 | 18 | 15 | 3.18 | 10 |
| CC45215 | | 0.18 | 0.2 | 1.79 | 4 | <10 | 130 | <0.5 | <2 | 0.30 | <0.5 | 12 | 39 | 15 | 3.53 | 10 |
| CC45216 | | 0.22 | 0.2 | 1.79 | 7 | <10 | 160 | <0.5 | <2 | 0.34 | <0.5 | 13 | 42 | 20 | 3.79 | 10 |
| CC45217 | | 0.18 | 0.3 | 1.50 | 5 | <10 | 130 | <0.5 | <2 | 0.31 | <0.5 | 10 | 42 | 21 | 3.07 | 10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45027 | | <1 | 0.07 | 10 | 0.70 | 2700 | 1 | 0.01 | 35 | 970 | 6 | 0.14 | <2 | 4 | 65 | <20 |
| CC45028 | | <1 | 0.04 | 10 | 0.38 | 598 | 1 | 0.01 | 33 | 1310 | 4 | 0.22 | <2 | 2 | 108 | <20 |
| CC45029 | | <1 | 0.06 | 10 | 0.40 | 957 | 1 | 0.01 | 32 | 1070 | 5 | 0.19 | <2 | 2 | 113 | <20 |
| CC45030 | | 1 | 0.14 | 10 | 0.82 | 1190 | 1 | 0.01 | 50 | 1170 | 7 | 0.14 | <2 | 5 | 90 | <20 |
| CC45031 | | <1 | 0.05 | 10 | 0.36 | 3320 | 2 | 0.01 | 26 | 1050 | 4 | 0.19 | <2 | 1 | 132 | <20 |
| CC45032 | | <1 | 0.06 | 10 | 0.56 | 2660 | 2 | 0.01 | 32 | 1280 | 5 | 0.14 | <2 | 2 | 92 | <20 |
| CC45033 | | <1 | 0.05 | 10 | 0.39 | 27000 | 24 | 0.01 | 117 | 1710 | 8 | 0.25 | <2 | 2 | 131 | <20 |
| CC45034 | | <1 | 0.04 | <10 | 0.28 | 6590 | 8 | 0.01 | 21 | 1130 | 3 | 0.31 | <2 | 1 | 144 | <20 |
| CC45035 | | 1 | 0.09 | 10 | 0.48 | 750 | 1 | 0.01 | 33 | 1470 | 5 | 0.13 | 2 | 3 | 94 | <20 |
| CC45036 | | <1 | 0.06 | <10 | 0.33 | 114 | <1 | 0.01 | 13 | 640 | 5 | 0.10 | <2 | 2 | 93 | <20 |
| CC45037 | | 1 | 0.11 | 10 | 0.60 | 685 | <1 | 0.01 | 52 | 1510 | 2 | 0.22 | <2 | 2 | 125 | <20 |
| CC45038 | | <1 | 0.07 | <10 | 0.33 | 128 | <1 | 0.01 | 26 | 520 | 3 | 0.06 | <2 | 3 | 47 | <20 |
| CC45039 | | <1 | 0.13 | 10 | 0.72 | 508 | <1 | 0.01 | 62 | 610 | 6 | 0.07 | 2 | 4 | 89 | <20 |
| CC45040 | | <1 | 0.07 | 10 | 0.42 | 5110 | 4 | 0.01 | 51 | 1220 | 2 | 0.22 | <2 | 1 | 140 | <20 |
| CC45151 | | <1 | 0.13 | 10 | 0.94 | 1485 | 2 | 0.02 | 50 | 770 | 5 | <0.01 | <2 | 6 | 44 | <20 |
| CC45152 | | <1 | 0.14 | 10 | 0.83 | 1190 | 2 | 0.02 | 54 | 790 | 5 | <0.01 | <2 | 6 | 45 | <20 |
| CC45153 | | <1 | 0.11 | 10 | 0.85 | 472 | <1 | 0.01 | 45 | 840 | 5 | 0.01 | <2 | 6 | 35 | <20 |
| CC45154 | | <1 | 0.07 | 10 | 0.76 | 380 | <1 | 0.01 | 33 | 720 | 4 | <0.01 | <2 | 3 | 27 | <20 |
| CC45155 | | <1 | 0.06 | 10 | 0.72 | 312 | <1 | <0.01 | 38 | 410 | 5 | <0.01 | <2 | 4 | 14 | <20 |
| CC45156 | | <1 | 0.08 | 10 | 0.84 | 482 | <1 | 0.01 | 41 | 600 | 5 | <0.01 | <2 | 4 | 21 | <20 |
| CC45157 | | <1 | 0.09 | 10 | 0.68 | 317 | <1 | <0.01 | 32 | 310 | 5 | <0.01 | <2 | 4 | 16 | <20 |
| CC45158 | | <1 | 0.13 | 10 | 0.91 | 514 | 1 | 0.02 | 47 | 850 | 5 | 0.01 | <2 | 6 | 45 | <20 |
| CC45159 | | <1 | 0.15 | 10 | 0.96 | 691 | 2 | 0.02 | 43 | 760 | 6 | <0.01 | <2 | 6 | 46 | <20 |
| CC45201 | | <1 | 0.14 | 10 | 0.85 | 447 | <1 | <0.01 | 30 | 290 | 6 | <0.01 | <2 | 4 | 18 | <20 |
| CC45202 | | <1 | 0.11 | 10 | 0.90 | 354 | <1 | <0.01 | 32 | 270 | 6 | <0.01 | <2 | 4 | 15 | <20 |
| CC45203 | | <1 | 0.10 | 10 | 0.70 | 297 | <1 | <0.01 | 32 | 460 | 6 | 0.01 | <2 | 3 | 21 | <20 |
| CC45204 | | <1 | 0.08 | 10 | 0.69 | 289 | <1 | <0.01 | 29 | 330 | 6 | <0.01 | 2 | 4 | 14 | <20 |
| CC45205 | | <1 | 0.06 | 10 | 0.54 | 338 | <1 | <0.01 | 21 | 430 | 5 | <0.01 | <2 | 3 | 13 | <20 |
| CC45206 | | <1 | 0.06 | 10 | 0.54 | 595 | <1 | <0.01 | 25 | 510 | 11 | <0.01 | <2 | 4 | 13 | <20 |
| CC45207 | | <1 | 0.10 | 10 | 0.88 | 450 | <1 | <0.01 | 44 | 570 | 8 | <0.01 | <2 | 6 | 13 | <20 |
| CC45208 | | <1 | 0.09 | 10 | 0.65 | 416 | <1 | <0.01 | 24 | 480 | 7 | <0.01 | <2 | 4 | 12 | <20 |
| CC45209 | | <1 | 0.07 | 10 | 0.54 | 299 | <1 | <0.01 | 21 | 340 | 6 | <0.01 | <2 | 3 | 15 | <20 |
| CC45210 | | <1 | 0.07 | 10 | 0.63 | 418 | <1 | <0.01 | 34 | 300 | 6 | <0.01 | <2 | 4 | 17 | <20 |
| CC45211 | | <1 | 0.10 | 10 | 0.94 | 397 | <1 | <0.01 | 22 | 260 | 5 | <0.01 | <2 | 4 | 17 | <20 |
| CC45212 | | <1 | 0.12 | 10 | 0.72 | 448 | <1 | <0.01 | 31 | 260 | 6 | <0.01 | <2 | 4 | 22 | <20 |
| CC45213 | | <1 | 0.11 | 10 | 0.67 | 289 | <1 | <0.01 | 29 | 310 | 5 | <0.01 | <2 | 3 | 18 | <20 |
| CC45214 | | <1 | 0.08 | 10 | 0.59 | 378 | <1 | <0.01 | 6 | 260 | 9 | <0.01 | <2 | 4 | 12 | <20 |
| CC45215 | | <1 | 0.15 | 10 | 0.66 | 364 | <1 | <0.01 | 22 | 330 | 5 | <0.01 | <2 | 3 | 16 | <20 |
| CC45216 | | <1 | 0.11 | 10 | 0.66 | 388 | <1 | <0.01 | 26 | 380 | 6 | <0.01 | <2 | 3 | 21 | <20 |
| CC45217 | | <1 | 0.11 | 10 | 0.75 | 379 | <1 | <0.01 | 23 | 360 | 7 | <0.01 | <2 | 3 | 18 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Method / Analyte / Units / LOR / Sample Description | ME-ICP41 Ti % 0.01 | ME-ICP41 Tl ppm 10 | ME-ICP41 U ppm 10 | ME-ICP41 V ppm 1 | ME-ICP41 W ppm 10 | ME-ICP41 Zn ppm 2 |
|---|---|---|---|---|---|---|
| CC45027 | 0.07 | <10 | <10 | 41 | <10 | 69 |
| CC45028 | 0.03 | <10 | <10 | 27 | <10 | 21 |
| CC45029 | 0.03 | <10 | <10 | 20 | <10 | 29 |
| CC45030 | 0.07 | <10 | <10 | 56 | <10 | 74 |
| CC45031 | 0.02 | <10 | <10 | 15 | <10 | 18 |
| CC45032 | 0.05 | <10 | <10 | 33 | <10 | 42 |
| CC45033 | 0.03 | <10 | <10 | 32 | <10 | 23 |
| CC45034 | 0.02 | <10 | <10 | 13 | <10 | 20 |
| CC45035 | 0.05 | <10 | <10 | 31 | <10 | 35 |
| CC45036 | 0.08 | <10 | <10 | 22 | <10 | 33 |
| CC45037 | 0.04 | <10 | <10 | 31 | <10 | 115 |
| CC45038 | 0.05 | <10 | <10 | 23 | <10 | 22 |
| CC45039 | 0.08 | <10 | <10 | 50 | <10 | 96 |
| CC45040 | 0.03 | <10 | 10 | 22 | <10 | 40 |
| CC45151 | 0.14 | <10 | <10 | 63 | <10 | 73 |
| CC45152 | 0.16 | <10 | <10 | 66 | <10 | 71 |
| CC45153 | 0.15 | <10 | <10 | 62 | <10 | 69 |
| CC45154 | 0.15 | <10 | <10 | 54 | <10 | 45 |
| CC45155 | 0.15 | <10 | <10 | 62 | <10 | 41 |
| CC45156 | 0.17 | <10 | <10 | 63 | <10 | 50 |
| CC45157 | 0.18 | <10 | <10 | 78 | <10 | 54 |
| CC45158 | 0.16 | <10 | <10 | 68 | <10 | 72 |
| CC45159 | 0.16 | <10 | <10 | 68 | <10 | 61 |
| CC45201 | 0.15 | <10 | <10 | 74 | <10 | 71 |
| CC45202 | 0.20 | <10 | <10 | 94 | <10 | 68 |
| CC45203 | 0.15 | <10 | <10 | 73 | <10 | 58 |
| CC45204 | 0.19 | <10 | <10 | 88 | <10 | 59 |
| CC45205 | 0.20 | <10 | <10 | 75 | <10 | 49 |
| CC45206 | 0.29 | <10 | <10 | 102 | <10 | 88 |
| CC45207 | 0.24 | <10 | <10 | 90 | <10 | 64 |
| CC45208 | 0.27 | <10 | <10 | 103 | <10 | 60 |
| CC45209 | 0.22 | <10 | <10 | 88 | <10 | 51 |
| CC45210 | 0.23 | <10 | <10 | 75 | <10 | 49 |
| CC45211 | 0.18 | <10 | <10 | 87 | <10 | 65 |
| CC45212 | 0.19 | <10 | <10 | 75 | <10 | 59 |
| CC45213 | 0.17 | <10 | <10 | 87 | <10 | 57 |
| CC45214 | 0.29 | <10 | <10 | 116 | <10 | 105 |
| CC45215 | 0.17 | <10 | <10 | 79 | <10 | 66 |
| CC45216 | 0.21 | <10 | <10 | 80 | <10 | 79 |
| CC45217 | 0.16 | <10 | <10 | 71 | <10 | 71 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45218 | | 0.18 | 0.7 | 2.99 | 7 | <10 | 370 | 1.2 | <2 | 0.56 | 0.5 | 37 | 55 | 171 | 4.60 | 10 |
| CC45219 | | 0.20 | 0.2 | 2.21 | 7 | <10 | 250 | 0.6 | <2 | 0.37 | <0.5 | 11 | 43 | 49 | 3.65 | 10 |
| CC45220 | | 0.24 | 0.2 | 1.50 | 2 | <10 | 230 | <0.5 | <2 | 0.53 | <0.5 | 11 | 40 | 21 | 2.67 | 10 |
| CC45221 | | 0.24 | <0.2 | 2.67 | 3 | <10 | 220 | 0.5 | <2 | 0.25 | <0.5 | 14 | 51 | 29 | 3.49 | 10 |
| CC45222 | | 0.18 | 0.2 | 2.11 | 4 | <10 | 140 | <0.5 | <2 | 0.30 | <0.5 | 11 | 44 | 20 | 3.72 | 10 |
| CC45223 | | 0.24 | 0.4 | 2.95 | 9 | <10 | 220 | 0.6 | <2 | 0.35 | 0.5 | 16 | 56 | 39 | 5.55 | 10 |
| CC45224 | | 0.22 | <0.2 | 2.10 | 5 | <10 | 70 | <0.5 | <2 | 0.31 | <0.5 | 15 | 36 | 54 | 4.32 | 10 |
| CC45225 | | 0.30 | 0.2 | 2.07 | 4 | <10 | 340 | <0.5 | <2 | 0.40 | <0.5 | 11 | 43 | 41 | 3.44 | 10 |
| CC45226 | | 0.24 | 0.2 | 1.88 | 8 | <10 | 130 | <0.5 | <2 | 0.22 | <0.5 | 10 | 45 | 18 | 4.54 | 10 |
| CC45227 | | 0.34 | <0.2 | 1.55 | 5 | <10 | 180 | <0.5 | <2 | 0.53 | <0.5 | 13 | 43 | 28 | 3.07 | <10 |
| CC45228 | | 0.18 | 0.5 | 3.09 | 7 | <10 | 270 | 0.7 | <2 | 0.31 | <0.5 | 17 | 65 | 60 | 5.10 | 10 |
| CC45229 | | 0.18 | 1.1 | 1.92 | 3 | <10 | 190 | 0.5 | <2 | 0.20 | <0.5 | 12 | 39 | 28 | 4.34 | 10 |
| CC45230 | | 0.22 | 0.5 | 1.73 | 3 | <10 | 130 | <0.5 | <2 | 0.17 | <0.5 | 12 | 36 | 20 | 3.69 | 10 |
| CC45231 | | 0.26 | 0.2 | 1.57 | 4 | <10 | 140 | <0.5 | <2 | 0.20 | <0.5 | 10 | 36 | 14 | 3.45 | 10 |
| CC45232 | | 0.26 | <0.2 | 2.30 | 5 | <10 | 140 | <0.5 | <2 | 0.20 | <0.5 | 13 | 44 | 18 | 3.62 | 10 |
| CC45233 | | 0.16 | 0.4 | 1.95 | 4 | <10 | 150 | <0.5 | <2 | 0.20 | <0.5 | 12 | 41 | 22 | 3.67 | 10 |
| CC45234 | | 0.34 | <0.2 | 1.84 | 7 | <10 | 250 | 0.5 | <2 | 0.74 | <0.5 | 17 | 55 | 51 | 3.52 | <10 |
| CC45235 | | 0.32 | 0.2 | 1.86 | 7 | <10 | 280 | 0.5 | <2 | 0.98 | <0.5 | 19 | 51 | 55 | 3.71 | <10 |
| CC45236 | | 0.22 | 0.2 | 1.84 | 5 | <10 | 290 | 0.5 | <2 | 0.91 | 0.7 | 14 | 57 | 53 | 3.11 | 10 |
| CC45237 | | 0.20 | <0.2 | 1.58 | 4 | <10 | 300 | 0.5 | <2 | 0.88 | <0.5 | 13 | 45 | 45 | 2.38 | 10 |
| CC45238 | | 0.20 | 0.2 | 2.03 | 6 | <10 | 270 | 0.5 | <2 | 0.97 | 0.5 | 19 | 49 | 56 | 4.06 | 10 |
| CC45239 | | 0.38 | 0.2 | 1.67 | 5 | <10 | 310 | 0.5 | <2 | 1.00 | <0.5 | 14 | 52 | 54 | 3.13 | <10 |
| CC45240 | | 0.22 | <0.2 | 1.02 | 3 | <10 | 150 | <0.5 | <2 | 0.52 | <0.5 | 9 | 37 | 11 | 2.19 | <10 |
| CC45241 | | 0.34 | <0.2 | 1.50 | 3 | <10 | 210 | <0.5 | <2 | 0.43 | <0.5 | 11 | 40 | 26 | 2.91 | <10 |
| CC45242 | | 0.26 | <0.2 | 1.65 | 6 | <10 | 220 | <0.5 | <2 | 0.59 | <0.5 | 15 | 56 | 41 | 3.23 | <10 |
| CC45243 | | 0.32 | <0.2 | 1.54 | 7 | <10 | 230 | <0.5 | <2 | 0.86 | 0.5 | 15 | 55 | 46 | 2.81 | <10 |
| CC45244 | | 0.30 | 0.2 | 1.66 | 3 | <10 | 480 | <0.5 | <2 | 0.79 | 0.5 | 17 | 52 | 35 | 3.69 | <10 |
| CC45245 | | 0.24 | <0.2 | 1.85 | 3 | <10 | 250 | <0.5 | <2 | 0.67 | <0.5 | 14 | 58 | 46 | 2.89 | <10 |
| CC45246 | | 0.32 | <0.2 | 1.91 | 4 | <10 | 200 | <0.5 | <2 | 0.59 | <0.5 | 19 | 60 | 46 | 2.97 | <10 |
| CC45247 | | 0.32 | 0.2 | 1.51 | 6 | <10 | 210 | <0.5 | <2 | 0.70 | 0.5 | 15 | 86 | 48 | 3.57 | <10 |
| CC45248 | | 0.36 | <0.2 | 1.23 | 3 | <10 | 190 | <0.5 | <2 | 0.63 | <0.5 | 11 | 44 | 25 | 2.49 | <10 |
| CC45249 | | 0.22 | 0.2 | 1.78 | 4 | <10 | 230 | <0.5 | <2 | 0.69 | <0.5 | 16 | 51 | 50 | 3.16 | <10 |
| CC45250 | | 0.40 | <0.2 | 1.66 | 5 | <10 | 230 | <0.5 | <2 | 0.72 | <0.5 | 16 | 64 | 30 | 3.10 | <10 |
| CC45251 | | 0.22 | 0.6 | 2.33 | 4 | <10 | 280 | 1.0 | <2 | 1.66 | 0.7 | 16 | 54 | 109 | 3.28 | <10 |
| CC45252 | | 0.40 | <0.2 | 1.57 | 4 | <10 | 190 | <0.5 | <2 | 0.67 | <0.5 | 12 | 53 | 25 | 2.97 | <10 |
| CC45253 | | 0.34 | <0.2 | 1.47 | 5 | <10 | 210 | <0.5 | <2 | 0.79 | <0.5 | 10 | 44 | 28 | 2.77 | <10 |
| CC45254 | | 0.26 | 0.2 | 1.97 | 5 | <10 | 300 | 0.5 | <2 | 1.14 | <0.5 | 11 | 51 | 53 | 3.01 | <10 |
| CC45255 | | 0.48 | <0.2 | 1.92 | 3 | <10 | 230 | <0.5 | <2 | 0.31 | <0.5 | 12 | 45 | 22 | 3.19 | 10 |
| CC45256 | | 0.30 | 0.2 | 1.90 | 6 | <10 | 270 | 0.6 | <2 | 0.82 | 0.5 | 12 | 49 | 56 | 3.70 | 10 |
| CC45257 | | 0.44 | <0.2 | 1.23 | 4 | <10 | 180 | <0.5 | <2 | 0.49 | <0.5 | 12 | 40 | 25 | 2.59 | <10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45218 | | <1 | 0.09 | 10 | 0.73 | 2940 | 3 | <0.01 | 31 | 670 | 10 | 0.01 | <2 | 5 | 32 | <20 |
| CC45219 | | <1 | 0.10 | 10 | 0.69 | 387 | 1 | <0.01 | 24 | 570 | 6 | 0.01 | <2 | 4 | 19 | <20 |
| CC45220 | | <1 | 0.06 | 10 | 0.72 | 311 | <1 | 0.01 | 31 | 810 | 5 | <0.01 | <2 | 4 | 32 | <20 |
| CC45221 | | <1 | 0.10 | 10 | 0.88 | 369 | <1 | <0.01 | 50 | 490 | 6 | <0.01 | <2 | 4 | 16 | <20 |
| CC45222 | | <1 | 0.13 | 10 | 0.81 | 337 | <1 | <0.01 | 34 | 480 | 5 | <0.01 | 2 | 4 | 17 | <20 |
| CC45223 | | 1 | 0.14 | 10 | 0.79 | 458 | 2 | 0.01 | 61 | 510 | 12 | 0.02 | <2 | 5 | 26 | <20 |
| CC45224 | | 1 | 0.31 | <10 | 1.44 | 1275 | 3 | <0.01 | 16 | 180 | 5 | 0.01 | <2 | 7 | 14 | <20 |
| CC45225 | | <1 | 0.11 | 10 | 0.71 | 387 | 2 | <0.01 | 31 | 270 | 8 | 0.01 | <2 | 4 | 29 | <20 |
| CC45226 | | 1 | 0.10 | 10 | 0.67 | 340 | 1 | <0.01 | 31 | 530 | 8 | 0.01 | <2 | 4 | 15 | <20 |
| CC45227 | | 1 | 0.08 | 10 | 0.81 | 480 | 1 | 0.01 | 33 | 670 | 5 | 0.01 | <2 | 4 | 28 | <20 |
| CC45228 | | <1 | 0.16 | 10 | 0.96 | 556 | 2 | <0.01 | 49 | 460 | 9 | 0.02 | <2 | 6 | 24 | <20 |
| CC45229 | | <1 | 0.11 | 10 | 0.50 | 440 | 2 | <0.01 | 23 | 600 | 9 | 0.01 | <2 | 3 | 17 | <20 |
| CC45230 | | 1 | 0.10 | 10 | 0.71 | 399 | 1 | <0.01 | 20 | 420 | 6 | 0.01 | <2 | 3 | 13 | <20 |
| CC45231 | | <1 | 0.09 | 10 | 0.60 | 353 | 2 | <0.01 | 24 | 350 | 5 | 0.02 | <2 | 3 | 17 | <20 |
| CC45232 | | <1 | 0.08 | 10 | 0.78 | 371 | 1 | <0.01 | 32 | 400 | 6 | 0.01 | 3 | 4 | 14 | <20 |
| CC45233 | | 1 | 0.10 | 10 | 0.69 | 588 | 1 | <0.01 | 29 | 520 | 9 | 0.01 | <2 | 4 | 15 | <20 |
| CC45234 | | <1 | 0.14 | 10 | 0.95 | 510 | 3 | 0.02 | 58 | 830 | 8 | 0.01 | <2 | 6 | 43 | <20 |
| CC45235 | | <1 | 0.11 | 10 | 0.85 | 1215 | 4 | 0.01 | 52 | 850 | 6 | 0.06 | <2 | 7 | 62 | <20 |
| CC45236 | | <1 | 0.09 | 10 | 0.76 | 373 | 3 | 0.01 | 49 | 960 | 5 | 0.11 | <2 | 6 | 48 | <20 |
| CC45237 | | 1 | 0.07 | 10 | 0.61 | 339 | 2 | 0.01 | 41 | 760 | 4 | 0.08 | 2 | 5 | 51 | <20 |
| CC45238 | | 1 | 0.10 | 10 | 0.91 | 481 | 3 | 0.01 | 48 | 1080 | 5 | 0.07 | <2 | 7 | 45 | <20 |
| CC45239 | | 1 | 0.11 | 10 | 0.78 | 659 | 2 | 0.01 | 55 | 920 | 7 | 0.04 | <2 | 6 | 49 | <20 |
| CC45240 | | 1 | 0.05 | 10 | 0.62 | 334 | 1 | 0.01 | 25 | 820 | 5 | 0.01 | <2 | 3 | 30 | <20 |
| CC45241 | | 1 | 0.06 | 10 | 0.72 | 353 | 1 | 0.01 | 50 | 620 | 5 | 0.01 | <2 | 4 | 26 | <20 |
| CC45242 | | <1 | 0.10 | 10 | 1.13 | 441 | 2 | 0.02 | 76 | 760 | 5 | 0.01 | <2 | 5 | 33 | <20 |
| CC45243 | | <1 | 0.11 | 10 | 0.83 | 323 | 2 | 0.01 | 49 | 760 | 6 | 0.09 | <2 | 6 | 46 | <20 |
| CC45244 | | 1 | 0.10 | 10 | 0.71 | 3900 | 3 | 0.01 | 53 | 900 | 6 | 0.07 | <2 | 6 | 47 | <20 |
| CC45245 | | 1 | 0.09 | 10 | 1.01 | 372 | 3 | 0.02 | 51 | 800 | 6 | 0.06 | <2 | 6 | 40 | <20 |
| CC45246 | | 1 | 0.07 | 10 | 1.24 | 390 | 4 | 0.01 | 43 | 750 | 3 | 0.06 | <2 | 5 | 35 | <20 |
| CC45247 | | 1 | 0.10 | 10 | 0.82 | 569 | 7 | 0.02 | 72 | 800 | 11 | 0.02 | <2 | 5 | 41 | <20 |
| CC45248 | | 1 | 0.07 | 10 | 0.66 | 349 | 2 | 0.01 | 33 | 770 | 4 | 0.02 | 2 | 4 | 36 | <20 |
| CC45249 | | <1 | 0.10 | 10 | 0.94 | 550 | 2 | 0.01 | 47 | 790 | 6 | 0.02 | <2 | 6 | 46 | <20 |
| CC45250 | | <1 | 0.09 | 10 | 0.82 | 811 | 5 | 0.01 | 52 | 850 | 7 | 0.02 | 2 | 5 | 45 | <20 |
| CC45251 | | 2 | 0.08 | 20 | 0.88 | 703 | 5 | 0.01 | 58 | 1520 | 8 | 0.14 | 2 | 5 | 81 | <20 |
| CC45252 | | <1 | 0.10 | 10 | 0.82 | 502 | 3 | 0.01 | 47 | 640 | 4 | 0.01 | 2 | 4 | 38 | <20 |
| CC45253 | | <1 | 0.08 | 10 | 0.60 | 759 | 3 | 0.01 | 35 | 810 | 6 | 0.04 | <2 | 5 | 41 | <20 |
| CC45254 | | <1 | 0.10 | 10 | 0.70 | 406 | 2 | 0.01 | 38 | 990 | 6 | 0.09 | 2 | 6 | 59 | <20 |
| CC45255 | | 1 | 0.07 | 10 | 0.67 | 407 | 2 | <0.01 | 40 | 460 | 5 | 0.01 | <2 | 4 | 21 | <20 |
| CC45256 | | <1 | 0.10 | 10 | 0.68 | 525 | 4 | 0.01 | 44 | 1060 | 6 | 0.06 | <2 | 5 | 46 | <20 |
| CC45257 | | <1 | 0.05 | 10 | 0.79 | 461 | 1 | 0.01 | 46 | 700 | 4 | <0.01 | 2 | 3 | 29 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
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## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Ti | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45218 | | 0.16 | <10 | <10 | 89 | <10 | 126 |
| CC45219 | | 0.11 | <10 | <10 | 69 | <10 | 58 |
| CC45220 | | 0.15 | <10 | <10 | 58 | <10 | 45 |
| CC45221 | | 0.14 | <10 | <10 | 71 | <10 | 56 |
| CC45222 | | 0.16 | <10 | <10 | 75 | <10 | 68 |
| CC45223 | | 0.29 | <10 | <10 | 91 | <10 | 95 |
| CC45224 | | 0.20 | <10 | <10 | 84 | <10 | 195 |
| CC45225 | | 0.18 | <10 | <10 | 77 | <10 | 64 |
| CC45226 | | 0.19 | <10 | <10 | 90 | <10 | 63 |
| CC45227 | | 0.15 | <10 | <10 | 60 | <10 | 52 |
| CC45228 | | 0.20 | <10 | <10 | 103 | <10 | 87 |
| CC45229 | | 0.23 | <10 | <10 | 99 | <10 | 61 |
| CC45230 | | 0.23 | <10 | <10 | 86 | <10 | 64 |
| CC45231 | | 0.18 | <10 | <10 | 82 | <10 | 50 |
| CC45232 | | 0.16 | <10 | <10 | 72 | <10 | 70 |
| CC45233 | | 0.16 | <10 | <10 | 78 | <10 | 75 |
| CC45234 | | 0.17 | <10 | <10 | 68 | <10 | 70 |
| CC45235 | | 0.14 | <10 | <10 | 67 | <10 | 85 |
| CC45236 | | 0.19 | <10 | <10 | 72 | <10 | 98 |
| CC45237 | | 0.11 | <10 | <10 | 57 | <10 | 71 |
| CC45238 | | 0.15 | <10 | <10 | 76 | <10 | 98 |
| CC45239 | | 0.13 | <10 | <10 | 58 | <10 | 64 |
| CC45240 | | 0.14 | <10 | <10 | 47 | <10 | 55 |
| CC45241 | | 0.17 | <10 | <10 | 53 | <10 | 44 |
| CC45242 | | 0.17 | <10 | <10 | 61 | <10 | 74 |
| CC45243 | | 0.14 | <10 | <10 | 60 | <10 | 83 |
| CC45244 | | 0.13 | <10 | <10 | 61 | <10 | 86 |
| CC45245 | | 0.15 | <10 | <10 | 60 | <10 | 72 |
| CC45246 | | 0.13 | <10 | <10 | 66 | <10 | 67 |
| CC45247 | | 0.13 | <10 | <10 | 58 | <10 | 85 |
| CC45248 | | 0.12 | <10 | <10 | 48 | <10 | 54 |
| CC45249 | | 0.14 | <10 | <10 | 60 | <10 | 76 |
| CC45250 | | 0.13 | <10 | <10 | 58 | <10 | 64 |
| CC45251 | | 0.08 | <10 | 10 | 63 | <10 | 64 |
| CC45252 | | 0.14 | <10 | <10 | 55 | <10 | 57 |
| CC45253 | | 0.12 | <10 | <10 | 51 | <10 | 62 |
| CC45254 | | 0.12 | <10 | <10 | 58 | <10 | 74 |
| CC45255 | | 0.17 | <10 | <10 | 65 | <10 | 61 |
| CC45256 | | 0.14 | <10 | <10 | 69 | <10 | 94 |
| CC45257 | | 0.14 | <10 | <10 | 53 | <10 | 46 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45258 | | 0.40 | <0.2 | 1.27 | 4 | <10 | 170 | <0.5 | <2 | 0.59 | <0.5 | 9 | 40 | 22 | 2.47 | <10 |
| CC45259 | | 0.38 | 0.3 | 1.54 | 6 | <10 | 200 | <0.5 | <2 | 0.67 | <0.5 | 11 | 52 | 26 | 2.71 | 10 |
| CC45260 | | 0.38 | <0.2 | 1.68 | 10 | <10 | 280 | 0.5 | <2 | 0.78 | 0.5 | 19 | 49 | 46 | 4.57 | 10 |
| CC45261 | | 0.28 | <0.2 | 1.80 | 6 | <10 | 290 | 0.5 | <2 | 0.91 | <0.5 | 16 | 59 | 46 | 3.39 | 10 |
| CC45262 | | 0.40 | 0.3 | 1.82 | 7 | <10 | 250 | 0.5 | <2 | 0.82 | <0.5 | 15 | 55 | 50 | 3.83 | 10 |
| CC45263 | | 0.36 | 0.3 | 1.68 | 5 | <10 | 220 | <0.5 | <2 | 0.81 | <0.5 | 12 | 54 | 56 | 2.74 | <10 |
| CC45264 | | 0.32 | <0.2 | 1.29 | 5 | <10 | 190 | <0.5 | <2 | 0.68 | <0.5 | 11 | 45 | 32 | 2.64 | <10 |
| CC45265 | | 0.34 | 0.3 | 1.87 | 6 | <10 | 270 | 0.5 | <2 | 0.79 | <0.5 | 17 | 61 | 56 | 3.39 | 10 |
| CC45266 | | 0.42 | 0.2 | 1.69 | 8 | <10 | 320 | <0.5 | <2 | 0.83 | <0.5 | 17 | 49 | 54 | 3.45 | <10 |
| CC45267 | | Not Recvd | | | | | | | | | | | | | | |
| CC45268 | | 0.30 | 0.3 | 1.56 | 8 | <10 | 270 | <0.5 | <2 | 0.65 | 0.5 | 15 | 42 | 49 | 3.43 | <10 |
| CC45269 | | 0.40 | 0.2 | 1.54 | 7 | <10 | 230 | <0.5 | <2 | 0.82 | <0.5 | 13 | 46 | 38 | 2.97 | 10 |
| CC45270 | | 0.50 | <0.2 | 1.52 | 6 | <10 | 210 | <0.5 | <2 | 0.57 | <0.5 | 13 | 70 | 48 | 2.87 | 10 |
| CC45271 | | 0.46 | 0.2 | 1.42 | 4 | <10 | 190 | <0.5 | <2 | 0.60 | <0.5 | 11 | 56 | 39 | 2.66 | <10 |
| CC45272 | | 0.50 | <0.2 | 1.62 | 6 | <10 | 230 | <0.5 | <2 | 0.60 | <0.5 | 16 | 64 | 39 | 3.11 | 10 |
| CC45273 | | 0.42 | 0.3 | 1.79 | 4 | <10 | 250 | 0.5 | <2 | 0.74 | <0.5 | 16 | 68 | 54 | 2.99 | 10 |
| CC45274 | | 0.26 | <0.2 | 1.57 | 6 | <10 | 210 | <0.5 | <2 | 0.76 | <0.5 | 12 | 50 | 37 | 2.86 | 10 |
| CC45275 | | 0.26 | <0.2 | 1.88 | 4 | <10 | 270 | <0.5 | <2 | 0.85 | <0.5 | 13 | 49 | 30 | 3.06 | 10 |
| CC45276 | | 0.42 | 0.2 | 1.34 | 5 | <10 | 160 | <0.5 | <2 | 0.60 | <0.5 | 10 | 42 | 21 | 2.61 | <10 |
| CC45277 | | 0.38 | 0.2 | 1.85 | 3 | <10 | 270 | 0.5 | <2 | 0.82 | <0.5 | 12 | 52 | 41 | 2.90 | 10 |
| CC45278 | | 0.28 | <0.2 | 1.95 | 6 | <10 | 310 | 0.5 | <2 | 0.86 | <0.5 | 11 | 55 | 47 | 3.37 | 10 |
| CC45279 | | 0.40 | <0.2 | 1.40 | 4 | <10 | 180 | <0.5 | <2 | 0.63 | <0.5 | 13 | 44 | 35 | 2.68 | <10 |
| CC45280 | | 0.46 | 0.2 | 1.41 | 5 | <10 | 210 | <0.5 | <2 | 0.65 | <0.5 | 12 | 42 | 26 | 2.66 | <10 |
| CC45281 | | 0.40 | 0.2 | 2.01 | 6 | <10 | 370 | 0.6 | <2 | 0.98 | 0.5 | 15 | 56 | 59 | 3.47 | 10 |
| CC45282 | | 0.32 | <0.2 | 1.79 | 8 | <10 | 420 | 0.5 | <2 | 0.88 | 0.6 | 18 | 55 | 54 | 3.14 | <10 |
| CC45283 | | 0.46 | <0.2 | 1.92 | 7 | <10 | 250 | 0.5 | <2 | 0.77 | <0.5 | 18 | 69 | 46 | 3.69 | 10 |
| CC45284 | | 0.48 | <0.2 | 1.51 | 6 | <10 | 210 | <0.5 | <2 | 0.64 | <0.5 | 15 | 61 | 36 | 3.00 | <10 |
| CC45285 | | 0.40 | 0.2 | 1.72 | 3 | <10 | 270 | 0.5 | <2 | 0.95 | 0.5 | 15 | 60 | 51 | 3.00 | 10 |
| CC45286 | | 0.36 | 0.2 | 1.61 | 6 | <10 | 210 | <0.5 | <2 | 0.91 | <0.5 | 15 | 45 | 46 | 3.18 | <10 |
| CC45287 | | 0.48 | <0.2 | 1.34 | 3 | <10 | 170 | <0.5 | <2 | 0.60 | <0.5 | 12 | 43 | 35 | 2.75 | <10 |
| CC45288 | | 0.36 | 0.2 | 1.60 | 6 | <10 | 210 | <0.5 | <2 | 0.82 | <0.5 | 12 | 47 | 45 | 2.98 | 10 |
| CC45289 | | 0.36 | <0.2 | 1.50 | 4 | <10 | 210 | <0.5 | <2 | 0.76 | <0.5 | 16 | 50 | 45 | 3.13 | 10 |
| CC45290 | | 0.50 | <0.2 | 1.32 | 4 | <10 | 190 | <0.5 | <2 | 0.67 | <0.5 | 14 | 56 | 25 | 2.66 | <10 |
| CC45291 | | 0.50 | 0.2 | 1.65 | 9 | <10 | 230 | <0.5 | <2 | 0.68 | <0.5 | 13 | 52 | 51 | 3.30 | 10 |
| CC45301 | | 0.14 | 1.7 | 2.36 | 3 | <10 | 350 | 0.5 | <2 | 0.43 | <0.5 | 11 | 49 | 76 | 3.16 | 10 |
| CC45302 | | 0.24 | 0.2 | 0.79 | 2 | <10 | 100 | <0.5 | <2 | 0.21 | <0.5 | 4 | 23 | 7 | 1.85 | 10 |
| CC45303 | | 0.22 | <0.2 | 1.74 | 5 | <10 | 100 | <0.5 | <2 | 0.19 | <0.5 | 8 | 39 | 13 | 3.24 | 10 |
| CC45304 | | 0.24 | <0.2 | 2.88 | 5 | <10 | 200 | 0.5 | <2 | 0.20 | <0.5 | 16 | 56 | 26 | 3.57 | 10 |
| CC45305 | | 0.20 | 0.6 | 2.92 | 9 | <10 | 360 | 0.7 | <2 | 0.21 | <0.5 | 10 | 56 | 47 | 3.54 | 10 |
| CC45306 | | 0.20 | <0.2 | 1.91 | 4 | <10 | 140 | <0.5 | <2 | 0.26 | <0.5 | 9 | 37 | 19 | 3.32 | 10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45258 | | 1 | 0.07 | 10 | 0.65 | 390 | 2 | 0.01 | 33 | 810 | 4 | 0.01 | <2 | 4 | 33 | <20 |
| CC45259 | | <1 | 0.09 | 10 | 0.74 | 230 | 1 | 0.01 | 40 | 840 | 8 | 0.03 | <2 | 5 | 37 | <20 |
| CC45260 | | <1 | 0.07 | 10 | 0.73 | 1155 | 5 | <0.01 | 38 | 1020 | 6 | 0.06 | <2 | 5 | 43 | <20 |
| CC45261 | | <1 | 0.07 | 10 | 0.95 | 1520 | 4 | 0.01 | 58 | 1020 | 6 | 0.07 | <2 | 5 | 52 | <20 |
| CC45262 | | <1 | 0.10 | 10 | 1.00 | 505 | 4 | 0.01 | 48 | 860 | 7 | 0.04 | 2 | 6 | 45 | <20 |
| CC45263 | | <1 | 0.12 | 10 | 0.90 | 284 | 1 | 0.01 | 52 | 830 | 7 | 0.06 | <2 | 6 | 41 | <20 |
| CC45264 | | <1 | 0.09 | 10 | 0.78 | 393 | 1 | 0.01 | 36 | 800 | 8 | 0.03 | <2 | 4 | 39 | <20 |
| CC45265 | | <1 | 0.09 | 10 | 0.87 | 625 | 3 | 0.01 | 44 | 880 | 7 | 0.06 | <2 | 7 | 40 | <20 |
| CC45266 | | <1 | 0.07 | 10 | 0.82 | 1865 | 3 | 0.01 | 43 | 880 | 5 | 0.06 | <2 | 5 | 35 | <20 |
| CC45267 | | | | | | | | | | | | | | | | |
| CC45268 | | <1 | 0.07 | 10 | 0.77 | 370 | 2 | 0.01 | 32 | 960 | 6 | 0.06 | <2 | 5 | 34 | <20 |
| CC45269 | | <1 | 0.07 | 10 | 0.79 | 419 | 2 | 0.01 | 44 | 860 | 6 | 0.03 | <2 | 5 | 47 | <20 |
| CC45270 | | <1 | 0.11 | 10 | 0.84 | 514 | 4 | 0.01 | 58 | 740 | 7 | 0.01 | <2 | 5 | 33 | <20 |
| CC45271 | | <1 | 0.09 | 10 | 0.80 | 420 | 2 | 0.01 | 47 | 820 | 9 | 0.02 | <2 | 5 | 39 | <20 |
| CC45272 | | <1 | 0.12 | 10 | 0.86 | 721 | 4 | 0.01 | 58 | 770 | 6 | 0.01 | <2 | 6 | 37 | <20 |
| CC45273 | | <1 | 0.10 | 10 | 0.94 | 415 | 3 | 0.01 | 60 | 860 | 7 | 0.02 | <2 | 6 | 44 | <20 |
| CC45274 | | <1 | 0.08 | 10 | 0.81 | 453 | 2 | 0.01 | 39 | 900 | 6 | 0.03 | <2 | 5 | 43 | <20 |
| CC45275 | | <1 | 0.08 | 10 | 0.79 | 449 | 2 | 0.01 | 36 | 910 | 5 | 0.05 | <2 | 5 | 44 | <20 |
| CC45276 | | <1 | 0.07 | 10 | 0.81 | 401 | 1 | 0.01 | 33 | 730 | 5 | 0.04 | <2 | 4 | 32 | <20 |
| CC45277 | | <1 | 0.11 | 10 | 0.71 | 728 | 2 | 0.01 | 44 | 1000 | 6 | 0.08 | <2 | 6 | 42 | <20 |
| CC45278 | | <1 | 0.10 | 10 | 0.82 | 470 | 2 | 0.01 | 44 | 750 | 7 | 0.03 | <2 | 6 | 42 | <20 |
| CC45279 | | <1 | 0.09 | 10 | 0.76 | 518 | 1 | 0.01 | 38 | 880 | 5 | 0.02 | <2 | 4 | 33 | <20 |
| CC45280 | | 1 | 0.08 | 10 | 0.78 | 471 | 1 | 0.01 | 38 | 730 | 5 | 0.02 | <2 | 4 | 34 | <20 |
| CC45281 | | <1 | 0.09 | 10 | 0.74 | 1015 | 4 | 0.01 | 46 | 1000 | 5 | 0.07 | <2 | 7 | 50 | <20 |
| CC45282 | | <1 | 0.09 | 10 | 0.70 | 477 | 2 | 0.01 | 47 | 910 | 7 | 0.08 | 3 | 6 | 46 | <20 |
| CC45283 | | <1 | 0.11 | 10 | 1.00 | 630 | 4 | 0.01 | 66 | 750 | 6 | 0.02 | <2 | 5 | 40 | <20 |
| CC45284 | | <1 | 0.09 | 10 | 0.85 | 827 | 3 | 0.02 | 57 | 800 | 6 | 0.01 | <2 | 5 | 36 | <20 |
| CC45285 | | <1 | 0.12 | 10 | 0.92 | 390 | 2 | 0.01 | 61 | 850 | 6 | 0.05 | <2 | 6 | 47 | <20 |
| CC45286 | | <1 | 0.11 | 10 | 0.90 | 412 | 1 | 0.01 | 34 | 820 | 4 | 0.04 | <2 | 6 | 41 | <20 |
| CC45287 | | <1 | 0.09 | 10 | 0.83 | 512 | 1 | <0.01 | 42 | 720 | 13 | 0.01 | <2 | 4 | 31 | <20 |
| CC45288 | | 1 | 0.10 | 10 | 0.80 | 522 | 1 | 0.01 | 37 | 940 | 6 | 0.03 | <2 | 5 | 40 | <20 |
| CC45289 | | <1 | 0.11 | 10 | 0.75 | 567 | 2 | 0.01 | 49 | 900 | 5 | 0.02 | <2 | 6 | 40 | <20 |
| CC45290 | | <1 | 0.08 | 10 | 0.81 | 472 | 3 | 0.01 | 49 | 830 | 5 | 0.01 | <2 | 4 | 37 | <20 |
| CC45291 | | <1 | 0.10 | 10 | 0.82 | 754 | 2 | 0.01 | 52 | 830 | 5 | 0.02 | <2 | 6 | 40 | <20 |
| CC45301 | | <1 | 0.15 | 10 | 0.62 | 316 | 1 | <0.01 | 39 | 920 | 7 | 0.07 | 2 | 3 | 29 | <20 |
| CC45302 | | <1 | 0.06 | 10 | 0.21 | 121 | 1 | <0.01 | 10 | 250 | 7 | 0.01 | <2 | 2 | 14 | <20 |
| CC45303 | | <1 | 0.07 | 10 | 0.56 | 300 | 1 | <0.01 | 23 | 350 | 6 | <0.01 | <2 | 3 | 13 | <20 |
| CC45304 | | <1 | 0.10 | 10 | 0.83 | 354 | 1 | <0.01 | 52 | 290 | 5 | <0.01 | <2 | 4 | 13 | <20 |
| CC45305 | | <1 | 0.17 | 10 | 0.39 | 256 | 2 | <0.01 | 40 | 1110 | 15 | 0.06 | <2 | 4 | 22 | <20 |
| CC45306 | | <1 | 0.07 | 10 | 0.59 | 289 | 1 | <0.01 | 24 | 230 | 6 | 0.02 | <2 | 3 | 19 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45258 | | 0.13 | <10 | <10 | 49 | <10 | 56 |
| CC45259 | | 0.15 | <10 | <10 | 61 | <10 | 81 |
| CC45260 | | 0.10 | <10 | <10 | 74 | <10 | 87 |
| CC45261 | | 0.12 | <10 | <10 | 64 | <10 | 97 |
| CC45262 | | 0.14 | <10 | <10 | 67 | <10 | 83 |
| CC45263 | | 0.12 | <10 | <10 | 59 | <10 | 73 |
| CC45264 | | 0.12 | <10 | <10 | 53 | <10 | 77 |
| CC45265 | | 0.14 | <10 | <10 | 66 | <10 | 97 |
| CC45266 | | 0.12 | <10 | <10 | 62 | <10 | 89 |
| CC45267 | | | | | | | |
| CC45268 | | 0.11 | <10 | <10 | 59 | <10 | 84 |
| CC45269 | | 0.15 | <10 | <10 | 60 | <10 | 80 |
| CC45270 | | 0.14 | <10 | <10 | 57 | <10 | 76 |
| CC45271 | | 0.13 | <10 | <10 | 54 | <10 | 76 |
| CC45272 | | 0.15 | <10 | <10 | 61 | <10 | 71 |
| CC45273 | | 0.15 | <10 | <10 | 63 | <10 | 86 |
| CC45274 | | 0.13 | <10 | <10 | 61 | <10 | 79 |
| CC45275 | | 0.14 | <10 | <10 | 58 | <10 | 86 |
| CC45276 | | 0.13 | <10 | <10 | 55 | <10 | 56 |
| CC45277 | | 0.14 | <10 | <10 | 55 | <10 | 120 |
| CC45278 | | 0.13 | <10 | <10 | 64 | <10 | 75 |
| CC45279 | | 0.15 | <10 | <10 | 55 | <10 | 64 |
| CC45280 | | 0.13 | <10 | <10 | 55 | <10 | 47 |
| CC45281 | | 0.14 | <10 | <10 | 70 | <10 | 101 |
| CC45282 | | 0.13 | <10 | <10 | 66 | <10 | 91 |
| CC45283 | | 0.15 | <10 | <10 | 65 | <10 | 68 |
| CC45284 | | 0.14 | <10 | <10 | 61 | <10 | 63 |
| CC45285 | | 0.14 | <10 | <10 | 67 | <10 | 79 |
| CC45286 | | 0.12 | <10 | <10 | 67 | <10 | 80 |
| CC45287 | | 0.14 | <10 | <10 | 56 | <10 | 56 |
| CC45288 | | 0.14 | <10 | <10 | 60 | <10 | 69 |
| CC45289 | | 0.15 | <10 | <10 | 62 | <10 | 68 |
| CC45290 | | 0.13 | <10 | <10 | 55 | <10 | 54 |
| CC45291 | | 0.15 | <10 | <10 | 63 | <10 | 74 |
| CC45301 | | 0.10 | <10 | <10 | 57 | <10 | 74 |
| CC45302 | | 0.16 | <10 | <10 | 52 | <10 | 30 |
| CC45303 | | 0.19 | <10 | <10 | 79 | <10 | 50 |
| CC45304 | | 0.15 | <10 | <10 | 74 | <10 | 54 |
| CC45305 | | 0.14 | <10 | <10 | 71 | <10 | 78 |
| CC45306 | | 0.14 | <10 | <10 | 74 | <10 | 47 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

# CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45307 | | 0.26 | <0.2 | 1.84 | 6 | <10 | 90 | <0.5 | <2 | 0.14 | <0.5 | 10 | 41 | 22 | 3.93 | 10 |
| CC45308 | | 0.24 | 0.2 | 1.50 | 7 | <10 | 120 | <0.5 | <2 | 0.23 | <0.5 | 10 | 35 | 33 | 3.40 | 10 |
| CC45309 | | 0.22 | 0.3 | 1.81 | 5 | <10 | 120 | <0.5 | <2 | 0.26 | <0.5 | 10 | 42 | 19 | 3.58 | 10 |
| CC45310 | | 0.20 | 0.3 | 1.44 | 2 | <10 | 200 | <0.5 | <2 | 0.28 | <0.5 | 8 | 36 | 19 | 2.71 | 10 |
| CC45311 | | 0.24 | <0.2 | 1.50 | 6 | <10 | 110 | <0.5 | <2 | 0.22 | <0.5 | 9 | 42 | 16 | 3.50 | 10 |
| CC45312 | | 0.14 | 0.5 | 0.63 | 3 | <10 | 280 | <0.5 | <2 | 4.15 | <0.5 | 5 | 16 | 32 | 0.79 | <10 |
| CC45313 | | 0.18 | 0.8 | 0.82 | <2 | <10 | 570 | <0.5 | <2 | 3.59 | 0.6 | 9 | 17 | 47 | 0.79 | <10 |
| CC45314 | | 0.30 | 0.2 | 0.85 | 3 | <10 | 140 | <0.5 | <2 | 0.35 | <0.5 | 6 | 26 | 8 | 2.53 | 10 |
| CC45315 | | 0.20 | 0.6 | 1.63 | 3 | <10 | 320 | <0.5 | <2 | 0.74 | <0.5 | 19 | 41 | 43 | 2.70 | 10 |
| CC45316 | | 0.26 | 0.3 | 1.05 | 2 | <10 | 130 | <0.5 | <2 | 0.50 | 0.5 | 6 | 33 | 34 | 2.29 | 10 |
| CC45317 | | 0.22 | 0.3 | 1.54 | 4 | <10 | 150 | <0.5 | <2 | 0.23 | <0.5 | 8 | 40 | 11 | 4.01 | 10 |
| CC45318 | | 0.28 | 0.2 | 0.80 | 4 | <10 | 80 | <0.5 | <2 | 0.33 | <0.5 | 8 | 31 | 12 | 2.67 | 10 |
| CC45319 | | 0.10 | 1.5 | 1.45 | 4 | <10 | 330 | 0.9 | <2 | 2.45 | <0.5 | 13 | 27 | 57 | 2.11 | <10 |
| CC45320 | | 0.12 | 0.7 | 1.76 | 2 | <10 | 380 | 0.7 | <2 | 3.01 | <0.5 | 13 | 30 | 53 | 1.87 | <10 |
| CC45321 | | 0.16 | 0.8 | 2.11 | 5 | <10 | 210 | <0.5 | <2 | 0.36 | <0.5 | 11 | 45 | 34 | 3.83 | 10 |
| CC45322 | | 0.26 | 0.3 | 2.28 | 8 | <10 | 130 | <0.5 | <2 | 0.21 | <0.5 | 13 | 47 | 23 | 3.49 | 10 |
| CC45323 | | 0.28 | 0.2 | 1.60 | 4 | <10 | 120 | <0.5 | <2 | 0.20 | <0.5 | 10 | 34 | 14 | 3.31 | 10 |
| CC45324 | | 0.22 | 0.2 | 1.43 | 3 | <10 | 90 | <0.5 | <2 | 0.19 | <0.5 | 8 | 28 | 11 | 2.92 | 10 |
| CC45325 | | 0.28 | <0.2 | 1.24 | 5 | <10 | 90 | <0.5 | <2 | 0.20 | <0.5 | 8 | 33 | 11 | 3.25 | 10 |
| CC45326 | | 0.16 | <0.2 | 0.26 | <2 | <10 | 270 | <0.5 | <2 | 4.08 | 1.3 | 5 | 11 | 37 | 0.52 | <10 |
| CC45327 | | 0.24 | <0.2 | 1.37 | 5 | <10 | 130 | <0.5 | <2 | 0.34 | <0.5 | 9 | 35 | 14 | 2.89 | 10 |
| CC45328 | | 0.20 | 0.9 | 2.23 | 4 | <10 | 180 | 0.7 | <2 | 0.22 | <0.5 | 12 | 51 | 21 | 5.38 | 10 |
| CC45329 | | 0.28 | 0.3 | 1.77 | 6 | <10 | 150 | <0.5 | <2 | 0.20 | <0.5 | 9 | 42 | 15 | 3.59 | 10 |
| CC45330 | | 0.08 | 0.5 | 0.95 | <2 | <10 | 370 | <0.5 | <2 | 2.85 | 1.9 | 6 | 20 | 34 | 1.22 | <10 |
| CC45331 | | 0.30 | <0.2 | 1.35 | 4 | <10 | 200 | <0.5 | <2 | 0.82 | <0.5 | 10 | 45 | 28 | 2.58 | <10 |
| CC45332 | | 0.16 | 0.7 | 2.45 | 5 | <10 | 550 | 0.6 | <2 | 1.88 | 0.6 | 20 | 46 | 42 | 3.23 | 10 |
| CC45334 | | 0.18 | 0.4 | 2.77 | 7 | <10 | 560 | 0.7 | <2 | 1.43 | 0.5 | 23 | 61 | 55 | 3.86 | 10 |
| CC45335 | | 0.16 | 0.8 | 1.54 | 4 | <10 | 380 | 0.5 | <2 | 2.80 | 0.7 | 9 | 35 | 102 | 2.18 | <10 |
| CC45336 | | 0.24 | 0.2 | 1.74 | 5 | <10 | 110 | <0.5 | <2 | 0.25 | <0.5 | 10 | 37 | 17 | 3.39 | 10 |
| CC45337 | | 0.20 | 0.5 | 2.20 | 3 | <10 | 400 | 0.6 | <2 | 0.90 | <0.5 | 16 | 48 | 60 | 3.23 | 10 |
| CC45338 | | 0.12 | 0.2 | 0.77 | 2 | <10 | 320 | <0.5 | <2 | 3.60 | 0.8 | 7 | 52 | 28 | 1.21 | <10 |
| CC45339 | | 0.16 | 0.3 | 1.85 | 4 | <10 | 360 | 0.5 | <2 | 1.50 | <0.5 | 14 | 42 | 49 | 2.91 | 10 |
| CC45340 | | 0.10 | 0.5 | 1.56 | 3 | <10 | 390 | <0.5 | <2 | 2.49 | 1.3 | 16 | 38 | 69 | 2.38 | <10 |
| CC45341 | | 0.08 | 0.3 | 0.71 | 3 | <10 | 560 | <0.5 | <2 | 3.82 | 1.1 | 12 | 14 | 45 | 1.41 | <10 |
| CC45342 | | 0.12 | 1.0 | 1.48 | 5 | <10 | 450 | 0.6 | <2 | 2.76 | 0.6 | 12 | 33 | 58 | 1.91 | 10 |
| CC45343 | | 0.10 | 1.1 | 1.18 | 3 | <10 | 490 | 0.6 | <2 | 2.58 | <0.5 | 11 | 23 | 51 | 1.63 | <10 |
| CC45344 | | 0.10 | 0.3 | 0.50 | <2 | <10 | 350 | <0.5 | <2 | 3.78 | 0.9 | 5 | 13 | 33 | 0.73 | <10 |
| CC45345 | | 0.14 | 0.5 | 1.41 | 4 | <10 | 260 | <0.5 | <2 | 1.98 | <0.5 | 11 | 38 | 49 | 2.30 | 10 |
| CC45346 | | 0.12 | 0.6 | 1.27 | 3 | <10 | 320 | <0.5 | <2 | 2.31 | <0.5 | 9 | 31 | 31 | 3.00 | <10 |
| CC45347 | | 0.16 | 0.3 | 1.59 | 3 | <10 | 240 | <0.5 | <2 | 1.08 | <0.5 | 12 | 38 | 37 | 2.63 | 10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45307 | | <1 | 0.08 | 10 | 0.68 | 319 | 1 | <0.01 | 23 | 330 | 5 | 0.02 | <2 | 4 | 11 | <20 |
| CC45308 | | <1 | 0.08 | 10 | 0.63 | 285 | 2 | <0.01 | 20 | 370 | 5 | 0.03 | <2 | 3 | 16 | <20 |
| CC45309 | | <1 | 0.07 | 10 | 0.64 | 304 | 1 | <0.01 | 27 | 260 | 6 | 0.02 | <2 | 3 | 17 | <20 |
| CC45310 | | <1 | 0.09 | 10 | 0.55 | 282 | 1 | <0.01 | 20 | 270 | 7 | 0.01 | <2 | 3 | 19 | <20 |
| CC45311 | | 1 | 0.09 | 10 | 0.60 | 321 | 1 | <0.01 | 28 | 420 | 6 | 0.01 | <2 | 3 | 15 | <20 |
| CC45312 | | 1 | 0.04 | <10 | 0.25 | 452 | <1 | 0.01 | 15 | 1000 | 2 | 0.17 | <2 | 1 | 152 | <20 |
| CC45313 | | 1 | 0.04 | 10 | 0.16 | 1965 | 1 | 0.01 | 19 | 1580 | 2 | 0.19 | <2 | 1 | 147 | <20 |
| CC45314 | | <1 | 0.10 | 10 | 0.32 | 329 | 1 | <0.01 | 12 | 360 | 7 | 0.03 | <2 | 2 | 21 | <20 |
| CC45315 | | <1 | 0.11 | 10 | 0.52 | 1295 | 2 | <0.01 | 26 | 1040 | 6 | 0.08 | <2 | 4 | 39 | <20 |
| CC45316 | | <1 | 0.09 | 10 | 0.37 | 246 | 1 | <0.01 | 16 | 220 | 7 | 0.03 | <2 | 3 | 23 | <20 |
| CC45317 | | 1 | 0.09 | 10 | 0.49 | 520 | 1 | <0.01 | 23 | 400 | 6 | 0.02 | 2 | 2 | 16 | <20 |
| CC45318 | | <1 | 0.08 | 10 | 0.35 | 224 | 2 | <0.01 | 13 | 320 | 5 | 0.03 | <2 | 2 | 16 | <20 |
| CC45319 | | <1 | 0.07 | 20 | 0.30 | 1280 | 7 | <0.01 | 31 | 1440 | 4 | 0.19 | <2 | 2 | 92 | <20 |
| CC45320 | | <1 | 0.04 | 10 | 0.40 | 1395 | 5 | 0.01 | 32 | 2000 | 3 | 0.24 | <2 | 2 | 95 | <20 |
| CC45321 | | <1 | 0.15 | 10 | 0.55 | 385 | 2 | <0.01 | 32 | 720 | 8 | 0.03 | <2 | 3 | 27 | <20 |
| CC45322 | | <1 | 0.09 | 10 | 0.78 | 306 | 1 | <0.01 | 36 | 380 | 6 | 0.02 | <2 | 4 | 12 | <20 |
| CC45323 | | <1 | 0.09 | 10 | 0.67 | 337 | 1 | <0.01 | 19 | 380 | 7 | 0.02 | <2 | 3 | 13 | <20 |
| CC45324 | | <1 | 0.09 | 10 | 0.64 | 281 | 1 | <0.01 | 15 | 400 | 7 | 0.02 | <2 | 3 | 13 | <20 |
| CC45325 | | <1 | 0.08 | 10 | 0.47 | 348 | 1 | <0.01 | 16 | 510 | 5 | 0.02 | <2 | 3 | 13 | <20 |
| CC45326 | | <1 | 0.09 | <10 | 0.29 | 3870 | 2 | 0.01 | 25 | 1250 | 2 | 0.27 | <2 | <1 | 139 | <20 |
| CC45327 | | <1 | 0.12 | 10 | 0.58 | 375 | 1 | <0.01 | 22 | 420 | 5 | 0.02 | <2 | 2 | 22 | <20 |
| CC45328 | | <1 | 0.09 | 10 | 0.51 | 506 | 2 | <0.01 | 27 | 790 | 7 | 0.02 | <2 | 3 | 14 | <20 |
| CC45329 | | <1 | 0.08 | 10 | 0.66 | 303 | <1 | <0.01 | 31 | 470 | 5 | 0.02 | <2 | 3 | 13 | <20 |
| CC45330 | | 1 | 0.06 | 10 | 0.34 | 1125 | 1 | <0.01 | 21 | 1650 | 3 | 0.19 | <2 | 1 | 112 | <20 |
| CC45331 | | <1 | 0.07 | 10 | 0.80 | 443 | 1 | 0.01 | 39 | 620 | 4 | 0.03 | <2 | 4 | 39 | <20 |
| CC45332 | | 1 | 0.14 | 10 | 0.62 | 1010 | 1 | 0.01 | 50 | 730 | 8 | 0.07 | <2 | 4 | 67 | <20 |
| CC45334 | | <1 | 0.14 | 10 | 0.88 | 2470 | 1 | 0.01 | 72 | 720 | 7 | 0.07 | 2 | 6 | 68 | <20 |
| CC45335 | | <1 | 0.09 | 10 | 0.44 | 793 | 1 | 0.01 | 37 | 2070 | 2 | 0.29 | <2 | 2 | 107 | <20 |
| CC45336 | | <1 | 0.08 | 10 | 0.70 | 288 | 1 | <0.01 | 20 | 340 | 5 | 0.01 | <2 | 3 | 15 | <20 |
| CC45337 | | <1 | 0.15 | 10 | 0.69 | 596 | 1 | 0.01 | 43 | 560 | 7 | 0.04 | <2 | 4 | 53 | <20 |
| CC45338 | | <1 | 0.04 | 10 | 0.41 | 1530 | 2 | 0.01 | 40 | 1040 | 2 | 0.21 | <2 | 1 | 123 | <20 |
| CC45339 | | <1 | 0.08 | 10 | 0.82 | 1045 | 1 | 0.01 | 33 | 1070 | 5 | 0.09 | <2 | 4 | 69 | <20 |
| CC45340 | | <1 | 0.10 | 10 | 0.70 | 1700 | 1 | 0.01 | 44 | 1120 | 3 | 0.16 | <2 | 3 | 92 | <20 |
| CC45341 | | 1 | 0.03 | 10 | 0.33 | 5610 | 5 | 0.02 | 27 | 1340 | 2 | 0.24 | <2 | 1 | 129 | <20 |
| CC45342 | | <1 | 0.08 | 20 | 0.54 | 1170 | 1 | 0.02 | 50 | 1020 | 6 | 0.16 | <2 | 3 | 115 | <20 |
| CC45343 | | <1 | 0.05 | 10 | 0.47 | 1775 | 1 | 0.02 | 34 | 1670 | 5 | 0.20 | <2 | 2 | 111 | <20 |
| CC45344 | | <1 | 0.03 | 10 | 0.29 | 3380 | 4 | 0.02 | 25 | 1440 | 3 | 0.26 | <2 | 1 | 120 | <20 |
| CC45345 | | <1 | 0.08 | 10 | 0.69 | 537 | 1 | 0.01 | 35 | 880 | 6 | 0.16 | <2 | 3 | 70 | <20 |
| CC45346 | | <1 | 0.06 | 10 | 0.59 | 1650 | 2 | 0.02 | 29 | 940 | 5 | 0.24 | <2 | 3 | 77 | <20 |
| CC45347 | | <1 | 0.07 | 10 | 0.74 | 794 | 1 | 0.01 | 31 | 780 | 5 | 0.09 | <2 | 4 | 41 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45307 | | 0.17 | <10 | <10 | 85 | <10 | 53 |
| CC45308 | | 0.14 | <10 | <10 | 70 | <10 | 49 |
| CC45309 | | 0.19 | <10 | <10 | 80 | <10 | 50 |
| CC45310 | | 0.17 | <10 | <10 | 72 | <10 | 44 |
| CC45311 | | 0.16 | <10 | <10 | 78 | <10 | 58 |
| CC45312 | | 0.03 | <10 | <10 | 11 | <10 | 13 |
| CC45313 | | 0.01 | <10 | <10 | 10 | <10 | 13 |
| CC45314 | | 0.24 | <10 | <10 | 77 | <10 | 55 |
| CC45315 | | 0.10 | <10 | <10 | 55 | <10 | 51 |
| CC45316 | | 0.20 | <10 | <10 | 66 | <10 | 106 |
| CC45317 | | 0.22 | <10 | <10 | 83 | <10 | 72 |
| CC45318 | | 0.19 | <10 | <10 | 91 | <10 | 47 |
| CC45319 | | 0.04 | <10 | <10 | 27 | <10 | 19 |
| CC45320 | | 0.04 | <10 | <10 | 28 | <10 | 24 |
| CC45321 | | 0.16 | <10 | <10 | 81 | <10 | 68 |
| CC45322 | | 0.15 | <10 | <10 | 71 | <10 | 57 |
| CC45323 | | 0.19 | <10 | <10 | 78 | <10 | 64 |
| CC45324 | | 0.20 | <10 | <10 | 84 | <10 | 53 |
| CC45325 | | 0.21 | <10 | <10 | 95 | <10 | 51 |
| CC45326 | | 0.01 | <10 | <10 | 11 | <10 | 42 |
| CC45327 | | 0.14 | <10 | <10 | 72 | <10 | 55 |
| CC45328 | | 0.30 | <10 | <10 | 94 | <10 | 85 |
| CC45329 | | 0.15 | <10 | <10 | 70 | <10 | 56 |
| CC45330 | | 0.03 | <10 | <10 | 19 | <10 | 81 |
| CC45331 | | 0.13 | <10 | <10 | 52 | <10 | 51 |
| CC45332 | | 0.08 | <10 | <10 | 56 | <10 | 65 |
| CC45334 | | 0.10 | <10 | <10 | 67 | <10 | 67 |
| CC45335 | | 0.03 | <10 | <10 | 31 | <10 | 66 |
| CC45336 | | 0.18 | <10 | <10 | 77 | <10 | 45 |
| CC45337 | | 0.11 | <10 | <10 | 58 | <10 | 63 |
| CC45338 | | 0.03 | <10 | <10 | 19 | <10 | 34 |
| CC45339 | | 0.08 | <10 | <10 | 52 | <10 | 63 |
| CC45340 | | 0.05 | <10 | <10 | 35 | <10 | 100 |
| CC45341 | | 0.02 | <10 | <10 | 16 | <10 | 14 |
| CC45342 | | 0.04 | <10 | <10 | 25 | <10 | 37 |
| CC45343 | | 0.03 | <10 | <10 | 21 | <10 | 23 |
| CC45344 | | 0.01 | <10 | 10 | 11 | <10 | 16 |
| CC45345 | | 0.09 | <10 | 10 | 43 | <10 | 43 |
| CC45346 | | 0.06 | <10 | <10 | 27 | <10 | 53 |
| CC45347 | | 0.10 | <10 | <10 | 46 | <10 | 71 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45351 | | 0.34 | 0.3 | 1.23 | 7 | <10 | 110 | <0.5 | <2 | 0.24 | <0.5 | 7 | 20 | 13 | 2.56 | <10 |
| CC45352 | | 0.24 | 0.4 | 1.71 | 6 | <10 | 90 | <0.5 | <2 | 0.19 | <0.5 | 8 | 39 | 22 | 3.24 | 10 |
| CC45353 | | 0.34 | 0.4 | 2.26 | 6 | <10 | 160 | <0.5 | <2 | 0.31 | <0.5 | 13 | 50 | 21 | 3.64 | 10 |
| CC45354 | | 0.40 | 0.3 | 2.87 | 5 | <10 | 240 | 0.5 | <2 | 0.18 | <0.5 | 16 | 53 | 24 | 3.85 | 10 |
| CC45355 | | 0.44 | 0.4 | 2.35 | 4 | <10 | 290 | 0.6 | <2 | 0.34 | <0.5 | 11 | 46 | 24 | 3.61 | 10 |
| CC45356 | | 0.34 | <0.2 | 3.08 | 5 | <10 | 220 | 0.5 | <2 | 0.17 | <0.5 | 14 | 55 | 26 | 3.89 | 10 |
| CC45357 | | 0.38 | 0.3 | 1.98 | 4 | <10 | 110 | <0.5 | <2 | 0.16 | <0.5 | 10 | 38 | 24 | 3.40 | 10 |
| CC45358 | | 0.36 | 0.3 | 2.32 | 7 | <10 | 170 | <0.5 | <2 | 0.20 | <0.5 | 12 | 52 | 25 | 3.95 | 10 |
| CC45359 | | 0.28 | 0.2 | 1.70 | 3 | <10 | 140 | <0.5 | <2 | 0.15 | <0.5 | 9 | 41 | 14 | 3.68 | 10 |
| CC45360 | | 0.34 | 0.3 | 2.41 | 6 | <10 | 250 | 0.5 | <2 | 0.32 | <0.5 | 17 | 49 | 27 | 3.84 | 10 |
| CC45361 | | 0.24 | 0.6 | 2.41 | 5 | <10 | 400 | 0.6 | <2 | 0.98 | <0.5 | 16 | 51 | 58 | 3.54 | 10 |
| CC45362 | | 0.32 | 0.4 | 1.66 | 2 | <10 | 170 | <0.5 | <2 | 0.27 | <0.5 | 11 | 42 | 26 | 3.00 | 10 |
| CC45363 | | 0.36 | 0.4 | 2.62 | 5 | <10 | 310 | 0.8 | <2 | 0.60 | <0.5 | 19 | 47 | 64 | 4.17 | 10 |
| CC45364 | | 0.36 | 0.3 | 1.23 | 3 | <10 | 80 | <0.5 | <2 | 0.25 | 0.5 | 9 | 27 | 15 | 3.52 | 10 |
| CC45365 | | 0.36 | 0.2 | 2.32 | 6 | <10 | 140 | <0.5 | <2 | 0.23 | <0.5 | 13 | 49 | 24 | 3.87 | 10 |
| CC45366 | | 0.32 | 0.3 | 0.97 | 5 | <10 | 110 | <0.5 | <2 | 0.23 | 0.5 | 7 | 27 | 16 | 3.64 | 10 |
| CC45367 | | 0.42 | <0.2 | 1.36 | 4 | <10 | 90 | <0.5 | <2 | 0.25 | <0.5 | 10 | 34 | 25 | 2.98 | 10 |
| CC45368 | | 0.42 | 0.3 | 1.62 | 5 | <10 | 140 | <0.5 | <2 | 0.23 | <0.5 | 10 | 39 | 18 | 3.40 | 10 |
| CC45369 | | 0.30 | 0.9 | 1.04 | 2 | <10 | 380 | 0.5 | <2 | 2.61 | 0.6 | 34 | 24 | 156 | 1.57 | <10 |
| CC45370 | | 0.30 | 0.8 | 1.60 | 2 | <10 | 420 | 0.6 | <2 | 1.52 | <0.5 | 9 | 33 | 63 | 2.32 | 10 |
| CC45371 | | 0.34 | 0.3 | 2.48 | 3 | <10 | 150 | 0.5 | <2 | 0.19 | <0.5 | 14 | 49 | 18 | 3.85 | 10 |
| CC45372 | | 0.32 | 0.4 | 2.15 | 3 | <10 | 180 | <0.5 | <2 | 0.28 | <0.5 | 11 | 44 | 19 | 3.63 | 10 |
| CC45373 | | 0.34 | 0.3 | 1.21 | 2 | <10 | 150 | <0.5 | <2 | 0.19 | 0.5 | 8 | 35 | 11 | 3.33 | 10 |
| CC45374 | | 0.50 | 0.3 | 1.62 | 4 | <10 | 170 | <0.5 | <2 | 0.50 | <0.5 | 10 | 39 | 22 | 2.99 | 10 |
| CC45375 | | 0.26 | 0.9 | 2.09 | 3 | <10 | 420 | 0.6 | <2 | 1.53 | 0.9 | 27 | 44 | 63 | 4.02 | 10 |
| CC45376 | | 0.34 | 0.4 | 2.42 | 6 | <10 | 200 | <0.5 | <2 | 0.40 | <0.5 | 14 | 49 | 41 | 4.08 | 10 |
| CC45377 | | 0.34 | 0.2 | 1.73 | 5 | <10 | 100 | <0.5 | <2 | 0.19 | <0.5 | 10 | 39 | 16 | 3.40 | 10 |
| CC45378 | | 0.54 | 0.2 | 1.56 | 4 | <10 | 170 | <0.5 | <2 | 0.48 | <0.5 | 14 | 43 | 21 | 3.08 | 10 |
| CC45379 | | 0.20 | 0.7 | 2.62 | 4 | <10 | 440 | 0.6 | <2 | 1.79 | 1.0 | 20 | 50 | 100 | 3.26 | 10 |
| CC45380 | | 0.34 | 0.6 | 1.80 | 5 | <10 | 130 | <0.5 | <2 | 0.24 | <0.5 | 11 | 37 | 18 | 3.44 | 10 |
| CC45381 | | 0.30 | 0.3 | 1.21 | 3 | <10 | 110 | <0.5 | <2 | 0.21 | <0.5 | 7 | 31 | 13 | 2.62 | 10 |
| CC45382 | | 0.30 | 0.4 | 1.08 | 3 | <10 | 80 | <0.5 | <2 | 0.14 | 0.5 | 8 | 30 | 11 | 3.34 | 10 |
| CC45383 | | 0.42 | 0.2 | 1.67 | 6 | <10 | 120 | <0.5 | <2 | 0.20 | <0.5 | 10 | 41 | 16 | 3.60 | 10 |
| CC45401 | | 0.28 | 0.2 | 1.96 | 7 | <10 | 160 | <0.5 | <2 | 0.29 | <0.5 | 12 | 44 | 33 | 3.25 | 10 |
| CC45402 | | 0.28 | 0.3 | 1.84 | 6 | <10 | 120 | <0.5 | <2 | 0.20 | <0.5 | 10 | 43 | 20 | 3.43 | 10 |
| CC45403 | | 0.32 | 0.2 | 1.41 | 3 | <10 | 150 | <0.5 | <2 | 0.25 | <0.5 | 7 | 34 | 10 | 3.25 | 10 |
| CC45404 | | 0.30 | <0.2 | 2.28 | 5 | <10 | 180 | <0.5 | <2 | 0.29 | <0.5 | 12 | 50 | 21 | 3.99 | 10 |
| CC45405 | | 0.30 | 0.2 | 2.54 | 5 | <10 | 170 | <0.5 | <2 | 0.23 | <0.5 | 13 | 51 | 27 | 3.78 | 10 |
| CC45406 | | 0.28 | <0.2 | 1.76 | 4 | <10 | 150 | <0.5 | <2 | 0.13 | <0.5 | 11 | 40 | 74 | 4.10 | 10 |
| CC45407 | | 0.28 | <0.2 | 0.53 | <2 | <10 | 50 | <0.5 | <2 | 0.17 | <0.5 | 3 | 17 | 19 | 1.97 | <10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45351 | | <1 | 0.08 | 10 | 0.63 | 336 | 1 | <0.01 | 13 | 360 | 12 | 0.03 | <2 | 2 | 15 | <20 |
| CC45352 | | <1 | 0.09 | 10 | 0.61 | 281 | 1 | <0.01 | 24 | 310 | 8 | 0.03 | <2 | 3 | 12 | <20 |
| CC45353 | | <1 | 0.11 | 10 | 0.90 | 365 | <1 | <0.01 | 45 | 600 | 7 | 0.02 | <2 | 4 | 19 | <20 |
| CC45354 | | <1 | 0.08 | 10 | 0.89 | 367 | <1 | <0.01 | 51 | 280 | 8 | 0.02 | <2 | 4 | 13 | <20 |
| CC45355 | | <1 | 0.07 | 10 | 0.66 | 390 | 1 | 0.01 | 31 | 360 | 9 | 0.02 | <2 | 4 | 21 | <20 |
| CC45356 | | <1 | 0.08 | 10 | 0.89 | 387 | <1 | <0.01 | 45 | 190 | 8 | 0.03 | <2 | 5 | 14 | <20 |
| CC45357 | | <1 | 0.08 | 10 | 0.69 | 353 | 2 | <0.01 | 21 | 330 | 8 | 0.03 | <2 | 4 | 10 | <20 |
| CC45358 | | <1 | 0.09 | 10 | 0.87 | 376 | <1 | <0.01 | 39 | 330 | 7 | 0.03 | <2 | 4 | 13 | <20 |
| CC45359 | | <1 | 0.06 | 10 | 0.48 | 255 | 1 | <0.01 | 23 | 210 | 8 | 0.03 | <2 | 3 | 13 | <20 |
| CC45360 | | <1 | 0.08 | 10 | 0.92 | 500 | 1 | 0.01 | 50 | 470 | 8 | 0.03 | <2 | 4 | 19 | <20 |
| CC45361 | | <1 | 0.10 | 10 | 0.90 | 712 | <1 | 0.01 | 46 | 570 | 10 | 0.05 | <2 | 5 | 44 | <20 |
| CC45362 | | <1 | 0.09 | 10 | 0.72 | 516 | <1 | <0.01 | 34 | 360 | 6 | 0.03 | <2 | 3 | 17 | <20 |
| CC45363 | | <1 | 0.14 | 20 | 0.90 | 954 | <1 | 0.01 | 41 | 780 | 8 | 0.03 | <2 | 7 | 29 | <20 |
| CC45364 | | <1 | 0.07 | 10 | 0.80 | 290 | <1 | <0.01 | 13 | 380 | 7 | 0.03 | <2 | 3 | 13 | <20 |
| CC45365 | | <1 | 0.11 | 10 | 0.81 | 333 | <1 | <0.01 | 38 | 310 | 6 | 0.02 | <2 | 4 | 17 | <20 |
| CC45366 | | <1 | 0.06 | 10 | 0.38 | 250 | 1 | <0.01 | 13 | 350 | 7 | 0.04 | <2 | 2 | 16 | <20 |
| CC45367 | | <1 | 0.09 | 10 | 0.64 | 295 | 1 | <0.01 | 19 | 220 | 7 | 0.02 | <2 | 3 | 14 | <20 |
| CC45368 | | <1 | 0.11 | 10 | 0.61 | 392 | 3 | <0.01 | 25 | 420 | 7 | 0.02 | <2 | 3 | 15 | <20 |
| CC45369 | | <1 | 0.02 | 10 | 0.27 | 1665 | 1 | 0.02 | 28 | 1560 | 5 | 0.20 | <2 | 2 | 103 | <20 |
| CC45370 | | <1 | 0.07 | 10 | 0.55 | 356 | <1 | 0.02 | 44 | 1100 | 6 | 0.11 | <2 | 3 | 69 | <20 |
| CC45371 | | <1 | 0.08 | 10 | 0.82 | 383 | <1 | <0.01 | 36 | 450 | 6 | 0.01 | <2 | 4 | 11 | <20 |
| CC45372 | | <1 | 0.09 | 10 | 0.77 | 324 | <1 | <0.01 | 35 | 370 | 6 | 0.04 | <2 | 4 | 18 | <20 |
| CC45373 | | <1 | 0.07 | 10 | 0.36 | 286 | 1 | <0.01 | 17 | 290 | 9 | 0.05 | <2 | 2 | 13 | <20 |
| CC45374 | | <1 | 0.10 | 10 | 0.97 | 351 | <1 | 0.01 | 29 | 470 | 6 | 0.03 | <2 | 5 | 26 | <20 |
| CC45375 | | <1 | 0.10 | 10 | 0.59 | 2090 | 3 | 0.02 | 41 | 1370 | 7 | 0.15 | <2 | 4 | 56 | <20 |
| CC45376 | | <1 | 0.18 | 10 | 0.87 | 377 | 1 | 0.01 | 48 | 360 | 8 | 0.02 | <2 | 4 | 23 | <20 |
| CC45377 | | <1 | 0.09 | 10 | 0.69 | 283 | 1 | <0.01 | 27 | 330 | 8 | 0.02 | <2 | 3 | 13 | <20 |
| CC45378 | | <1 | 0.08 | 10 | 0.90 | 522 | 1 | 0.01 | 34 | 570 | 6 | 0.02 | <2 | 4 | 24 | <20 |
| CC45379 | | 1 | 0.13 | 10 | 0.85 | 1200 | 3 | 0.02 | 53 | 1160 | 8 | 0.14 | <2 | 5 | 66 | <20 |
| CC45380 | | <1 | 0.10 | 10 | 0.83 | 375 | 1 | <0.01 | 25 | 320 | 7 | 0.02 | <2 | 3 | 15 | <20 |
| CC45381 | | <1 | 0.08 | 10 | 0.52 | 245 | 1 | 0.01 | 16 | 380 | 7 | 0.01 | <2 | 2 | 14 | <20 |
| CC45382 | | <1 | 0.07 | 10 | 0.39 | 301 | <1 | 0.01 | 13 | 500 | 7 | 0.01 | <2 | 2 | 9 | <20 |
| CC45383 | | <1 | 0.08 | 10 | 0.57 | 349 | 1 | 0.01 | 24 | 370 | 8 | 0.01 | <2 | 3 | 14 | <20 |
| CC45401 | | <1 | 0.09 | 10 | 0.74 | 459 | <1 | 0.02 | 35 | 450 | 6 | 0.02 | <2 | 3 | 20 | <20 |
| CC45402 | | <1 | 0.08 | 10 | 0.62 | 325 | <1 | 0.01 | 26 | 430 | 4 | 0.02 | <2 | 3 | 13 | <20 |
| CC45403 | | <1 | 0.09 | 10 | 0.49 | 309 | <1 | 0.01 | 18 | 400 | 7 | 0.03 | <2 | 3 | 19 | <20 |
| CC45404 | | <1 | 0.11 | 10 | 0.87 | 406 | <1 | 0.02 | 36 | 470 | 4 | 0.04 | <2 | 4 | 19 | <20 |
| CC45405 | | <1 | 0.11 | 10 | 0.88 | 348 | <1 | 0.01 | 39 | 210 | 7 | 0.03 | <2 | 4 | 15 | <20 |
| CC45406 | | <1 | 0.05 | 10 | 0.49 | 241 | 4 | 0.01 | 20 | 300 | 7 | 0.02 | <2 | 3 | 11 | <20 |
| CC45407 | | <1 | 0.03 | 10 | 0.10 | 103 | 2 | 0.01 | 6 | 230 | 4 | 0.01 | <2 | 1 | 11 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45351 | | 0.05 | <10 | <10 | 41 | <10 | 44 |
| CC45352 | | 0.17 | <10 | <10 | 74 | <10 | 49 |
| CC45353 | | 0.14 | <10 | <10 | 70 | <10 | 74 |
| CC45354 | | 0.15 | <10 | <10 | 72 | <10 | 54 |
| CC45355 | | 0.17 | <10 | <10 | 82 | <10 | 59 |
| CC45356 | | 0.17 | <10 | <10 | 82 | <10 | 61 |
| CC45357 | | 0.22 | <10 | <10 | 85 | <10 | 56 |
| CC45358 | | 0.16 | <10 | <10 | 78 | <10 | 56 |
| CC45359 | | 0.22 | <10 | <10 | 93 | <10 | 45 |
| CC45360 | | 0.14 | <10 | <10 | 72 | <10 | 56 |
| CC45361 | | 0.13 | <10 | <10 | 66 | <10 | 68 |
| CC45362 | | 0.16 | <10 | <10 | 65 | <10 | 59 |
| CC45363 | | 0.20 | <10 | <10 | 83 | <10 | 100 |
| CC45364 | | 0.16 | <10 | <10 | 113 | <10 | 53 |
| CC45365 | | 0.15 | <10 | <10 | 75 | <10 | 52 |
| CC45366 | | 0.25 | <10 | <10 | 96 | <10 | 45 |
| CC45367 | | 0.21 | <10 | <10 | 87 | <10 | 56 |
| CC45368 | | 0.22 | <10 | <10 | 89 | <10 | 55 |
| CC45369 | | 0.04 | <10 | 10 | 21 | <10 | 15 |
| CC45370 | | 0.06 | <10 | <10 | 39 | <10 | 36 |
| CC45371 | | 0.18 | <10 | <10 | 71 | <10 | 63 |
| CC45372 | | 0.15 | <10 | <10 | 75 | <10 | 54 |
| CC45373 | | 0.29 | <10 | <10 | 94 | <10 | 56 |
| CC45374 | | 0.16 | <10 | <10 | 69 | <10 | 58 |
| CC45375 | | 0.07 | <10 | <10 | 60 | <10 | 71 |
| CC45376 | | 0.18 | <10 | <10 | 79 | <10 | 64 |
| CC45377 | | 0.17 | <10 | <10 | 76 | <10 | 51 |
| CC45378 | | 0.15 | <10 | <10 | 69 | <10 | 56 |
| CC45379 | | 0.07 | <10 | <10 | 48 | <10 | 121 |
| CC45380 | | 0.19 | <10 | <10 | 77 | <10 | 53 |
| CC45381 | | 0.19 | <10 | <10 | 68 | <10 | 45 |
| CC45382 | | 0.25 | <10 | <10 | 86 | <10 | 68 |
| CC45383 | | 0.22 | <10 | <10 | 95 | <10 | 55 |
| CC45401 | | 0.14 | <10 | <10 | 69 | <10 | 61 |
| CC45402 | | 0 18 | <10 | <10 | 74 | <10 | 69 |
| CC45403 | | 0.24 | <10 | <10 | 92 | <10 | 53 |
| CC45404 | | 0.17 | <10 | <10 | 84 | <10 | 70 |
| CC45405 | | 0.18 | <10 | <10 | 79 | <10 | 55 |
| CC45406 | | 0.22 | <10 | <10 | 94 | <10 | 54 |
| CC45407 | | 0.11 | <10 | <10 | 58 | <10 | 22 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45408 | | 0.28 | 0.3 | 1.67 | 4 | <10 | 140 | <0.5 | <2 | 0.42 | <0.5 | 9 | 38 | 26 | 2.66 | 10 |
| CC45409 | | 0.38 | <0.2 | 1.92 | 6 | <10 | 210 | <0.5 | <2 | 0.54 | <0.5 | 12 | 43 | 28 | 3.15 | 10 |
| CC45410 | | 0.30 | 0.5 | 2.71 | 7 | <10 | 450 | 1.0 | <2 | 0.60 | <0.5 | 28 | 57 | 104 | 3.97 | 10 |
| CC45411 | | 0.34 | <0.2 | 1.99 | 4 | <10 | 140 | <0.5 | <2 | 0.30 | <0.5 | 13 | 41 | 23 | 3.16 | 10 |
| CC45412 | | 0.30 | <0.2 | 1.70 | 3 | <10 | 110 | <0.5 | <2 | 0.14 | <0.5 | 8 | 30 | 13 | 2.97 | 10 |
| CC45413 | | 0.34 | <0.2 | 2.08 | 4 | <10 | 150 | <0.5 | <2 | 0.21 | <0.5 | 9 | 40 | 12 | 3.34 | 10 |
| CC45414 | | 0.30 | <0.2 | 1.97 | 7 | <10 | 140 | <0.5 | <2 | 0.25 | <0.5 | 9 | 40 | 17 | 3.78 | 10 |
| CC45415 | | 0.32 | <0.2 | 1.36 | 2 | <10 | 120 | <0.5 | <2 | 0.17 | 0.6 | 7 | 33 | 12 | 3.11 | 10 |
| CC45416 | | 0.26 | 0.3 | 1.33 | 3 | <10 | 110 | <0.5 | <2 | 0.20 | <0.5 | 7 | 30 | 18 | 2.97 | 10 |
| CC45417 | | 0.30 | 0.2 | 1.66 | 6 | <10 | 160 | <0.5 | <2 | 0.26 | <0.5 | 12 | 36 | 27 | 3.10 | 10 |
| CC45418 | | 0.30 | 0.5 | 0.94 | 8 | <10 | 340 | <0.5 | <2 | 0.54 | <0.5 | 5 | 43 | 203 | 11.85 | 10 |
| CC45419 | | 0.30 | 0.6 | 3.09 | 9 | <10 | 410 | 0.6 | <2 | 0.51 | <0.5 | 21 | 66 | 60 | 5.32 | 10 |
| CC45420 | | 0.38 | 0.6 | 2.30 | 3 | <10 | 440 | 0.8 | <2 | 1.07 | <0.5 | 15 | 55 | 69 | 3.49 | 10 |
| CC45421 | | 0.32 | 0.2 | 1.71 | 4 | <10 | 270 | <0.5 | <2 | 0.51 | <0.5 | 11 | 40 | 38 | 2.88 | 10 |
| CC45422 | | 0.26 | <0.2 | 1.53 | 5 | <10 | 120 | <0.5 | <2 | 0.27 | <0.5 | 11 | 40 | 16 | 3.34 | 10 |
| CC45423 | | 0.34 | 0.3 | 2.12 | 6 | <10 | 100 | <0.5 | <2 | 0.28 | 0.6 | 12 | 48 | 19 | 4.35 | 10 |
| CC45424 | | 0.30 | 0.2 | 1.76 | 5 | <10 | 230 | <0.5 | <2 | 0.53 | <0.5 | 15 | 46 | 46 | 3.33 | <10 |
| CC45425 | | 0.22 | 0.9 | 2.00 | 2 | <10 | 350 | 0.5 | <2 | 1.10 | <0.5 | 16 | 30 | 116 | 2.91 | 10 |
| CC45426 | | 0.28 | 0.3 | 0.93 | 4 | <10 | 110 | <0.5 | <2 | 0.23 | <0.5 | 6 | 28 | 15 | 2.61 | 10 |
| CC45427 | | 0.30 | 0.2 | 1.25 | <2 | <10 | 150 | <0.5 | <2 | 0.38 | <0.5 | 8 | 35 | 14 | 3.61 | 10 |
| CC45428 | | 0.20 | 1.3 | 3.91 | 8 | <10 | 630 | 1.3 | <2 | 0.84 | <0.5 | 28 | 59 | 110 | 4.36 | 10 |
| CC45429 | | 0.28 | <0.2 | 2.39 | 5 | <10 | 160 | <0.5 | <2 | 0.26 | <0.5 | 12 | 47 | 22 | 3.39 | 10 |
| CC45430 | | 0.28 | <0.2 | 2.74 | 2 | <10 | 200 | 0.5 | <2 | 0.15 | <0.5 | 12 | 50 | 16 | 4.31 | 10 |
| CC45431 | | 0.44 | 0.2 | 1.93 | 10 | <10 | 340 | 0.5 | <2 | 0.92 | <0.5 | 18 | 55 | 65 | 3.73 | 10 |
| CC45432 | | 0.28 | 0.2 | 1.42 | 4 | <10 | 110 | <0.5 | <2 | 0.21 | <0.5 | 8 | 35 | 10 | 3.37 | 10 |
| CC45433 | | 0.38 | <0.2 | 1.51 | 3 | <10 | 120 | <0.5 | <2 | 0.22 | <0.5 | 7 | 33 | 10 | 2.43 | 10 |
| CC45434 | | 0.30 | 0.2 | 2.17 | 5 | <10 | 360 | 0.6 | 2 | 1.13 | <0.5 | 13 | 50 | 54 | 3.46 | 10 |
| CC45435 | | 0.24 | 1.2 | 3.55 | 7 | <10 | 610 | 1.1 | 2 | 1.20 | <0.5 | 20 | 58 | 131 | 4.47 | 10 |
| CC45436 | | 0.28 | 0.2 | 1.65 | 2 | <10 | 160 | <0.5 | 2 | 0.36 | <0.5 | 8 | 39 | 16 | 3.51 | 10 |
| CC45437 | | 0.26 | 0.6 | 4.06 | 9 | <10 | 370 | 0.6 | 3 | 0.35 | <0.5 | 20 | 71 | 74 | 6.26 | 10 |
| CC45438 | | 0.34 | <0.2 | 1.69 | 4 | <10 | 300 | 0.5 | 2 | 0.99 | 0.5 | 15 | 52 | 44 | 3.13 | 10 |
| CC45439 | | 0.44 | <0.2 | 1.79 | 3 | <10 | 280 | 0.5 | <2 | 0.86 | 0.5 | 15 | 54 | 49 | 3.44 | <10 |
| CC45440 | | 0.34 | <0.2 | 1.71 | <2 | <10 | 250 | <0.5 | <2 | 0.79 | <0.5 | 13 | 44 | 36 | 3.09 | 10 |
| CC45441 | | 0.38 | <0.2 | 1.81 | 3 | <10 | 240 | <0.5 | <2 | 0.76 | <0.5 | 14 | 48 | 31 | 3.34 | 10 |
| CC45442 | | 0.36 | <0.2 | 1.42 | 2 | <10 | 150 | <0.5 | <2 | 0.68 | <0.5 | 12 | 38 | 35 | 2.72 | <10 |
| CC45443 | | 0.26 | 0.2 | 2.00 | 5 | <10 | 200 | <0.5 | <2 | 0.61 | <0.5 | 16 | 46 | 49 | 3.77 | 10 |
| CC45444 | | 0.28 | 0.2 | 2.33 | 5 | <10 | 350 | 0.6 | <2 | 1.10 | <0.5 | 19 | 55 | 59 | 4.05 | <10 |
| CC45445 | | 0.30 | <0.2 | 1.76 | <2 | <10 | 270 | <0.5 | <2 | 0.92 | <0.5 | 13 | 42 | 29 | 3.07 | <10 |
| CC45446 | | 0.30 | <0.2 | 2.15 | 3 | <10 | 320 | 0.5 | <2 | 1.15 | <0.5 | 17 | 50 | 59 | 3.39 | 10 |
| CC45447 | | 0.28 | 0.2 | 2.44 | 3 | <10 | 350 | 0.7 | <2 | 1.05 | <0.5 | 16 | 63 | 112 | 3.74 | 10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45408 | | <1 | 0.07 | 10 | 0.77 | 262 | 2 | 0.01 | 24 | 270 | 5 | 0.01 | <2 | 3 | 20 | <20 |
| CC45409 | | <1 | 0.09 | 10 | 0.81 | 388 | <1 | 0.02 | 37 | 400 | 6 | 0.02 | <2 | 4 | 26 | <20 |
| CC45410 | | <1 | 0.14 | 20 | 0.89 | 1030 | <1 | 0.02 | 55 | 580 | 8 | 0.04 | <2 | 5 | 42 | <20 |
| CC45411 | | <1 | 0.09 | 10 | 0.71 | 403 | <1 | 0.01 | 31 | 280 | 5 | 0.01 | <2 | 4 | 17 | <20 |
| CC45412 | | <1 | 0.05 | 10 | 0.53 | 287 | <1 | 0.01 | 14 | 400 | 8 | 0.01 | <2 | 4 | 10 | <20 |
| CC45413 | | <1 | 0.05 | 10 | 0.56 | 384 | <1 | 0.01 | 22 | 330 | 6 | 0.01 | <2 | 3 | 14 | <20 |
| CC45414 | | <1 | 0.09 | 10 | 0.73 | 313 | <1 | 0.01 | 23 | 330 | 5 | 0.02 | <2 | 4 | 17 | <20 |
| CC45415 | | <1 | 0.09 | 10 | 0.37 | 293 | <1 | 0.01 | 14 | 370 | 9 | 0.02 | <2 | 3 | 13 | <20 |
| CC45416 | | <1 | 0.06 | 10 | 0.42 | 236 | 1 | 0.01 | 13 | 250 | 6 | 0.01 | <2 | 2 | 13 | <20 |
| CC45417 | | <1 | 0.11 | 10 | 0.74 | 338 | <1 | 0.01 | 23 | 390 | 6 | 0.01 | <2 | 3 | 18 | <20 |
| CC45418 | | <1 | 0.20 | <10 | 0.35 | 182 | 2 | 0.02 | 10 | 970 | 19 | 0.32 | <2 | 3 | 38 | <20 |
| CC45419 | | <1 | 0.16 | 10 | 0.98 | 874 | <1 | 0.02 | 48 | 600 | 9 | 0.03 | <2 | 6 | 37 | <20 |
| CC45420 | | <1 | 0.09 | 20 | 0.78 | 678 | 1 | 0.02 | 56 | 760 | 6 | 0.05 | <2 | 7 | 47 | <20 |
| CC45421 | | <1 | 0.11 | 10 | 0.76 | 767 | <1 | 0.02 | 28 | 360 | 6 | 0.01 | <2 | 4 | 29 | <20 |
| CC45422 | | <1 | 0.11 | 10 | 0.63 | 431 | <1 | 0.01 | 22 | 240 | 5 | 0.01 | <2 | 3 | 18 | <20 |
| CC45423 | | <1 | 0.11 | 10 | 0.77 | 405 | <1 | 0.02 | 28 | 390 | 7 | 0.02 | 2 | 4 | 16 | <20 |
| CC45424 | | <1 | 0.12 | 10 | 0.78 | 737 | <1 | 0.02 | 42 | 470 | 5 | 0.02 | <2 | 5 | 27 | <20 |
| CC45425 | | 1 | 0.07 | 10 | 0.58 | 428 | <1 | 0.02 | 26 | 920 | 7 | 0.09 | <2 | 4 | 52 | <20 |
| CC45426 | | <1 | 0.08 | 10 | 0.25 | 206 | 1 | 0.01 | 11 | 240 | 9 | 0.01 | <2 | 2 | 15 | <20 |
| CC45427 | | <1 | 0.10 | 10 | 0.48 | 270 | 1 | 0.02 | 16 | 310 | 8 | 0.02 | <2 | 3 | 20 | <20 |
| CC45428 | | <1 | 0.21 | 30 | 0.72 | 585 | 2 | 0.02 | 64 | 1100 | 7 | 0.07 | 2 | 7 | 52 | <20 |
| CC45429 | | 1 | 0.07 | 10 | 0.83 | 336 | <1 | 0.02 | 35 | 260 | 5 | 0.01 | <2 | 4 | 16 | <20 |
| CC45430 | | <1 | 0.08 | 10 | 0.67 | 441 | <1 | 0.02 | 32 | 390 | 7 | 0.01 | <2 | 4 | 11 | <20 |
| CC45431 | | <1 | 0.17 | 10 | 1.02 | 1075 | 1 | 0.03 | 59 | 830 | 7 | 0.03 | 2 | 6 | 50 | <20 |
| CC45432 | | <1 | 0.09 | 10 | 0.53 | 302 | <1 | 0.02 | 17 | 400 | 6 | 0.01 | <2 | 3 | 15 | <20 |
| CC45433 | | <1 | 0.09 | 10 | 0.53 | 209 | <1 | 0.02 | 18 | 280 | 6 | 0.01 | <2 | 3 | 14 | <20 |
| CC45434 | | <1 | 0.12 | 20 | 0.73 | 734 | 1 | 0.03 | 47 | 1060 | 7 | 0.09 | <2 | 5 | 50 | <20 |
| CC45435 | | <1 | 0.22 | 20 | 0.84 | 725 | <1 | 0.03 | 78 | 870 | 5 | 0.09 | <2 | 8 | 69 | <20 |
| CC45436 | | <1 | 0.13 | 10 | 0.55 | 297 | 1 | 0.01 | 23 | 430 | 8 | 0.03 | <2 | 3 | 23 | <20 |
| CC45437 | | <1 | 0.28 | 10 | 1.09 | 749 | 1 | 0.02 | 59 | 680 | 9 | 0.02 | <2 | 8 | 30 | <20 |
| CC45438 | | <1 | 0.10 | 10 | 0.80 | 835 | 3 | 0.03 | 48 | 920 | 5 | 0.06 | 2 | 6 | 49 | <20 |
| CC45439 | | <1 | 0.13 | 10 | 0.85 | 761 | 2 | 0.03 | 52 | 900 | 4 | 0.06 | 2 | 7 | 46 | <20 |
| CC45440 | | <1 | 0.10 | 10 | 0.92 | 597 | <1 | 0.02 | 41 | 610 | 7 | 0.02 | 2 | 5 | 38 | <20 |
| CC45441 | | <1 | 0.14 | 10 | 0.99 | 733 | <1 | 0.04 | 43 | 820 | 4 | 0.02 | <2 | 6 | 38 | <20 |
| CC45442 | | <1 | 0.09 | 10 | 0.87 | 496 | 1 | 0.02 | 32 | 750 | 5 | 0.03 | <2 | 4 | 32 | <20 |
| CC45443 | | 1 | 0.10 | 10 | 1.03 | 563 | <1 | 0.02 | 41 | 500 | 4 | 0.02 | <2 | 4 | 30 | <20 |
| CC45444 | | <1 | 0.14 | 10 | 1.01 | 665 | 1 | 0.02 | 54 | 710 | 6 | 0.04 | <2 | 7 | 57 | <20 |
| CC45445 | | <1 | 0.08 | 10 | 0.87 | 758 | 1 | 0.02 | 35 | 950 | 5 | 0.05 | 3 | 5 | 45 | <20 |
| CC45446 | | <1 | 0.11 | 10 | 0.99 | 1365 | 3 | 0.03 | 47 | 870 | 4 | 0.06 | <2 | 6 | 55 | <20 |
| CC45447 | | <1 | 0.12 | 20 | 1.08 | 843 | 1 | 0.02 | 63 | 920 | 6 | 0.07 | <2 | 7 | 50 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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# CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45408 | | 0.13 | <10 | <10 | 68 | <10 | 40 |
| CC45409 | | 0.15 | <10 | <10 | 67 | <10 | 51 |
| CC45410 | | 0.15 | <10 | <10 | 75 | <10 | 76 |
| CC45411 | | 0.18 | <10 | <10 | 78 | <10 | 55 |
| CC45412 | | 0.19 | <10 | <10 | 81 | <10 | 52 |
| CC45413 | | 0.22 | <10 | <10 | 86 | <10 | 45 |
| CC45414 | | 0.16 | <10 | <10 | 89 | <10 | 59 |
| CC45415 | | 0.28 | <10 | <10 | 90 | <10 | 71 |
| CC45416 | | 0.19 | <10 | <10 | 71 | <10 | 36 |
| CC45417 | | 0.14 | <10 | <10 | 72 | <10 | 48 |
| CC45418 | | 0.34 | <10 | <10 | 83 | <10 | 40 |
| CC45419 | | 0.20 | <10 | <10 | 113 | <10 | 89 |
| CC45420 | | 0.16 | <10 | <10 | 67 | <10 | 52 |
| CC45421 | | 0.16 | <10 | <10 | 66 | <10 | 51 |
| CC45422 | | 0.21 | <10 | <10 | 87 | <10 | 58 |
| CC45423 | | 0.24 | <10 | <10 | 95 | <10 | 100 |
| CC45424 | | 0.18 | <10 | <10 | 65 | <10 | 68 |
| CC45425 | | 0.07 | <10 | <10 | 50 | <10 | 72 |
| CC45426 | | 0.28 | <10 | <10 | 88 | <10 | 48 |
| CC45427 | | 0.26 | <10 | <10 | 95 | <10 | 55 |
| CC45428 | | 0.08 | <10 | <10 | 60 | <10 | 68 |
| CC45429 | | 0.17 | <10 | <10 | 76 | <10 | 50 |
| CC45430 | | 0.25 | <10 | <10 | 94 | <10 | 72 |
| CC45431 | | 0.16 | <10 | <10 | 72 | <10 | 71 |
| CC45432 | | 0.24 | <10 | <10 | 92 | <10 | 60 |
| CC45433 | | 0.21 | <10 | <10 | 58 | <10 | 38 |
| CC45434 | | 0.23 | <10 | <10 | 67 | <10 | 64 |
| CC45435 | | 0.09 | <10 | <10 | 59 | <10 | 62 |
| CC45436 | | 0.22 | <10 | <10 | 92 | <10 | 53 |
| CC45437 | | 0.22 | 10 | <10 | 134 | <10 | 127 |
| CC45438 | | 0.16 | <10 | <10 | 67 | <10 | 90 |
| CC45439 | | 0.16 | <10 | <10 | 70 | <10 | 87 |
| CC45440 | | 0.14 | <10 | <10 | 63 | <10 | 61 |
| CC45441 | | 0.18 | <10 | <10 | 66 | <10 | 55 |
| CC45442 | | 0.13 | <10 | <10 | 56 | <10 | 74 |
| CC45443 | | 0.21 | <10 | <10 | 72 | <10 | 64 |
| CC45444 | | 0.16 | <10 | <10 | 78 | <10 | 69 |
| CC45445 | | 0.12 | <10 | <10 | 57 | <10 | 68 |
| CC45446 | | 0.12 | <10 | <10 | 64 | <10 | 69 |
| CC45447 | | 0.12 | <10 | <10 | 67 | <10 | 80 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC45448 | | 0.34 | 0.2 | 1.74 | 3 | <10 | 210 | <0.5 | <2 | 0.73 | <0.5 | 17 | 50 | 51 | 3.19 | <10 |
| CC45449 | | 0.36 | <0.2 | 1.58 | 3 | <10 | 190 | <0.5 | <2 | 0.69 | <0.5 | 13 | 41 | 21 | 2.92 | 10 |
| CC45450 | | 0.32 | <0.2 | 1.83 | 3 | <10 | 280 | 0.5 | 2 | 0.67 | <0.5 | 16 | 52 | 50 | 3.09 | <10 |
| CC45451 | | 0.30 | <0.2 | 1.58 | 4 | <10 | 220 | <0.5 | <2 | 0.70 | <0.5 | 13 | 46 | 29 | 3.00 | <10 |
| CC45452 | | 0.34 | <0.2 | 1.59 | <2 | <10 | 250 | <0.5 | <2 | 0.96 | <0.5 | 13 | 43 | 33 | 2.99 | 10 |
| CC45453 | | 0.32 | 0.2 | 1.74 | <2 | <10 | 290 | 0.5 | <2 | 0.97 | 0.6 | 13 | 50 | 59 | 2.87 | 10 |
| CC45454 | | 0.32 | <0.2 | 1.81 | 2 | <10 | 280 | <0.5 | <2 | 0.75 | <0.5 | 17 | 52 | 55 | 2.83 | <10 |
| CC45455 | | 0.40 | <0.2 | 1.83 | 2 | <10 | 270 | 0.5 | <2 | 1.01 | <0.5 | 15 | 53 | 132 | 3.48 | <10 |
| CC45456 | | 0.34 | <0.2 | 1.67 | 5 | <10 | 280 | 0.5 | <2 | 0.94 | <0.5 | 15 | 46 | 69 | 3.54 | <10 |
| CC45457 | | 0.36 | <0.2 | 1.45 | 4 | <10 | 270 | <0.5 | <2 | 0.83 | 0.5 | 13 | 40 | 57 | 2.85 | <10 |
| CC45458 | | 0.34 | <0.2 | 1.98 | <2 | <10 | 320 | 0.5 | <2 | 1.05 | <0.5 | 13 | 51 | 73 | 2.85 | <10 |
| CC45459 | | 0.36 | <0.2 | 1.70 | 2 | <10 | 220 | <0.5 | <2 | 0.72 | <0.5 | 15 | 55 | 40 | 3.16 | <10 |
| CC45460 | | 0.36 | <0.2 | 1.29 | <2 | <10 | 200 | <0.5 | <2 | 0.64 | <0.5 | 11 | 39 | 25 | 2.48 | <10 |
| CC45462 | | 0.36 | <0.2 | 1.63 | 4 | <10 | 250 | <0.5 | <2 | 0.75 | <0.5 | 10 | 42 | 34 | 2.77 | <10 |
| CC45463 | | 0.36 | 0.2 | 1.68 | 4 | <10 | 230 | <0.5 | 2 | 0.69 | <0.5 | 13 | 49 | 37 | 2.95 | 10 |
| CC45464 | | 0.40 | <0.2 | 1.60 | 5 | <10 | 210 | <0.5 | <2 | 0.69 | <0.5 | 17 | 48 | 29 | 3.12 | <10 |
| CC45465 | | 0.32 | <0.2 | 1.72 | 5 | <10 | 230 | <0.5 | <2 | 0.61 | <0.5 | 17 | 47 | 49 | 3.01 | <10 |
| CC45466 | | 0.32 | <0.2 | 1.55 | 3 | <10 | 210 | <0.5 | <2 | 0.66 | <0.5 | 12 | 43 | 40 | 2.73 | <10 |
| CC45467 | | 0.34 | <0.2 | 1.65 | 4 | <10 | 270 | <0.5 | 2 | 0.80 | <0.5 | 16 | 50 | 35 | 3.06 | <10 |
| CC45468 | | 0.36 | <0.2 | 1.99 | 3 | <10 | 270 | 0.6 | <2 | 0.88 | 0.5 | 18 | 77 | 107 | 3.49 | <10 |
| CC45469 | | 0.24 | 0.4 | 2.47 | 4 | <10 | 330 | 0.7 | <2 | 1.49 | 0.5 | 15 | 59 | 124 | 3.71 | 10 |
| CC45470 | | 0.30 | <0.2 | 1.40 | <2 | <10 | 150 | <0.5 | 2 | 0.61 | <0.5 | 13 | 38 | 40 | 2.91 | <10 |
| CC45471 | | 0.38 | <0.2 | 1.59 | 7 | <10 | 180 | <0.5 | <2 | 0.54 | <0.5 | 16 | 42 | 38 | 2.97 | 10 |
| CC45472 | | 0.32 | <0.2 | 1.94 | 6 | <10 | 340 | 0.5 | <2 | 1.01 | 0.5 | 18 | 53 | 65 | 3.82 | <10 |
| CC45473 | | 0.44 | <0.2 | 1.60 | 4 | <10 | 240 | <0.5 | 3 | 0.81 | <0.5 | 12 | 47 | 41 | 2.89 | <10 |
| CC45474 | | 0.38 | <0.2 | 1.70 | 5 | <10 | 250 | <0.5 | 2 | 0.74 | 0.5 | 14 | 49 | 51 | 3.16 | <10 |
| CC45475 | | 0.38 | <0.2 | 1.51 | 3 | <10 | 210 | <0.5 | <2 | 0.63 | <0.5 | 11 | 46 | 47 | 2.96 | 10 |
| CC45476 | | 0.34 | 0.2 | 1.76 | 3 | <10 | 280 | 0.5 | <2 | 0.70 | <0.5 | 13 | 49 | 54 | 3.08 | 10 |
| CC45477 | | 0.34 | <0.2 | 1.70 | 2 | <10 | 270 | <0.5 | <2 | 0.68 | 0.6 | 15 | 52 | 41 | 3.19 | <10 |
| CC45478 | | 0.30 | <0.2 | 1.83 | 5 | <10 | 380 | 0.5 | <2 | 0.97 | 0.7 | 16 | 49 | 36 | 3.48 | <10 |
| CC45479 | | 0.30 | 0.4 | 1.98 | 5 | <10 | 370 | 0.6 | <2 | 1.00 | 0.7 | 18 | 48 | 61 | 3.60 | <10 |
| CC45480 | | 0.34 | 0.2 | 1.84 | 4 | <10 | 260 | 0.5 | <2 | 0.73 | 0.5 | 16 | 53 | 60 | 3.42 | <10 |
| CC48551 | | 0.36 | <0.2 | 1.58 | 4 | <10 | 170 | <0.5 | 2 | 0.56 | <0.5 | 13 | 40 | 30 | 2.82 | <10 |
| CC48552 | | 0.28 | <0.2 | 1.70 | 3 | <10 | 140 | <0.5 | <2 | 0.39 | <0.5 | 14 | 40 | 33 | 2.95 | 10 |
| CC48553 | | 0.26 | 0.3 | 2.46 | 6 | <10 | 340 | 0.5 | 2 | 1.04 | <0.5 | 25 | 51 | 65 | 3.81 | 10 |
| CC48554 | | 0.24 | 0.2 | 2.28 | 4 | <10 | 310 | 0.6 | <2 | 0.72 | <0.5 | 23 | 49 | 48 | 3.68 | 10 |
| CC48555 | | 0.22 | 1.0 | 2.14 | 6 | <10 | 210 | <0.5 | 2 | 0.36 | <0.5 | 12 | 45 | 25 | 3.58 | <10 |
| CC48556 | | 0.24 | <0.2 | 1.67 | <2 | <10 | 180 | <0.5 | <2 | 0.57 | <0.5 | 13 | 40 | 39 | 2.86 | 10 |
| CC48557 | | 0.36 | <0.2 | 1.92 | 2 | <10 | 170 | <0.5 | <2 | 0.63 | <0.5 | 18 | 39 | 65 | 3.22 | 10 |
| CC48558 | | 0.30 | <0.2 | 1.95 | 5 | <10 | 250 | <0.5 | 2 | 0.73 | <0.5 | 14 | 47 | 38 | 3.47 | 10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC45448 | | <1 | 0.11 | 10 | 0.97 | 779 | 1 | 0.02 | 43 | 810 | 4 | 0.03 | <2 | 6 | 35 | <20 |
| CC45449 | | <1 | 0.09 | 10 | 0.92 | 531 | <1 | 0.02 | 38 | 840 | 4 | 0.02 | <2 | 4 | 33 | <20 |
| CC45450 | | <1 | 0.10 | 10 | 0.89 | 398 | 1 | 0.02 | 49 | 940 | 10 | 0.04 | <2 | 6 | 36 | <20 |
| CC45451 | | <1 | 0.10 | 10 | 0.94 | 897 | 1 | 0.02 | 48 | 840 | 4 | 0.02 | 2 | 5 | 36 | <20 |
| CC45452 | | <1 | 0.09 | 10 | 0.89 | 621 | 1 | 0.02 | 40 | 870 | 5 | 0.04 | <2 | 4 | 43 | <20 |
| CC45453 | | <1 | 0.11 | 10 | 0.81 | 365 | 1 | 0.03 | 50 | 860 | 6 | 0.10 | <2 | 6 | 44 | <20 |
| CC45454 | | <1 | 0.11 | 10 | 0.81 | 346 | 1 | 0.02 | 46 | 870 | 5 | 0.06 | <2 | 6 | 31 | <20 |
| CC45455 | | <1 | 0.11 | 10 | 0.87 | 961 | 2 | 0.02 | 48 | 840 | 6 | 0.05 | <2 | 6 | 46 | <20 |
| CC45456 | | <1 | 0.11 | 10 | 0.73 | 1010 | 3 | 0.02 | 45 | 870 | 4 | 0.05 | 2 | 6 | 43 | <20 |
| CC45457 | | <1 | 0.10 | 10 | 0.73 | 497 | 1 | 0.02 | 40 | 800 | 5 | 0.06 | <2 | 5 | 42 | <20 |
| CC45458 | | <1 | 0.10 | 10 | 0.77 | 430 | 1 | 0.02 | 43 | 920 | 7 | 0.08 | <2 | 6 | 41 | <20 |
| CC45459 | | <1 | 0.12 | 10 | 0.88 | 452 | 1 | 0.03 | 48 | 780 | 8 | 0.02 | <2 | 6 | 39 | <20 |
| CC45460 | | <1 | 0.06 | 10 | 0.72 | 507 | 1 | 0.02 | 34 | 700 | 7 | 0.02 | <2 | 4 | 33 | <20 |
| CC45462 | | <1 | 0.08 | 10 | 0.82 | 549 | 1 | 0.02 | 34 | 1050 | 7 | 0.04 | 2 | 4 | 41 | <20 |
| CC45463 | | <1 | 0.11 | 10 | 0.89 | 601 | 1 | 0.03 | 47 | 850 | 6 | 0.02 | 2 | 6 | 37 | <20 |
| CC45464 | | <1 | 0.08 | 10 | 1.18 | 907 | <1 | 0.02 | 53 | 960 | 5 | 0.02 | 3 | 4 | 33 | <20 |
| CC45465 | | <1 | 0.10 | 10 | 0.92 | 487 | 1 | 0.02 | 43 | 900 | 6 | 0.04 | <2 | 5 | 32 | <20 |
| CC45466 | | <1 | 0.08 | 10 | 0.88 | 455 | <1 | 0.02 | 40 | 780 | 5 | 0.03 | 2 | 5 | 35 | <20 |
| CC45467 | | <1 | 0.08 | 10 | 0.96 | 1260 | 1 | 0.02 | 51 | 870 | 5 | 0.04 | <2 | 5 | 42 | <20 |
| CC45468 | | <1 | 0.14 | 10 | 0.90 | 832 | 3 | 0.02 | 56 | 850 | 6 | 0.04 | <2 | 7 | 42 | <20 |
| CC45469 | | <1 | 0.21 | 10 | 1.02 | 726 | 1 | 0.02 | 65 | 970 | 5 | 0.08 | 2 | 7 | 62 | <20 |
| CC45470 | | <1 | 0.08 | 10 | 0.89 | 513 | <1 | 0.02 | 33 | 750 | 5 | 0.02 | <2 | 4 | 32 | <20 |
| CC45471 | | <1 | 0.11 | 10 | 1.08 | 562 | <1 | 0.03 | 38 | 790 | 7 | 0.02 | 2 | 5 | 31 | <20 |
| CC45472 | | <1 | 0.12 | 10 | 0.93 | 669 | 2 | 0.03 | 55 | 720 | 7 | 0.06 | <2 | 7 | 51 | <20 |
| CC45473 | | <1 | 0.09 | 10 | 0.82 | 535 | 1 | 0.03 | 52 | 690 | 5 | 0.03 | <2 | 5 | 42 | <20 |
| CC45474 | | <1 | 0.14 | 10 | 0.93 | 339 | 1 | 0.04 | 50 | 840 | 6 | 0.06 | <2 | 6 | 47 | <20 |
| CC45475 | | <1 | 0.11 | 10 | 0.88 | 397 | 1 | 0.04 | 48 | 770 | 6 | 0.02 | <2 | 5 | 37 | <20 |
| CC45476 | | <1 | 0.11 | 10 | 0.88 | 335 | <1 | 0.04 | 47 | 650 | 7 | 0.02 | <2 | 6 | 41 | <20 |
| CC45477 | | <1 | 0.11 | 10 | 0.83 | 1030 | 2 | 0.04 | 54 | 820 | 10 | 0.04 | <2 | 6 | 46 | <20 |
| CC45478 | | <1 | 0.11 | 10 | 0.84 | 2250 | 5 | 0.04 | 47 | 880 | 6 | 0.05 | 3 | 6 | 51 | <20 |
| CC45479 | | <1 | 0.12 | 10 | 0.88 | 2720 | 5 | 0.04 | 60 | 910 | 6 | 0.07 | <2 | 6 | 59 | <20 |
| CC45480 | | <1 | 0.14 | 10 | 0.92 | 559 | 2 | 0.04 | 54 | 900 | 5 | 0.05 | <2 | 6 | 45 | <20 |
| CC48551 | | <1 | 0.07 | 10 | 0.94 | 477 | <1 | 0.03 | 31 | 680 | 3 | 0.02 | 2 | 4 | 28 | <20 |
| CC48552 | | <1 | 0.07 | 10 | 1.14 | 454 | <1 | 0.03 | 33 | 530 | 4 | 0.02 | <2 | 4 | 20 | <20 |
| CC48553 | | <1 | 0.11 | 10 | 1.15 | 817 | 1 | 0.03 | 47 | 570 | 6 | 0.04 | <2 | 6 | 41 | <20 |
| CC48554 | | <1 | 0.09 | 10 | 0.97 | 736 | <1 | 0.03 | 41 | 680 | 6 | 0.03 | 2 | 6 | 34 | <20 |
| CC48555 | | <1 | 0.11 | 10 | 0.85 | 352 | <1 | 0.03 | 39 | 380 | 6 | 0.02 | <2 | 4 | 22 | <20 |
| CC48556 | | <1 | 0.07 | 10 | 1.05 | 449 | <1 | 0.03 | 35 | 620 | 3 | 0.02 | <2 | 4 | 25 | <20 |
| CC48557 | | <1 | 0.09 | 10 | 1.30 | 943 | 1 | 0.03 | 37 | 630 | 4 | 0.02 | <2 | 6 | 29 | <20 |
| CC48558 | | <1 | 0.10 | 10 | 0.88 | 613 | 1 | 0.03 | 42 | 600 | 5 | 0.02 | 2 | 4 | 29 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|
| | Analyte | Ti | Tl | U | V | W | Zn |
| | Units | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC45448 | | 0.13 | <10 | <10 | 61 | <10 | 59 |
| CC45449 | | 0.17 | <10 | <10 | 63 | <10 | 54 |
| CC45450 | | 0.16 | <10 | <10 | 67 | <10 | 77 |
| CC45451 | | 0.15 | <10 | <10 | 60 | <10 | 61 |
| CC45452 | | 0.14 | <10 | <10 | 58 | <10 | 61 |
| CC45453 | | 0.14 | <10 | <10 | 61 | <10 | 94 |
| CC45454 | | 0.12 | <10 | <10 | 61 | <10 | 76 |
| CC45455 | | 0.14 | <10 | <10 | 64 | <10 | 78 |
| CC45456 | | 0.12 | <10 | <10 | 57 | <10 | 71 |
| CC45457 | | 0.13 | <10 | <10 | 56 | <10 | 77 |
| CC45458 | | 0.12 | <10 | <10 | 58 | <10 | 88 |
| CC45459 | | 0.15 | <10 | <10 | 63 | <10 | 77 |
| CC45460 | | 0.14 | <10 | <10 | 53 | <10 | 48 |
| CC45462 | | 0.12 | <10 | <10 | 54 | <10 | 78 |
| CC45463 | | 0.15 | <10 | <10 | 59 | <10 | 72 |
| CC45464 | | 0.16 | <10 | <10 | 69 | <10 | 58 |
| CC45465 | | 0.14 | <10 | <10 | 63 | <10 | 73 |
| CC45466 | | 0.15 | <10 | <10 | 58 | <10 | 53 |
| CC45467 | | 0.15 | <10 | <10 | 63 | <10 | 65 |
| CC45468 | | 0.16 | <10 | <10 | 75 | <10 | 85 |
| CC45469 | | 0.10 | <10 | <10 | 61 | <10 | 124 |
| CC45470 | | 0.13 | <10 | <10 | 59 | <10 | 55 |
| CC45471 | | 0.14 | <10 | <10 | 61 | <10 | 67 |
| CC45472 | | 0.14 | <10 | <10 | 68 | <10 | 75 |
| CC45473 | | 0.13 | <10 | <10 | 58 | <10 | 56 |
| CC45474 | | 0.14 | <10 | <10 | 62 | <10 | 80 |
| CC45475 | | 0.14 | <10 | <10 | 57 | <10 | 66 |
| CC45476 | | 0.14 | <10 | <10 | 59 | <10 | 66 |
| CC45477 | | 0.14 | <10 | <10 | 62 | <10 | 82 |
| CC45478 | | 0.13 | <10 | <10 | 63 | <10 | 96 |
| CC45479 | | 0.12 | <10 | <10 | 64 | <10 | 84 |
| CC45480 | | 0.16 | <10 | <10 | 66 | <10 | 83 |
| CC48551 | | 0.13 | <10 | <10 | 56 | <10 | 51 |
| CC48552 | | 0.13 | <10 | <10 | 59 | <10 | 49 |
| CC48553 | | 0.13 | <10 | <10 | 71 | <10 | 60 |
| CC48554 | | 0.13 | <10 | <10 | 70 | <10 | 65 |
| CC48555 | | 0.15 | <10 | <10 | 71 | <10 | 61 |
| CC48556 | | 0.13 | <10 | <10 | 56 | <10 | 51 |
| CC48557 | | 0.10 | <10 | <10 | 56 | <10 | 59 |
| CC48558 | | 0.17 | <10 | <10 | 71 | <10 | 70 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

# CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | WEI-21 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 | 10 |
| CC48559 | | 0.38 | <0.2 | 1.54 | 3 | <10 | 220 | <0.5 | <2 | 0.82 | <0.5 | 14 | 45 | 49 | 3.22 | <10 |
| CC48560 | | 0.36 | <0.2 | 1.90 | 4 | <10 | 220 | <0.5 | <2 | 0.76 | <0.5 | 16 | 52 | 49 | 3.50 | <10 |
| CC48561 | | 0.30 | <0.2 | 1.87 | 4 | <10 | 200 | <0.5 | <2 | 0.63 | <0.5 | 17 | 51 | 52 | 3.28 | <10 |
| CC48562 | | 0.34 | <0.2 | 1.22 | 3 | <10 | 160 | <0.5 | <2 | 0.54 | <0.5 | 13 | 39 | 22 | 2.40 | <10 |
| CC48563 | | 0.38 | 0.2 | 2.02 | 6 | <10 | 270 | 0.5 | 2 | 0.72 | <0.5 | 15 | 50 | 42 | 3.26 | 10 |
| CC48564 | | 0.40 | <0.2 | 1.90 | 5 | <10 | 250 | <0.5 | <2 | 0.87 | <0.5 | 18 | 51 | 56 | 3.52 | <10 |
| CC48565 | | 0.46 | <0.2 | 1.87 | 4 | <10 | 170 | <0.5 | <2 | 0.62 | <0.5 | 17 | 46 | 72 | 3.32 | <10 |
| CC48566 | | 0.38 | 0.2 | 2.09 | <2 | <10 | 270 | 0.5 | 2 | 0.80 | <0.5 | 20 | 50 | 58 | 3.53 | 10 |
| CC48567 | | 0.44 | <0.2 | 1.96 | 5 | <10 | 240 | <0.5 | 2 | 0.69 | <0.5 | 20 | 51 | 63 | 3.42 | <10 |
| CC48568 | | 0.26 | <0.2 | 1.99 | 4 | <10 | 180 | <0.5 | <2 | 0.34 | <0.5 | 18 | 50 | 46 | 3.37 | <10 |
| CC48569 | | 0.30 | 0.2 | 1.68 | 2 | <10 | 190 | <0.5 | <2 | 0.27 | <0.5 | 10 | 37 | 17 | 3.19 | 10 |
| CC48570 | | 0.40 | <0.2 | 1.66 | 6 | <10 | 230 | <0.5 | 3 | 0.63 | <0.5 | 15 | 53 | 49 | 3.92 | <10 |
| CC48571 | | 0.42 | <0.2 | 1.62 | 4 | <10 | 180 | <0.5 | <2 | 0.43 | <0.5 | 15 | 41 | 36 | 3.02 | 10 |
| CC48572 | | 0.28 | <0.2 | 1.46 | 6 | <10 | 120 | <0.5 | <2 | 0.23 | <0.5 | 7 | 33 | 11 | 3.02 | 10 |
| CC48573 | | Not Recvd | | | | | | | | | | | | | | |
| CC48574 | | 0.54 | <0.2 | 1.98 | 4 | <10 | 240 | 0.6 | <2 | 0.84 | <0.5 | 16 | 58 | 97 | 3.61 | <10 |
| CC48575 | | 0.32 | <0.2 | 2.02 | 3 | <10 | 190 | <0.5 | 2 | 0.36 | <0.5 | 14 | 46 | 25 | 3.29 | <10 |
| CC48576 | | 0.44 | <0.2 | 1.94 | 5 | <10 | 210 | <0.5 | <2 | 0.66 | <0.5 | 18 | 48 | 56 | 3.27 | 10 |
| CC48581 | | 0.38 | <0.2 | 1.62 | 3 | <10 | 210 | <0.5 | <2 | 0.67 | 0.5 | 15 | 48 | 49 | 3.03 | <10 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8



Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th |
| | Units | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm |
| | LOR | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 | 20 |
| CC48559 | | <1 | 0.11 | 10 | 0.81 | 636 | 1 | 0.04 | 50 | 800 | 5 | 0.04 | <2 | 5 | 42 | <20 |
| CC48560 | | <1 | 0.13 | 10 | 0.98 | 719 | 1 | 0.04 | 48 | 810 | 5 | 0.03 | 2 | 6 | 36 | <20 |
| CC48561 | | <1 | 0.11 | 10 | 1.17 | 635 | <1 | 0.03 | 41 | 700 | 3 | 0.02 | <2 | 5 | 31 | <20 |
| CC48562 | | <1 | 0.05 | 10 | 0.74 | 535 | <1 | 0.03 | 33 | 820 | 5 | 0.02 | <2 | 4 | 28 | <20 |
| CC48563 | | <1 | 0.10 | 10 | 0.92 | 469 | 1 | 0.04 | 43 | 900 | 7 | 0.03 | <2 | 6 | 34 | <20 |
| CC48564 | | <1 | 0.10 | 10 | 1.08 | 643 | 1 | 0.04 | 45 | 850 | 5 | 0.04 | <2 | 5 | 39 | <20 |
| CC48565 | | <1 | 0.11 | 10 | 1.18 | 584 | <1 | 0.03 | 38 | 710 | 4 | 0.02 | 2 | 6 | 29 | <20 |
| CC48566 | | <1 | 0.10 | 10 | 1.06 | 538 | 1 | 0.04 | 42 | 820 | 6 | 0.04 | <2 | 6 | 40 | <20 |
| CC48567 | | <1 | 0.12 | 10 | 1.05 | 490 | 1 | 0.04 | 49 | 710 | 3 | 0.02 | <2 | 6 | 33 | <20 |
| CC48568 | | <1 | 0.10 | 10 | 1.00 | 545 | <1 | 0.03 | 62 | 550 | 6 | 0.02 | <2 | 4 | 22 | <20 |
| CC48569 | | <1 | 0.09 | 10 | 0.62 | 355 | <1 | 0.03 | 29 | 440 | 6 | 0.02 | 3 | 3 | 20 | <20 |
| CC48570 | | <1 | 0.12 | 10 | 0.77 | 304 | 2 | 0.04 | 51 | 920 | 5 | 0.04 | <2 | 6 | 36 | <20 |
| CC48571 | | <1 | 0.09 | 10 | 0.93 | 509 | <1 | 0.03 | 36 | 430 | 4 | 0.02 | <2 | 4 | 26 | <20 |
| CC48572 | | <1 | 0.10 | 10 | 0.49 | 315 | 1 | 0.03 | 17 | 330 | 8 | 0.02 | <2 | 3 | 15 | <20 |
| CC48573 | | | | | | | | | | | | | | | | |
| CC48574 | | <1 | 0.13 | 10 | 1.20 | 678 | 1 | 0.04 | 51 | 860 | 4 | 0.04 | <2 | 10 | 41 | <20 |
| CC48575 | | <1 | 0.10 | 10 | 0.97 | 467 | <1 | 0.03 | 48 | 570 | 6 | 0.02 | <2 | 4 | 22 | <20 |
| CC48576 | | <1 | 0.11 | 10 | 1.09 | 560 | <1 | 0.03 | 44 | 600 | 5 | 0.02 | <2 | 5 | 31 | <20 |
| CC48581 | | <1 | 0.12 | 10 | 0.81 | 544 | 1 | 0.04 | 43 | 930 | 6 | 0.03 | <2 | 5 | 34 | <20 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
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VANCOUVER BC V6B 1L8


Finalized Date: 5-AUG-2008
Account: F

Project: MOR-SD ZONE

## CERTIFICATE OF ANALYSIS VA08096082

| Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|
| Analyte | Ti | Tl | U | V | W | Zn |
| Units | % | ppm | ppm | ppm | ppm | ppm |
| **Sample Description** LOR | 0.01 | 10 | 10 | 1 | 10 | 2 |
| CC48559 | 0.14 | <10 | <10 | 59 | <10 | 71 |
| CC48560 | 0.15 | <10 | <10 | 66 | <10 | 75 |
| CC48561 | 0.13 | <10 | <10 | 59 | <10 | 60 |
| CC48562 | 0.14 | <10 | <10 | 52 | <10 | 42 |
| CC48563 | 0.15 | <10 | <10 | 63 | <10 | 69 |
| CC48564 | 0.13 | <10 | <10 | 63 | <10 | 64 |
| CC48565 | 0.13 | <10 | <10 | 62 | <10 | 58 |
| CC48566 | 0.13 | <10 | <10 | 66 | <10 | 72 |
| CC48567 | 0.15 | <10 | <10 | 65 | <10 | 63 |
| CC48568 | 0.16 | <10 | <10 | 66 | <10 | 63 |
| CC48569 | 0.17 | <10 | <10 | 76 | <10 | 51 |
| CC48570 | 0.16 | <10 | <10 | 67 | <10 | 78 |
| CC48571 | 0.15 | <10 | <10 | 64 | <10 | 53 |
| CC48572 | 0.25 | <10 | <10 | 82 | <10 | 50 |
| CC48573 | | | | | | |
| CC48574 | 0.17 | <10 | <10 | 80 | <10 | 59 |
| CC48575 | 0.15 | <10 | <10 | 63 | <10 | 57 |
| CC48576 | 0.14 | <10 | <10 | 64 | <10 | 59 |
| CC48581 | 0.15 | <10 | <10 | 61 | <10 | 82 |

Comments: Samples CC45037, CC45342 to CC45347, and CC48581 are extra.

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**Finalized Date: 6-AUG-2008**
**Account: F**

## CERTIFICATE VA08096081

Project: MOR (MOR-08-09)

P.O. No.:

This report is for 14 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 14-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-QC | Crushing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 6-AUG-2008**
**Account: F**

Project: MOR (MOR-08-09)

## CERTIFICATE OF ANALYSIS VA08096081

| Sample Description | Method / Analyte / Units / LOR | WEI-21 Recvd Wt. kg 0.02 | Au-AA23 Au ppm 0.005 | ME-ICP61a Ag ppm 1 | ME-ICP61a Al % 0.05 | ME-ICP61a As ppm 50 | ME-ICP61a Ba ppm 50 | ME-ICP61a Be ppm 10 | ME-ICP61a Bi ppm 20 | ME-ICP61a Ca % 0.05 | ME-ICP61a Cd ppm 10 | ME-ICP61a Co ppm 10 | ME-ICP61a Cr ppm 10 | ME-ICP61a Cu ppm 10 | ME-ICP61a Fe % 0.05 | ME-ICP61a Ga ppm 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G004171 | | 1.68 | <0.005 | <1 | 6.69 | <50 | 310 | <10 | <20 | 1.98 | <10 | 20 | 50 | 10 | 6.51 | <50 |
| G004172 | | 2.44 | <0.005 | <1 | 6.59 | <50 | 430 | <10 | <20 | 1.07 | <10 | 20 | 20 | 210 | 8.52 | <50 |
| G004173 | | 3.96 | <0.005 | <1 | 3.98 | <50 | 690 | <10 | <20 | 1.73 | <10 | 10 | 20 | 30 | 3.94 | <50 |
| G004174 | | 5.98 | 0.012 | <1 | 6.47 | <50 | 490 | <10 | <20 | 0.68 | <10 | 20 | 30 | 30 | 9.04 | <50 |
| G004175 | | 4.44 | 0.014 | <1 | 5.02 | <50 | 770 | <10 | <20 | 0.96 | <10 | 20 | 10 | 160 | 6.00 | <50 |
| G004176 | | 1.48 | <0.005 | <1 | 0.16 | <50 | <50 | <10 | <20 | 21.0 | <10 | <10 | <10 | 20 | 0.44 | <50 |
| G004177 | | 1.50 | 0.032 | <1 | 4.43 | <50 | 750 | <10 | <20 | 0.29 | <10 | 10 | 10 | 200 | 6.70 | <50 |
| G004178 | | 1.06 | <0.005 | <1 | 4.39 | <50 | 190 | <10 | 20 | 1.59 | <10 | <10 | 10 | 10 | 2.93 | <50 |
| G004179 | | 3.32 | 0.009 | <1 | 4.79 | <50 | 290 | <10 | <20 | 1.58 | <10 | 10 | 10 | 100 | 4.76 | <50 |
| G004180 | | 6.08 | 0.017 | <1 | 5.76 | <50 | 560 | <10 | <20 | 0.90 | <10 | 20 | 20 | 390 | 7.60 | <50 |
| G004181 | | 6.34 | 0.012 | <1 | 6.43 | <50 | 440 | <10 | <20 | 0.99 | <10 | 20 | 30 | 340 | 7.78 | <50 |
| G004182 | | 6.54 | 0.031 | <1 | 6.44 | <50 | 760 | <10 | 20 | 1.28 | <10 | 20 | 20 | 40 | 6.58 | <50 |
| G004183 | | 4.74 | 0.013 | <1 | 6.61 | <50 | 660 | <10 | <20 | 1.53 | <10 | 20 | 40 | 40 | 7.31 | <50 |
| G004184 | | 5.32 | 0.006 | <1 | 6.06 | <50 | 510 | <10 | <20 | 1.71 | <10 | 10 | 30 | 50 | 4.78 | <50 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 6-AUG-2008**
**Account: F**

Project: MOR (MOR-08-09)

# CERTIFICATE OF ANALYSIS VA08096081

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004171 | | 0.4 | <50 | 3.60 | 1510 | <10 | 2.18 | 30 | 500 | <20 | <0.1 | <50 | 20 | 60 | <50 | 0.11 |
| G004172 | | 0.6 | <50 | 4.57 | 1530 | <10 | 0.75 | 160 | 660 | <20 | 0.6 | <50 | 10 | 30 | <50 | 0.14 |
| G004173 | | 1.0 | <50 | 1.37 | 1030 | <10 | 2.32 | 10 | 580 | <20 | 0.5 | <50 | 10 | 60 | <50 | 0.12 |
| G004174 | | 0.8 | <50 | 4.48 | 1470 | <10 | 0.49 | 10 | 640 | <20 | 1.1 | <50 | 10 | 30 | <50 | 0.16 |
| G004175 | | 1.0 | <50 | 2.01 | 840 | <10 | 1.36 | <10 | 500 | <20 | 1.7 | <50 | 10 | 50 | <50 | 0.10 |
| G004176 | | <0.1 | <50 | 12.35 | 200 | <10 | 0.12 | 10 | 180 | <20 | <0.1 | <50 | <10 | 50 | <50 | <0.05 |
| G004177 | | 2.0 | <50 | 1.49 | 470 | <10 | 0.37 | <10 | 350 | <20 | 4.3 | <50 | 10 | 30 | <50 | 0.09 |
| G004178 | | 0.4 | <50 | 0.44 | 560 | <10 | 3.61 | <10 | 370 | 50 | 0.1 | <50 | 10 | 150 | <50 | 0.13 |
| G004179 | | 0.6 | <50 | 1.65 | 890 | <10 | 2.53 | 10 | 340 | 30 | 1.1 | <50 | 10 | 80 | <50 | 0.08 |
| G004180 | | 1.2 | <50 | 2.61 | 810 | <10 | 1.13 | <10 | 380 | <20 | 2.7 | <50 | 10 | 40 | <50 | 0.09 |
| G004181 | | 0.8 | <50 | 3.26 | 1020 | <10 | 1.52 | 20 | 460 | <20 | 1.4 | <50 | 20 | 50 | <50 | 0.13 |
| G004182 | | 1.0 | <50 | 3.21 | 1200 | <10 | 1.28 | 10 | 730 | <20 | 0.9 | <50 | 20 | 50 | <50 | 0.15 |
| G004183 | | 0.8 | <50 | 3.83 | 1370 | <10 | 1.29 | 10 | 630 | <20 | 0.9 | <50 | 20 | 70 | <50 | 0.11 |
| G004184 | | 0.6 | <50 | 2.21 | 820 | <10 | 2.85 | <10 | 400 | <20 | 0.5 | <50 | 10 | 70 | <50 | 0.10 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 6-AUG-2008**
**Account: F**

Project: MOR (MOR-08-09)

## CERTIFICATE OF ANALYSIS VA08096081

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004171 | | <50 | <50 | 180 | <50 | 120 |
| G004172 | | <50 | <50 | 90 | <50 | 200 |
| G004173 | | <50 | <50 | 40 | <50 | 80 |
| G004174 | | <50 | <50 | 80 | <50 | 130 |
| G004175 | | <50 | <50 | 70 | <50 | 100 |
| G004176 | | <50 | <50 | <10 | <50 | 20 |
| G004177 | | <50 | <50 | 20 | <50 | 180 |
| G004178 | | <50 | <50 | 30 | <50 | 60 |
| G004179 | | <50 | <50 | 60 | <50 | 160 |
| G004180 | | <50 | <50 | 60 | <50 | 170 |
| G004181 | | <50 | <50 | 110 | <50 | 90 |
| G004182 | | <50 | <50 | 120 | <50 | 100 |
| G004183 | | <50 | <50 | 130 | <50 | 110 |
| G004184 | | <50 | <50 | 80 | <50 | 70 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
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VANCOUVER BC V6B 1L8


Finalized Date: 12-AUG-2008
Account: F

## CERTIFICATE VA08095049

Project: MOR (MOR-08-10)

P.O. No.:

This report is for 23 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 14-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-QC | Crushing QC Test |
| PUL-QC | Pulverizing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 12-AUG-2008
Account: F

Project: MOR (MOR-08-10)

## CERTIFICATE OF ANALYSIS VA08095049

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt | Au | Ag | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.005 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 |
| G004185 | | 6.06 | 0.009 | 1 | 6.42 | <50 | 1970 | <10 | <20 | 2.74 | <10 | 20 | <10 | 100 | 4.93 | <50 |
| G004186 | | 1.20 | 0.099 | 8 | 4.81 | <50 | 1370 | <10 | 20 | 1.66 | 20 | 40 | <10 | 870 | 9.06 | <50 |
| G004187 | | 2.08 | <0.005 | <1 | 4.82 | <50 | 1550 | <10 | <20 | 2.60 | <10 | 10 | <10 | 10 | 4.03 | <50 |
| G004188 | | 1.84 | 0.060 | 2 | 5.99 | <50 | 2210 | <10 | <20 | 1.50 | <10 | 20 | <10 | 1160 | 7.00 | <50 |
| G004189 | | 5.58 | 0.039 | 1 | 5.38 | <50 | 1150 | <10 | <20 | 0.65 | <10 | 30 | <10 | 1120 | 11.85 | <50 |
| G004190 | | 2.48 | <0.005 | <1 | 0.13 | <50 | <50 | <10 | <20 | 21.8 | <10 | <10 | <10 | 10 | 0.48 | <50 |
| G004191 | | 1.76 | 0.008 | 3 | 5.91 | <50 | 1290 | <10 | <20 | 1.92 | <10 | 20 | 10 | 140 | 6.57 | <50 |
| G004192 | | 1.80 | 0.060 | 3 | 6.12 | <50 | 1630 | <10 | <20 | 1.88 | 10 | 30 | 20 | 1580 | 7.97 | <50 |
| G004193 | | 1.56 | 0.006 | <1 | 2.96 | <50 | 1390 | <10 | <20 | 0.31 | <10 | <10 | <10 | 30 | 2.10 | <50 |
| G004194 | | 3.42 | 0.092 | 3 | 6.71 | <50 | 1570 | <10 | 20 | 2.02 | 10 | 30 | <10 | 1630 | 8.24 | <50 |
| G004195 | | 1.28 | 1.165 | 28 | 5.21 | <50 | 830 | <10 | 40 | 1.09 | 20 | 120 | 20 | 10300 | 20.4 | <50 |
| G004196 | | 1.62 | 0.015 | <1 | 3.69 | <50 | 720 | <10 | <20 | 0.90 | <10 | 20 | 10 | 550 | 4.69 | <50 |
| G004197 | | 4.48 | 0.016 | 1 | 6.96 | <50 | 860 | <10 | <20 | 0.88 | <10 | 20 | 20 | 340 | 6.49 | <50 |
| G004198 | | 1.78 | <0.005 | <1 | 3.01 | <50 | 290 | <10 | <20 | 0.82 | <10 | 10 | 20 | 20 | 3.69 | <50 |
| G004199 | | 4.32 | <0.005 | <1 | 6.12 | <50 | 420 | <10 | <20 | 8.37 | <10 | 10 | 30 | 50 | 4.81 | <50 |
| G004200 | | 5.68 | <0.005 | <1 | 6.63 | <50 | 190 | <10 | <20 | 7.59 | <10 | 30 | 120 | 30 | 6.62 | <50 |
| G004206 | | 1.88 | <0.005 | <1 | 7.87 | <50 | 340 | <10 | <20 | 2.49 | <10 | 40 | 140 | 20 | 7.46 | <50 |
| G004207 | | 3.96 | <0.005 | 1 | 6.35 | <50 | 160 | <10 | <20 | 9.31 | <10 | 20 | 40 | 20 | 6.16 | <50 |
| G004208 | | 2.54 | <0.005 | 1 | 0.15 | <50 | <50 | <10 | <20 | 21.0 | <10 | <10 | <10 | 20 | 0.44 | <50 |
| G004209 | | 1.52 | 0.006 | <1 | 5.60 | <50 | 150 | <10 | <20 | 7.56 | <10 | 30 | 330 | 30 | 6.37 | <50 |
| G004210 | | 4.10 | <0.005 | <1 | 6.00 | <50 | 450 | <10 | <20 | 10.55 | <10 | 30 | 50 | 30 | 6.52 | <50 |
| G004211 | | 3.60 | <0.005 | <1 | 6.25 | <50 | 300 | <10 | <20 | 7.09 | <10 | 30 | 110 | 40 | 6.48 | <50 |
| G004212 | | 3.72 | <0.005 | <1 | 6.47 | <50 | 340 | <10 | <20 | 6.53 | <10 | 30 | 140 | 20 | 7.04 | <50 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 12-AUG-2008
Account: F

Project: MOR (MOR-08-10)

## CERTIFICATE OF ANALYSIS VA08095049

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004185 | | 1.3 | <50 | 2.39 | 1050 | <10 | 2.53 | 10 | 460 | 90 | 0.9 | <50 | 20 | 100 | <50 | 0.19 |
| G004186 | | 1.5 | <50 | 2.12 | 760 | <10 | 2.12 | 10 | 410 | 830 | 6.5 | <50 | 10 | 80 | <50 | 0.13 |
| G004187 | | 1.0 | <50 | 1.81 | 870 | <10 | 2.73 | <10 | 430 | 50 | 0.5 | <50 | 10 | 80 | <50 | 0.12 |
| G004188 | | 1.3 | <50 | 2.65 | 770 | <10 | 2.59 | 10 | 420 | 130 | 3.6 | <50 | 20 | 60 | <50 | 0.10 |
| G004189 | | 0.8 | <50 | 3.93 | 1000 | <10 | 1.08 | <10 | 380 | 40 | 6.2 | <50 | 10 | 50 | <50 | 0.10 |
| G004190 | | <0.1 | <50 | 12.15 | 200 | <10 | 0.21 | <10 | 200 | <20 | 0.3 | <50 | <10 | 50 | <50 | <0.05 |
| G004191 | | 0.5 | <50 | 3.05 | 1120 | <10 | 2.44 | 10 | 520 | 30 | 1.4 | <50 | 20 | 70 | <50 | 0.12 |
| G004192 | | 0.9 | <50 | 3.07 | 1060 | <10 | 1.87 | 50 | 490 | 130 | 3.4 | <50 | 20 | 60 | <50 | 0.09 |
| G004193 | | 0.8 | <50 | 1.06 | 280 | <10 | 3.70 | <10 | 290 | 40 | 0.2 | <50 | <10 | 30 | <50 | 0.08 |
| G004194 | | 0.7 | <50 | 3.45 | 1110 | <10 | 2.89 | 10 | 530 | 250 | 3.9 | <50 | 20 | 80 | <50 | 0.09 |
| G004195 | | 1.0 | <50 | 2.02 | 720 | <10 | 1.12 | 30 | 290 | 1020 | 18.5 | <50 | 20 | 60 | <50 | 0.09 |
| G004196 | | 0.7 | <50 | 1.54 | 740 | <10 | 2.43 | <10 | 440 | 20 | 0.8 | <50 | 10 | 40 | <50 | 0.12 |
| G004197 | | 1.2 | <50 | 3.07 | 1160 | <10 | 1.43 | <10 | 620 | 40 | 1.2 | <50 | 20 | 30 | <50 | 0.11 |
| G004198 | | 0.4 | <50 | 1.41 | 720 | <10 | 3.07 | 10 | 330 | <20 | 0.1 | <50 | 10 | 30 | <50 | 0.09 |
| G004199 | | 1.3 | <50 | 4.18 | 800 | <10 | 2.34 | 20 | 1450 | <20 | 0.4 | <50 | 10 | 150 | <50 | 0.48 |
| G004200 | | 0.9 | <50 | 6.49 | 1090 | <10 | 1.23 | 60 | 2160 | <20 | 0.2 | <50 | 20 | 120 | <50 | 0.47 |
| G004206 | | 1.6 | <50 | 7.45 | 560 | <10 | 1.39 | 100 | 1930 | <20 | 0.4 | <50 | 20 | 50 | <50 | 1.04 |
| G004207 | | 0.8 | <50 | 6.64 | 940 | <10 | 1.35 | 20 | 2250 | <20 | 0.2 | <50 | 10 | 120 | <50 | 0.73 |
| G004208 | | <0.1 | <50 | 10.65 | 190 | <10 | 0.06 | <10 | 160 | <20 | <0.1 | <50 | <10 | 40 | <50 | <0.05 |
| G004209 | | 0.8 | <50 | 6.92 | 980 | <10 | 0.58 | 170 | 1570 | <20 | 0.2 | <50 | 20 | 130 | <50 | 0.56 |
| G004210 | | 1.6 | <50 | 2.61 | 1340 | <10 | 0.60 | 40 | 3960 | <20 | 0.3 | <50 | 10 | 270 | <50 | 0.95 |
| G004211 | | 1.0 | <50 | 5.74 | 870 | <10 | 1.14 | 90 | 1590 | <20 | 0.2 | <50 | 10 | 140 | <50 | 0.72 |
| G004212 | | 1.5 | <50 | 5.40 | 690 | <10 | 1.70 | 130 | 1620 | <20 | 0.6 | <50 | 10 | 180 | <50 | 0.71 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 12-AUG-2008
Account: F

Project: MOR (MOR-08-10)

## CERTIFICATE OF ANALYSIS VA08095049

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004185 | | <50 | <50 | 150 | <50 | 290 |
| G004186 | | <50 | <50 | 130 | <50 | 5540 |
| G004187 | | <50 | <50 | 100 | <50 | 140 |
| G004188 | | <50 | <50 | 120 | <50 | 1680 |
| G004189 | | <50 | <50 | 70 | <50 | 100 |
| G004190 | | <50 | <50 | <10 | <50 | 30 |
| G004191 | | <50 | <50 | 140 | <50 | 110 |
| G004192 | | <50 | <50 | 140 | <50 | 2210 |
| G004193 | | <50 | <50 | 20 | <50 | 180 |
| G004194 | | <50 | <50 | 170 | <50 | 1880 |
| G004195 | | <50 | <50 | 130 | <50 | 6130 |
| G004196 | | <50 | <50 | 80 | <50 | 200 |
| G004197 | | <50 | <50 | 120 | <50 | 270 |
| G004198 | | <50 | <50 | 50 | <50 | 50 |
| G004199 | | <50 | <50 | 100 | <50 | 70 |
| G004200 | | <50 | <50 | 150 | <50 | 90 |
| G004206 | | <50 | <50 | 250 | <50 | 100 |
| G004207 | | <50 | <50 | 150 | <50 | 90 |
| G004208 | | <50 | <50 | <10 | <50 | <20 |
| G004209 | | <50 | <50 | 180 | <50 | 80 |
| G004210 | | <50 | <50 | 110 | <50 | 120 |
| G004211 | | <50 | <50 | 110 | <50 | 120 |
| G004212 | | <50 | <50 | 170 | <50 | 100 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**


**Finalized Date: 31-JUL-2008**
**Account: F**

# CERTIFICATE VA08092914

Project: MOR (MOR-08-08)

P.O. No.:

This report is for 17 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 9-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| PUL-QC | Pulverizing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 31-JUL-2008
Account: F

Project: MOR (MOR-08-08)

## CERTIFICATE OF ANALYSIS VA08092914

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.005 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 |
| G004154 | | 3.84 | <0.005 | <1 | 2.69 | <50 | 590 | <10 | <20 | 2.04 | <10 | 10 | 20 | 20 | 2.64 | <50 |
| G004155 | | 8.14 | 0.007 | <1 | 3.18 | <50 | 730 | <10 | <20 | 1.21 | <10 | 20 | 40 | 80 | 4.09 | <50 |
| G004156 | | 1.74 | <0.005 | <1 | 0.12 | <50 | <50 | <10 | <20 | 21.0 | <10 | <10 | <10 | <10 | 0.46 | <50 |
| G004157 | | 2.30 | 0.006 | <1 | 3.43 | <50 | 510 | <10 | <20 | 1.92 | <10 | 10 | 20 | 150 | 3.65 | <50 |
| G004158 | | 1.90 | <0.005 | 2 | 3.03 | <50 | 330 | <10 | <20 | 1.04 | <10 | <10 | 10 | 10 | 3.01 | <50 |
| G004159 | | 4.52 | 0.006 | <1 | 6.48 | <50 | 530 | <10 | <20 | 1.90 | <10 | 20 | 30 | 20 | 7.24 | <50 |
| G004160 | | 3.06 | 0.005 | 2 | 5.66 | <50 | 690 | <10 | <20 | 1.54 | <10 | 20 | 30 | 100 | 5.48 | <50 |
| G004161 | | 1.82 | 0.152 | 2 | 4.63 | <50 | 480 | <10 | 40 | 1.23 | <10 | 50 | 30 | 1430 | 11.15 | <50 |
| G004162 | | 1.94 | 0.007 | 2 | 5.64 | <50 | 410 | <10 | <20 | 3.47 | <10 | 20 | 50 | 110 | 5.10 | <50 |
| G004163 | | 4.28 | 0.275 | 22 | 3.57 | <50 | 310 | <10 | 20 | 0.86 | 50 | 20 | 40 | 1890 | 13.05 | <50 |
| G004164 | | 1.28 | 0.007 | <1 | 0.13 | <50 | <50 | <10 | <20 | 21.2 | <10 | <10 | 10 | <10 | 0.50 | <50 |
| G004165 | | 1.96 | 0.144 | 4 | 5.94 | <50 | 580 | <10 | <20 | 0.45 | <10 | 30 | 10 | 3930 | 10.90 | <50 |
| G004166 | | 4.20 | 0.008 | <1 | 6.20 | <50 | 5290 | <10 | <20 | 1.39 | <10 | 20 | 20 | 700 | 6.68 | <50 |
| G004167 | | 2.62 | <0.005 | 3 | 3.42 | <50 | 720 | <10 | <20 | 1.33 | <10 | 10 | 20 | 50 | 3.34 | <50 |
| G004168 | | 4.30 | <0.005 | <1 | 4.80 | <50 | 620 | <10 | <20 | 0.85 | <10 | 10 | 20 | 70 | 5.60 | <50 |
| G004169 | | 3.34 | <0.005 | <1 | 6.09 | <50 | 520 | <10 | <20 | 0.71 | <10 | 20 | 20 | 10 | 6.92 | <50 |
| G004170 | | 2.64 | <0.005 | <1 | 2.87 | <50 | 360 | <10 | <20 | 0.30 | <10 | <10 | 20 | <10 | 2.74 | <50 |

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VANCOUVER BC V6B 1L8


Finalized Date: 31-JUL-2008
Account: F

Project: MOR (MOR-08-08)

## CERTIFICATE OF ANALYSIS VA08092914

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004154 | | 0.5 | <50 | 0.88 | 520 | <10 | 3.45 | <10 | 210 | <20 | 0.2 | <50 | <10 | 100 | <50 | 0.11 |
| G004155 | | 0.7 | <50 | 1.54 | 1240 | <10 | 0.61 | 30 | 900 | <20 | 0.9 | <50 | 10 | 60 | <50 | 0.18 |
| G004156 | | <0.1 | <50 | 11.80 | 190 | <10 | <0.05 | <10 | 240 | <20 | <0.1 | <50 | <10 | 50 | <50 | <0.05 |
| G004157 | | 0.6 | <50 | 1.38 | 760 | <10 | 2.27 | 10 | 460 | <20 | 0.3 | <50 | 10 | 90 | <50 | 0.15 |
| G004158 | | 0.6 | <50 | 0.65 | 470 | <10 | 3.51 | <10 | 380 | <20 | 0.4 | <50 | <10 | 60 | <50 | 0.12 |
| G004159 | | 0.8 | <50 | 3.42 | 1340 | <10 | 1.60 | 10 | 670 | 40 | 0.9 | <50 | 20 | 60 | <50 | 0.12 |
| G004160 | | 1.0 | <50 | 2.80 | 1090 | <10 | 1.22 | 30 | 550 | 40 | 0.5 | <50 | 10 | 40 | <50 | 0.10 |
| G004161 | | 1.0 | <50 | 2.68 | 1060 | <10 | 1.08 | 10 | 400 | 70 | 5.9 | <50 | 10 | 50 | <50 | 0.09 |
| G004162 | | 0.2 | <50 | 2.90 | 1230 | <10 | 2.60 | 20 | 380 | 40 | 0.2 | <50 | 20 | 90 | <50 | 0.06 |
| G004163 | | 0.8 | <50 | 1.80 | 810 | <10 | 1.23 | 10 | 340 | 3480 | 10.7 | <50 | 10 | 120 | <50 | 0.08 |
| G004164 | | <0.1 | <50 | 11.40 | 200 | <10 | 0.06 | <10 | 200 | <20 | <0.1 | <50 | <10 | 40 | <50 | <0.05 |
| G004165 | | 0.8 | <50 | 3.54 | 1020 | <10 | 0.49 | <10 | 360 | 70 | 3.1 | <50 | 10 | 20 | <50 | 0.09 |
| G004166 | | 0.5 | <50 | 3.66 | 1190 | <10 | 1.59 | <10 | 520 | <20 | 0.7 | <50 | 20 | 230 | <50 | 0.12 |
| G004167 | | 0.8 | <50 | 1.03 | 720 | <10 | 2.61 | <10 | 340 | <20 | 0.2 | <50 | 10 | 50 | <50 | 0.12 |
| G004168 | | 0.9 | <50 | 2.42 | 980 | <10 | 1.89 | 10 | 530 | <20 | 1.0 | <50 | 10 | 20 | <50 | 0.10 |
| G004169 | | 0.9 | <50 | 3.51 | 1160 | <10 | 1.18 | 10 | 620 | <20 | 1.0 | <50 | 10 | 10 | <50 | 0.09 |
| G004170 | | 0.6 | <50 | 1.06 | 360 | <10 | 2.82 | <10 | 250 | <20 | 0.1 | <50 | <10 | 10 | <50 | 0.09 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 31-JUL-2008
Account: F

Project: MOR (MOR-08-08)

## CERTIFICATE OF ANALYSIS VA08092914

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004154 | | <50 | <50 | 60 | <50 | 70 |
| G004155 | | <50 | <50 | 130 | <50 | 120 |
| G004156 | | <50 | <50 | <10 | <50 | 20 |
| G004157 | | <50 | <50 | 90 | <50 | 80 |
| G004158 | | <50 | <50 | 20 | <50 | 50 |
| G004159 | | <50 | <50 | 140 | <50 | 100 |
| G004160 | | <50 | <50 | 110 | <50 | 80 |
| G004161 | | <50 | <50 | 90 | <50 | 1870 |
| G004162 | | <50 | <50 | 150 | <50 | 120 |
| G004163 | | <50 | <50 | 70 | <50 | 17850 |
| G004164 | | <50 | <50 | <10 | <50 | 40 |
| G004165 | | <50 | <50 | 30 | <50 | 410 |
| G004166 | | <50 | <50 | 130 | <50 | 120 |
| G004167 | | <50 | <50 | 70 | <50 | 80 |
| G004168 | | <50 | <50 | 80 | <50 | 120 |
| G004169 | | <50 | <50 | 100 | <50 | 110 |
| G004170 | | <50 | <50 | 20 | <50 | 40 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

# CERTIFICATE VA08092210

Project: MOR-08-05

P.O. No.:

This report is for 20 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 7-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

Project: MOR-08-05

# CERTIFICATE OF ANALYSIS VA08092210

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.02 | 0.005 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 |
| G004001 | | 1.84 | <0.005 | <0.2 | 0.74 | 51 | 10 | 40 | <0.5 | 2 | 0.93 | <0.5 | <1 | 4 | 9 | 1.12 |
| G004003 | | 3.02 | 0.005 | <0.2 | 2.48 | 7 | <10 | 60 | <0.5 | 3 | 1.42 | <0.5 | 11 | 61 | 88 | 3.92 |
| G004004 | | 1.76 | <0.005 | <0.2 | 1.73 | 2 | <10 | 80 | <0.5 | 2 | 1.37 | <0.5 | 6 | 27 | 40 | 2.19 |
| G004005 | | 2.26 | <0.005 | <0.2 | 2.53 | <2 | <10 | 10 | <0.5 | 2 | 1.86 | <0.5 | 16 | 31 | 63 | 3.52 |
| G004006 | | 0.98 | 0.010 | <0.2 | 1.91 | 73 | <10 | 30 | <0.5 | 4 | 0.62 | <0.5 | 102 | 28 | 241 | 8.52 |
| G004009 | | 1.68 | <0.005 | <0.2 | 1.72 | 4 | <10 | 70 | <0.5 | 2 | 0.86 | <0.5 | 9 | 5 | 11 | 2.49 |
| G004010 | | 1.52 | <0.005 | <0.2 | 2.11 | <2 | <10 | 10 | <0.5 | 3 | 1.07 | <0.5 | 14 | 12 | 53 | 3.14 |
| G004011 | | 2.60 | 0.015 | <0.2 | 2.33 | <2 | <10 | 10 | <0.5 | 2 | 1.21 | <0.5 | 17 | 72 | 114 | 3.23 |
| G004012 | | 3.50 | 0.057 | 0.6 | 2.22 | 7 | <10 | 10 | <0.5 | 3 | 1.84 | <0.5 | 22 | 54 | 920 | 4.52 |
| G004015 | | 3.50 | <0.005 | <0.2 | 1.87 | <2 | <10 | 110 | <0.5 | <2 | 0.89 | <0.5 | 2 | 23 | 5 | 1.85 |
| G004016 | | 2.22 | 0.008 | <0.2 | 2.63 | <2 | <10 | 20 | <0.5 | 3 | 1.63 | <0.5 | 19 | 56 | 144 | 4.84 |
| G004017 | | 2.48 | <0.005 | <0.2 | 2.50 | <2 | <10 | 30 | 0.5 | 2 | 1.40 | <0.5 | 14 | 40 | 36 | 3.35 |
| G004018 | | 1.40 | 0.006 | <0.2 | 2.06 | 3 | <10 | 170 | <0.5 | 3 | 1.89 | <0.5 | 28 | 46 | 123 | 4.68 |
| G004019 | | 1.38 | <0.005 | <0.2 | 3.07 | 5 | <10 | 50 | 0.6 | 3 | 2.39 | <0.5 | 27 | 81 | 80 | 5.89 |
| G004020 | | 1.44 | 0.011 | <0.2 | 3.27 | <2 | <10 | 80 | <0.5 | 2 | 4.21 | <0.5 | 25 | 126 | 81 | 4.40 |
| G004021 | | 1.90 | <0.005 | <0.2 | 2.24 | <2 | <10 | 110 | <0.5 | 3 | 2.50 | <0.5 | 10 | 27 | 13 | 2.90 |
| G004022 | | 0.84 | 0.039 | 0.6 | 4.55 | 7 | <10 | 20 | <0.5 | 7 | 5.42 | 0.6 | 46 | 311 | 536 | 12.25 |
| G004023 | | 1.04 | 0.012 | <0.2 | 4.27 | <2 | <10 | 10 | <0.5 | 3 | 5.70 | <0.5 | 24 | 196 | 5 | 4.66 |
| G004024 | | 1.78 | 0.005 | <0.2 | 3.44 | <2 | <10 | 20 | <0.5 | 3 | 4.29 | <0.5 | 23 | 14 | 28 | 5.32 |
| G004025 | | 7.38 | 0.011 | <0.2 | 1.56 | <2 | <10 | 50 | <0.5 | 3 | 1.80 | <0.5 | 1 | 7 | 1 | 2.62 |

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**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

Project: MOR-08-05

## CERTIFICATE OF ANALYSIS VA08092210

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Ga | Hg | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr |
| | Units | ppm | ppm | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm |
| | LOR | 10 | 1 | 0.01 | 10 | 0.01 | 5 | 1 | 0.01 | 1 | 10 | 2 | 0.01 | 2 | 1 | 1 |
| G004001 | | <10 | <1 | 0.07 | 10 | 0.44 | 168 | 3 | 0.08 | <1 | 220 | 3 | 0.21 | <2 | 1 | 31 |
| G004003 | | 10 | 1 | 0.12 | 10 | 2.12 | 817 | 6 | 0.06 | 24 | 320 | 7 | 0.42 | <2 | 4 | 34 |
| G004004 | | <10 | <1 | 0.11 | 10 | 1.32 | 459 | 10 | 0.08 | 15 | 400 | 3 | 0.14 | <2 | 3 | 35 |
| G004005 | | 10 | <1 | 0.01 | <10 | 2.30 | 712 | <1 | 0.09 | 20 | 770 | 4 | 0.05 | <2 | 5 | 62 |
| G004006 | | 10 | <1 | 0.06 | <10 | 1.34 | 461 | 3 | 0.07 | 32 | 360 | 7 | 5.16 | <2 | 2 | 27 |
| G004009 | | <10 | <1 | 0.08 | <10 | 0.91 | 320 | 2 | 0.11 | 1 | 740 | <2 | 0.04 | <2 | 2 | 40 |
| G004010 | | 10 | <1 | 0.01 | <10 | 1.73 | 486 | <1 | 0.07 | 8 | 270 | 2 | 0.09 | <2 | 4 | 44 |
| G004011 | | <10 | 1 | 0.01 | <10 | 2.13 | 500 | <1 | 0.07 | 29 | 600 | 5 | 0.27 | <2 | 5 | 48 |
| G004012 | | 10 | <1 | 0.01 | 10 | 1.73 | 636 | 5 | 0.07 | 17 | 310 | 4 | 0.80 | <2 | 4 | 57 |
| G004015 | | <10 | <1 | 0.12 | 10 | 1.31 | 339 | 1 | 0.08 | 18 | 300 | 3 | 0.02 | <2 | 3 | 48 |
| G004016 | | 10 | <1 | 0.01 | <10 | 2.29 | 1090 | 7 | 0.06 | 19 | 360 | 6 | 0.57 | <2 | 5 | 62 |
| G004017 | | 10 | <1 | 0.02 | <10 | 2.15 | 798 | 1 | 0.10 | 15 | 880 | 5 | 0.20 | <2 | 6 | 70 |
| G004018 | | 10 | <1 | 0.01 | <10 | 2.09 | 700 | 7 | 0.10 | 21 | 430 | 3 | 0.94 | <2 | 6 | 54 |
| G004019 | | 10 | 1 | <0.01 | <10 | 3.61 | 1025 | 1 | 0.06 | 15 | 410 | 4 | 1.17 | <2 | 9 | 54 |
| G004020 | | 10 | 1 | 0.05 | 10 | 3.41 | 1070 | <1 | 0.05 | 36 | 300 | 7 | 0.24 | <2 | 18 | 113 |
| G004021 | | 10 | <1 | 0.19 | 30 | 1.59 | 641 | 3 | 0.09 | 20 | 700 | 4 | 0.18 | <2 | 9 | 70 |
| G004022 | | 20 | 1 | <0.01 | 10 | 4.25 | 1435 | 1 | 0.02 | 94 | 470 | 13 | 7.04 | <2 | 19 | 148 |
| G004023 | | 10 | 1 | 0.01 | <10 | 3.94 | 1485 | <1 | 0.04 | 77 | 620 | 6 | 0.02 | <2 | 20 | 157 |
| G004024 | | 10 | 1 | 0.03 | <10 | 2.75 | 1210 | <1 | 0.07 | 7 | 470 | 6 | 0.07 | <2 | 18 | 108 |
| G004025 | | 10 | <1 | 0.08 | 10 | 0.67 | 508 | 1 | 0.12 | <1 | 560 | 3 | 0.08 | <2 | 6 | 47 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

Project: MOR-08-05

## CERTIFICATE OF ANALYSIS VA08092210

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|
| | Analyte | Th | Ti | Tl | U | V | W | Zn |
| | Units | ppm | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 20 | 0.01 | 10 | 10 | 1 | 10 | 2 |
| G004001 | | <20 | 0.03 | <10 | <10 | <1 | <10 | 8 |
| G004003 | | <20 | 0.08 | <10 | <10 | 39 | <10 | 65 |
| G004004 | | <20 | 0.11 | <10 | <10 | 20 | <10 | 69 |
| G004005 | | <20 | 0.19 | <10 | <10 | 75 | <10 | 59 |
| G004006 | | <20 | 0.12 | <10 | <10 | 26 | <10 | 27 |
| G004009 | | <20 | 0.15 | <10 | <10 | 15 | <10 | 18 |
| G004010 | | <20 | 0.18 | <10 | <10 | 56 | <10 | 34 |
| G004011 | | <20 | 0.20 | <10 | <10 | 52 | <10 | 39 |
| G004012 | | <20 | 0.12 | <10 | <10 | 33 | <10 | 33 |
| G004015 | | <20 | 0.15 | <10 | <10 | 17 | <10 | 21 |
| G004016 | | <20 | 0.11 | <10 | <10 | 46 | <10 | 82 |
| G004017 | | <20 | 0.19 | <10 | <10 | 51 | <10 | 79 |
| G004018 | | <20 | 0.13 | <10 | <10 | 50 | <10 | 37 |
| G004019 | | <20 | 0.11 | <10 | <10 | 64 | <10 | 32 |
| G004020 | | <20 | 0.09 | <10 | <10 | 127 | <10 | 49 |
| G004021 | | <20 | 0.04 | <10 | <10 | 54 | <10 | 26 |
| G004022 | | <20 | 0.01 | 10 | <10 | 120 | <10 | 100 |
| G004023 | | <20 | 0.02 | <10 | <10 | 127 | <10 | 84 |
| G004024 | | <20 | 0.03 | <10 | <10 | 145 | <10 | 65 |
| G004025 | | <20 | 0.01 | <10 | <10 | 7 | <10 | 19 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 29-JUL-2008**
**Account: F**

## CERTIFICATE VA08090674

Project: MOR (MOR-08-07)

P.O. No.:

This report is for 28 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 4-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-QC | Crushing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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**Finalized Date: 29-JUL-2008**
**Account: F**

Project: MOR (MOR-08-07)

## CERTIFICATE OF ANALYSIS VA08090674

| Sample Description | Method / Analyte / Units / LOR | WEI-21 Recvd Wt. kg 0.02 | Au-AA23 Au ppm 0.005 | ME-ICP61a Ag ppm 1 | ME-ICP61a Al % 0.05 | ME-ICP61a As ppm 50 | ME-ICP61a Ba ppm 50 | ME-ICP61a Be ppm 10 | ME-ICP61a Bi ppm 20 | ME-ICP61a Ca % 0.05 | ME-ICP61a Cd ppm 10 | ME-ICP61a Co ppm 10 | ME-ICP61a Cr ppm 10 | ME-ICP61a Cu ppm 10 | ME-ICP61a Fe % 0.05 | ME-ICP61a Ga ppm 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G004058 | | 3.43 | 0.007 | 1 | 5.66 | <50 | 840 | <10 | <20 | 1.49 | <10 | 20 | <10 | 40 | 6.19 | <50 |
| G004059 | | 3.17 | 0.006 | <1 | 5.63 | <50 | 830 | <10 | <20 | 1.82 | <10 | 20 | <10 | 50 | 6.35 | <50 |
| G004060 | | 3.49 | 0.005 | 1 | 5.81 | <50 | 330 | <10 | <20 | 3.05 | <10 | 30 | <10 | 40 | 6.79 | <50 |
| G004116 | | 3.40 | 0.012 | <1 | 5.33 | <50 | 560 | <10 | <20 | 1.84 | <10 | 20 | <10 | 270 | 8.53 | <50 |
| G004117 | | 3.27 | 0.011 | <1 | 6.37 | <50 | 420 | <10 | <20 | 2.04 | <10 | 20 | 20 | 210 | 6.70 | <50 |
| G004118 | | 1.10 | 0.357 | 7 | 5.51 | <50 | 650 | <10 | 40 | 1.45 | <10 | 90 | 20 | 9930 | 22.0 | <50 |
| G004126 | | 1.82 | 0.021 | <1 | 4.30 | <50 | 2500 | <10 | <20 | 0.70 | <10 | 10 | 20 | 130 | 3.00 | <50 |
| G004127 | | 1.07 | 0.377 | 19 | 4.98 | <50 | 740 | <10 | 50 | 2.34 | 10 | 80 | 30 | 4600 | 19.15 | <50 |
| G004128 | | 3.09 | 0.016 | <1 | 5.17 | <50 | 1360 | <10 | <20 | 0.65 | <10 | 10 | 20 | 240 | 4.84 | <50 |
| G004129 | | 2.30 | 0.131 | 7 | 4.95 | <50 | 400 | <10 | 20 | 0.52 | <10 | 60 | 10 | 1410 | 11.15 | <50 |
| G004130 | | 1.03 | 0.024 | <1 | 6.20 | <50 | 580 | <10 | <20 | 2.64 | <10 | 20 | 40 | 200 | 6.04 | <50 |
| G004131 | | 1.41 | 0.669 | 33 | 4.49 | <50 | 3460 | <10 | 30 | 1.01 | 30 | 100 | 20 | 1990 | 28.9 | <50 |
| G004132 | | 1.10 | <0.005 | <1 | 0.12 | <50 | 60 | <10 | <20 | 21.6 | <10 | <10 | <10 | 10 | 0.55 | <50 |
| G004133 | | 1.60 | 0.081 | 3 | 5.97 | <50 | 810 | <10 | <20 | 0.43 | <10 | 30 | <10 | 2290 | 11.00 | <50 |
| G004134 | | 1.42 | 0.533 | 25 | 2.74 | <50 | 350 | <10 | 50 | 0.57 | 40 | 40 | 20 | 3210 | 30.2 | <50 |
| G004135 | | 2.42 | 0.024 | <1 | 5.96 | <50 | 800 | <10 | <20 | 0.30 | <10 | 20 | 10 | 290 | 7.69 | <50 |
| G004136 | | 1.31 | 0.012 | <1 | 5.13 | <50 | 600 | <10 | <20 | 0.41 | <10 | 20 | 10 | 220 | 6.28 | <50 |
| G004137 | | 1.94 | 0.078 | 3 | 6.49 | <50 | 420 | <10 | <20 | 0.52 | <10 | 40 | 10 | 5450 | 11.80 | <50 |
| G004138 | | 1.79 | <0.005 | <1 | 6.52 | <50 | <50 | <10 | <20 | 2.49 | <10 | 20 | 20 | 60 | 5.51 | <50 |
| G004139 | | 2.30 | 0.016 | <1 | 4.59 | <50 | 1210 | <10 | <20 | 1.52 | <10 | 20 | 70 | 100 | 4.27 | <50 |
| G004140 | | 1.45 | 0.014 | <1 | 2.50 | <50 | 740 | <10 | <20 | 1.29 | <10 | 10 | 40 | 70 | 2.64 | <50 |
| G004141 | | 2.90 | 0.005 | <1 | 4.29 | <50 | 1220 | <10 | <20 | 0.86 | <10 | 20 | 90 | 60 | 3.60 | <50 |
| G004142 | | 3.54 | 0.008 | <1 | 4.84 | <50 | 850 | <10 | <20 | 2.21 | <10 | 20 | 130 | 80 | 4.19 | <50 |
| G004143 | | 1.24 | <0.005 | <1 | 0.12 | <50 | <50 | <10 | <20 | 21.6 | <10 | <10 | <10 | <10 | 0.42 | <50 |
| G004144 | | 1.79 | 0.017 | <1 | 3.60 | <50 | 850 | <10 | <20 | 1.23 | <10 | 10 | 50 | 90 | 2.97 | <50 |
| G004145 | | 2.53 | 0.018 | 2 | 5.54 | <50 | 1410 | <10 | <20 | 1.96 | <10 | 20 | 90 | 70 | 4.90 | <50 |
| G004146 | | 2.47 | 0.014 | 1 | 4.86 | <50 | 950 | <10 | <20 | 2.21 | <10 | 10 | 90 | 80 | 3.91 | <50 |
| G004147 | | 3.49 | 0.006 | <1 | 5.16 | <50 | 1200 | <10 | <20 | 4.70 | <10 | 10 | 120 | 10 | 4.18 | <50 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 29-JUL-2008**
**Account: F**

Project: MOR (MOR-08-07)

## CERTIFICATE OF ANALYSIS VA08090674

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004058 | | 2.0 | <50 | 2.35 | 1090 | <10 | 1.39 | <10 | 770 | <20 | 0.6 | <50 | 10 | 50 | <50 | 0.18 |
| G004059 | | 1.8 | <50 | 2.24 | 1190 | <10 | 0.78 | <10 | 700 | 30 | 0.9 | <50 | 10 | 50 | <50 | 0.15 |
| G004060 | | 0.7 | <50 | 2.63 | 1390 | <10 | 1.73 | <10 | 780 | <20 | 0.4 | <50 | 20 | 110 | <50 | 0.15 |
| G004116 | | 1.1 | <50 | 2.74 | 1220 | <10 | 0.94 | <10 | 490 | 40 | 2.4 | <50 | 10 | 80 | <50 | 0.10 |
| G004117 | | 0.7 | <50 | 3.22 | 1450 | <10 | 1.88 | 10 | 410 | <20 | 0.8 | <50 | 20 | 60 | <50 | 0.07 |
| G004118 | | 0.7 | <50 | 2.47 | 1040 | <10 | 0.59 | 10 | 260 | 120 | 16.8 | <50 | 20 | 60 | <50 | 0.10 |
| G004126 | | 1.3 | <50 | 1.48 | 560 | <10 | 2.58 | <10 | 390 | 60 | 0.4 | <50 | 10 | 40 | <50 | 0.11 |
| G004127 | | 0.9 | <50 | 2.15 | 980 | <10 | 1.02 | <10 | 260 | 690 | 17.2 | <50 | 10 | 50 | <50 | 0.07 |
| G004128 | | 1.9 | <50 | 2.42 | 820 | <10 | 0.59 | <10 | 410 | 30 | 1.1 | <50 | 10 | 20 | <50 | 0.09 |
| G004129 | | 1.5 | <50 | 2.12 | 770 | <10 | 0.54 | <10 | 330 | 270 | 7.7 | <50 | 10 | 20 | <50 | 0.07 |
| G004130 | | 0.4 | <50 | 3.09 | 1260 | <10 | 2.19 | 10 | 380 | 50 | 0.9 | <50 | 20 | 60 | <50 | 0.06 |
| G004131 | | 0.6 | <50 | 2.49 | 980 | <10 | 0.23 | <10 | 210 | 2150 | 25.7 | <50 | 10 | 100 | <50 | 0.07 |
| G004132 | | <0.1 | <50 | 12.20 | 210 | <10 | 0.07 | <10 | 160 | <20 | 0.1 | <50 | <10 | 40 | <50 | <0.05 |
| G004133 | | 1.1 | <50 | 2.79 | 1030 | <10 | 0.60 | <10 | 240 | 150 | 4.2 | <50 | 10 | 30 | <50 | 0.08 |
| G004134 | | 0.6 | <50 | 1.19 | 540 | <10 | 0.85 | 30 | 150 | 1880 | 30.2 | <50 | 10 | 10 | <50 | 0.06 |
| G004135 | | 1.6 | <50 | 2.59 | 660 | <10 | 0.50 | <10 | 350 | 50 | 2.7 | <50 | 10 | 10 | <50 | 0.10 |
| G004136 | | 1.3 | <50 | 2.17 | 610 | <10 | 1.03 | <10 | 340 | 40 | 1.1 | <50 | 10 | 30 | <50 | 0.11 |
| G004137 | | 1.0 | <50 | 3.39 | 1080 | <10 | 0.70 | <10 | 450 | 140 | 3.7 | <50 | 10 | 30 | <50 | 0.10 |
| G004138 | | 0.1 | <50 | 3.21 | 1300 | <10 | 2.94 | <10 | 600 | 40 | 0.1 | <50 | 20 | 70 | <50 | 0.14 |
| G004139 | | 1.7 | <50 | 1.97 | 880 | <10 | 0.83 | 30 | 890 | <20 | 0.8 | <50 | 10 | 40 | <50 | 0.14 |
| G004140 | | 1.3 | <50 | 1.08 | 1440 | <10 | 0.22 | 30 | 390 | <20 | 1.3 | <50 | 10 | 40 | <50 | 0.09 |
| G004141 | | 1.9 | <50 | 1.80 | 1180 | <10 | 0.69 | 50 | 300 | <20 | 0.7 | <50 | 10 | 50 | <50 | 0.20 |
| G004142 | | 1.6 | <50 | 2.40 | 1250 | <10 | 1.11 | 60 | 980 | <20 | 0.7 | <50 | 10 | 100 | <50 | 0.23 |
| G004143 | | <0.1 | <50 | 11.50 | 190 | <10 | 0.06 | <10 | 180 | <20 | <0.1 | <50 | <10 | 50 | <50 | <0.05 |
| G004144 | | 2.1 | <50 | 1.20 | 960 | <10 | 0.13 | 30 | 1220 | <20 | 1.5 | <50 | 10 | 40 | <50 | 0.12 |
| G004145 | | 2.2 | <50 | 2.51 | 1180 | <10 | 0.94 | 30 | 1190 | <20 | 1.2 | <50 | 10 | 50 | <50 | 0.17 |
| G004146 | | 1.9 | <50 | 1.78 | 1360 | <10 | 0.52 | 50 | 810 | <20 | 1.4 | <50 | 10 | 80 | <50 | 0.16 |
| G004147 | | 3.1 | <50 | 1.94 | 1180 | <10 | 1.48 | 30 | 920 | <20 | 0.2 | <50 | 10 | 320 | <50 | 0.29 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 29-JUL-2008**
**Account: F**

Project: MOR (MOR-08-07)

## CERTIFICATE OF ANALYSIS VA08090674

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004058 | | <50 | <50 | 140 | <50 | 80 |
| G004059 | | <50 | <50 | 140 | <50 | 70 |
| G004060 | | <50 | <50 | 200 | <50 | 70 |
| G004116 | | <50 | <50 | 110 | <50 | 300 |
| G004117 | | <50 | <50 | 90 | <50 | 310 |
| G004118 | | <50 | <50 | 80 | <50 | 1560 |
| G004126 | | <50 | <50 | 70 | <50 | 550 |
| G004127 | | <50 | <50 | 90 | <50 | 3850 |
| G004128 | | <50 | <50 | 60 | <50 | 110 |
| G004129 | | <50 | 50 | 50 | <50 | 1080 |
| G004130 | | <50 | <50 | 130 | <50 | 270 |
| G004131 | | <50 | <50 | 50 | <50 | 7060 |
| G004132 | | <50 | <50 | <10 | <50 | 40 |
| G004133 | | <50 | <50 | 20 | <50 | 580 |
| G004134 | | <50 | <50 | 30 | <50 | 12550 |
| G004135 | | <50 | <50 | 20 | <50 | 160 |
| G004136 | | <50 | <50 | 50 | <50 | 140 |
| G004137 | | <50 | <50 | 80 | <50 | 570 |
| G004138 | | <50 | <50 | 170 | <50 | 150 |
| G004139 | | <50 | <50 | 120 | <50 | 80 |
| G004140 | | <50 | <50 | 60 | <50 | 50 |
| G004141 | | <50 | <50 | 90 | <50 | 70 |
| G004142 | | <50 | <50 | 140 | <50 | 120 |
| G004143 | | <50 | <50 | 10 | <50 | 20 |
| G004144 | | <50 | <50 | 100 | <50 | 60 |
| G004145 | | <50 | <50 | 130 | <50 | 120 |
| G004146 | | <50 | <50 | 150 | <50 | 90 |
| G004147 | | <50 | <50 | 100 | <50 | 60 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**


**Finalized Date: 22-JUL-2008**
**Account: F**

# CERTIFICATE VA08089721

Project: MOR-08-06

P.O. No.:

This report is for 35 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 2-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-QC | Crushing QC Test |
| PUL-QC | Pulverizing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

**ALS Chemex**
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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 22-JUL-2008**
**Account: F**

Project: MOR-08-06

# CERTIFICATE OF ANALYSIS VA08089721

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.005 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 |
| G004061 | | 3.50 | 0.005 | 1 | 5.88 | <50 | 430 | <10 | <20 | 3.26 | <10 | 20 | 40 | 30 | 4.67 | <50 |
| G004062 | | 3.80 | <0.005 | <1 | 6.02 | <50 | 440 | <10 | <20 | 3.08 | <10 | 20 | 30 | 30 | 4.31 | <50 |
| G004063 | | 3.76 | 0.006 | 1 | 5.67 | <50 | 470 | <10 | <20 | 2.19 | <10 | 10 | 30 | 50 | 3.39 | <50 |
| G004064 | | 2.98 | <0.005 | 1 | 4.02 | <50 | 210 | <10 | <20 | 1.27 | <10 | 20 | 50 | 20 | 2.22 | <50 |
| G004065 | | 3.18 | <0.005 | 1 | 6.55 | <50 | 540 | <10 | <20 | 1.62 | <10 | 20 | 40 | 30 | 3.90 | <50 |
| G004066 | | 1.16 | <0.005 | <1 | 7.19 | <50 | 350 | <10 | <20 | 2.27 | <10 | 20 | 70 | 20 | 4.67 | <50 |
| G004067 | | 2.80 | <0.005 | <1 | 6.43 | <50 | 550 | <10 | <20 | 1.89 | <10 | 20 | 20 | 20 | 3.97 | <50 |
| G004068 | | 3.54 | <0.005 | <1 | 5.29 | <50 | 390 | <10 | <20 | 0.73 | <10 | <10 | 10 | 10 | 1.71 | <50 |
| G004069 | | 1.18 | 0.006 | 3 | 5.44 | <50 | 410 | <10 | <20 | 0.82 | <10 | <10 | 10 | 10 | 1.81 | <50 |
| G004091 | | 4.46 | 0.005 | 1 | 5.60 | <50 | 420 | <10 | <20 | 1.05 | <10 | 10 | 10 | 10 | 3.59 | <50 |
| G004092 | | 2.58 | <0.005 | <1 | 4.86 | <50 | 2810 | <10 | <20 | 2.61 | <10 | 10 | 10 | <10 | 2.32 | <50 |
| G004093 | | 1.18 | <0.005 | <1 | 5.64 | <50 | 1790 | <10 | <20 | 0.96 | <10 | <10 | 10 | <10 | 2.22 | <50 |
| G004094 | | 1.34 | <0.005 | 1 | 5.93 | <50 | 2760 | <10 | <20 | 0.93 | <10 | <10 | 10 | <10 | 2.52 | <50 |
| G004095 | | 2.96 | 0.023 | <1 | 5.27 | <50 | 1850 | <10 | 20 | 1.30 | <10 | 20 | 60 | 50 | 3.80 | <50 |
| G004096 | | 1.80 | 0.016 | 2 | 5.75 | <50 | 1300 | <10 | <20 | 4.39 | <10 | 20 | 120 | 50 | 4.67 | <50 |
| G004097 | | 3.90 | <0.005 | <1 | 6.40 | <50 | 680 | <10 | 20 | 1.92 | <10 | 10 | <10 | 10 | 3.42 | <50 |
| G004098 | | 1.98 | 0.023 | 1 | 4.70 | <50 | 850 | <10 | <20 | 4.52 | <10 | 30 | 60 | 60 | 6.39 | <50 |
| G004099 | | 2.04 | 0.013 | <1 | 6.62 | <50 | 1330 | <10 | <20 | 3.49 | <10 | 30 | 50 | 140 | 7.22 | <50 |
| G004100 | | 2.26 | <0.005 | <1 | 3.44 | <50 | 320 | <10 | <20 | 1.03 | <10 | <10 | 20 | <10 | 3.06 | <50 |
| G004101 | | 1.08 | 0.007 | <1 | 6.39 | <50 | 950 | <10 | <20 | 1.45 | <10 | 20 | 20 | 40 | 6.25 | <50 |
| G004102 | | 4.02 | 0.006 | 1 | 6.22 | <50 | 670 | <10 | <20 | 2.74 | <10 | 10 | 10 | 30 | 4.99 | <50 |
| G004103 | | 1.08 | <0.005 | <1 | 6.16 | <50 | 790 | <10 | <20 | 2.60 | <10 | 20 | 20 | 20 | 5.05 | <50 |
| G004104 | | 1.60 | 0.156 | 15 | 6.49 | <50 | 1410 | <10 | 60 | 1.47 | 10 | 70 | 50 | 3750 | 12.65 | <50 |
| G004105 | | 1.34 | 0.077 | 4 | 6.73 | <50 | 1230 | <10 | 20 | 1.61 | <10 | 40 | 50 | 1910 | 9.74 | <50 |
| G004106 | | 3.34 | 0.006 | <1 | 7.03 | <50 | 690 | <10 | <20 | 2.93 | <10 | 20 | 20 | 100 | 5.60 | <50 |
| G004107 | | 3.00 | <0.005 | 1 | 5.43 | <50 | 400 | <10 | <20 | 1.99 | <10 | 10 | 20 | 20 | 4.37 | <50 |
| G004108 | | 2.86 | 0.007 | <1 | 6.79 | <50 | 690 | <10 | <20 | 1.05 | <10 | 20 | 30 | 90 | 6.60 | <50 |
| G004109 | | 1.40 | <0.005 | <1 | 0.13 | <50 | <50 | <10 | <20 | 19.75 | <10 | <10 | 10 | 10 | 0.34 | <50 |
| G004110 | | 3.08 | 0.008 | 1 | 5.93 | <50 | 550 | <10 | <20 | 1.24 | <10 | 20 | 20 | 30 | 6.25 | <50 |
| G004111 | | 2.58 | <0.005 | 1 | 4.42 | <50 | 740 | <10 | <20 | 1.49 | <10 | 10 | 30 | 10 | 4.04 | <50 |
| G004112 | | 3.20 | <0.005 | <1 | 3.25 | <50 | 390 | <10 | <20 | 0.46 | <10 | 10 | 20 | 20 | 3.64 | <50 |
| G004113 | | 2.00 | <0.005 | <1 | 5.35 | <50 | 500 | <10 | 20 | 5.10 | <10 | 30 | 70 | 40 | 5.23 | <50 |
| G004114 | | 1.26 | <0.005 | <1 | 5.41 | <50 | 650 | <10 | 20 | 3.72 | <10 | 20 | 40 | 30 | 6.39 | <50 |
| G004115 | | 2.12 | <0.005 | 1 | 3.21 | <50 | 790 | <10 | <20 | 1.36 | <10 | 10 | 30 | 20 | 3.05 | <50 |
| G004125 | | 2.12 | 0.009 | 2 | 6.50 | <50 | 530 | <10 | <20 | 3.18 | <10 | 20 | 30 | 30 | 6.00 | <50 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 22-JUL-2008**
**Account: F**

Project: MOR-08-06

## CERTIFICATE OF ANALYSIS VA08089721

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004061 | | 1.0 | <50 | 2.12 | 990 | <10 | 2.03 | 10 | 460 | <20 | 0.2 | <50 | 20 | 90 | <50 | 0.18 |
| G004062 | | 0.9 | <50 | 2.12 | 1060 | <10 | 2.28 | 10 | 500 | <20 | 0.3 | <50 | 20 | 80 | <50 | 0.15 |
| G004063 | | 0.8 | <50 | 1.26 | 660 | <10 | 3.33 | 10 | 460 | <20 | 0.5 | <50 | 10 | 80 | <50 | 0.13 |
| G004064 | | 0.7 | <50 | 1.11 | 500 | <10 | 1.58 | 20 | 230 | 20 | 0.1 | <50 | 10 | 60 | <50 | 0.11 |
| G004065 | | 1.0 | <50 | 2.04 | 790 | <10 | 3.72 | 10 | 480 | <20 | 0.4 | <50 | 10 | 60 | <50 | 0.12 |
| G004066 | | 0.8 | <50 | 2.83 | 910 | <10 | 3.62 | 10 | 600 | 30 | 0.1 | <50 | 20 | 70 | <50 | 0.13 |
| G004067 | | 1.1 | <50 | 1.82 | 700 | <10 | 3.13 | <10 | 430 | 20 | 0.1 | <50 | 10 | 70 | <50 | 0.15 |
| G004068 | | 0.9 | <50 | 0.74 | 260 | <10 | 3.49 | <10 | 150 | <20 | 0.1 | <50 | <10 | 40 | <50 | 0.07 |
| G004069 | | 0.9 | <50 | 0.78 | 300 | <10 | 3.54 | <10 | 160 | <20 | 0.1 | <50 | 10 | 50 | <50 | 0.07 |
| G004091 | | 0.8 | <50 | 1.42 | 660 | <10 | 3.29 | <10 | 340 | <20 | 0.1 | <50 | 10 | 50 | <50 | 0.13 |
| G004092 | | 1.4 | <50 | 0.50 | 860 | <10 | 3.13 | <10 | 170 | <20 | 0.2 | <50 | 10 | 140 | <50 | 0.14 |
| G004093 | | 2.2 | <50 | 0.45 | 450 | <10 | 2.38 | <10 | 180 | <20 | 0.2 | <50 | 10 | 50 | <50 | 0.14 |
| G004094 | | 2.2 | <50 | 0.69 | 510 | <10 | 2.19 | <10 | 190 | <20 | 0.2 | <50 | 10 | 70 | <50 | 0.14 |
| G004095 | | 1.5 | <50 | 1.61 | 730 | <10 | 0.96 | 20 | 300 | <20 | 0.8 | <50 | 10 | 50 | <50 | 0.11 |
| G004096 | | 1.6 | <50 | 2.50 | 1610 | <10 | 0.29 | 30 | 840 | 20 | 1.4 | <50 | 20 | 130 | <50 | 0.12 |
| G004097 | | 2.3 | <50 | 1.07 | 630 | <10 | 1.47 | <10 | 310 | 20 | 0.2 | <50 | 10 | 60 | <50 | 0.13 |
| G004098 | | 1.0 | <50 | 3.36 | 1970 | <10 | 0.48 | 90 | 2160 | 30 | 1.4 | <50 | 10 | 80 | <50 | 0.26 |
| G004099 | | 1.2 | <50 | 3.17 | 1340 | <10 | 1.25 | 230 | 4280 | 20 | 1.0 | <50 | 10 | 50 | <50 | 0.33 |
| G004100 | | 0.8 | <50 | 0.73 | 590 | <10 | 3.26 | 10 | 380 | <20 | 0.1 | <50 | 10 | 60 | <50 | 0.16 |
| G004101 | | 1.1 | <50 | 3.21 | 1180 | <10 | 1.50 | 10 | 630 | 30 | 0.8 | <50 | 20 | 40 | <50 | 0.21 |
| G004102 | | 0.5 | <50 | 2.06 | 1170 | <10 | 3.70 | <10 | 630 | 30 | 0.2 | <50 | 20 | 80 | <50 | 0.28 |
| G004103 | | 0.4 | <50 | 2.57 | 1190 | <10 | 3.64 | 20 | 530 | 20 | 0.1 | <50 | 20 | 80 | <50 | 0.22 |
| G004104 | | 1.2 | <50 | 3.87 | 1140 | <10 | 1.09 | 10 | 550 | 680 | 8.5 | <50 | 20 | 40 | <50 | 0.16 |
| G004105 | | 1.0 | <50 | 3.69 | 1160 | <10 | 1.83 | 10 | 540 | 90 | 4.7 | <50 | 20 | 50 | <50 | 0.15 |
| G004106 | | 0.8 | <50 | 3.11 | 1300 | <10 | 2.80 | 10 | 560 | 20 | 0.2 | <50 | 20 | 70 | <50 | 0.19 |
| G004107 | | 0.7 | <50 | 1.68 | 960 | <10 | 3.11 | 10 | 430 | <20 | 0.1 | <50 | 10 | 70 | <50 | 0.18 |
| G004108 | | 1.3 | <50 | 3.24 | 1240 | <10 | 1.13 | 10 | 500 | <20 | 0.5 | <50 | 20 | 30 | <50 | 0.18 |
| G004109 | | <0.1 | <50 | 8.11 | 150 | <10 | 0.10 | <10 | 170 | <20 | <0.1 | <50 | <10 | 40 | <50 | <0.05 |
| G004110 | | 1.0 | <50 | 2.92 | 1180 | <10 | 1.61 | 10 | 550 | <20 | 1.2 | <50 | 10 | 40 | <50 | 0.14 |
| G004111 | | 1.4 | <50 | 1.39 | 840 | <10 | 1.76 | 10 | 380 | <20 | 0.4 | <50 | 10 | 40 | <50 | 0.12 |
| G004112 | | 0.8 | <50 | 1.31 | 580 | <10 | 2.62 | 10 | 370 | <20 | 0.2 | <50 | 10 | 20 | <50 | 0.12 |
| G004113 | | 0.8 | <50 | 2.19 | 1240 | <10 | 1.51 | 50 | 950 | <20 | 0.1 | <50 | 20 | 320 | <50 | 0.75 |
| G004114 | | 1.0 | <50 | 1.76 | 1420 | <10 | 2.21 | 20 | 1710 | <20 | 0.2 | <50 | 10 | 250 | <50 | 1.08 |
| G004115 | | 1.0 | <50 | 0.87 | 990 | <10 | 1.16 | 10 | 770 | <20 | 0.1 | <50 | 10 | 80 | <50 | 0.35 |
| G004125 | | 1.2 | <50 | 2.62 | 1450 | <10 | 2.10 | 20 | 620 | 30 | 1.2 | <50 | 20 | 60 | <50 | 0.16 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 22-JUL-2008**
**Account: F**

Project: MOR-08-06

## CERTIFICATE OF ANALYSIS VA08089721

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004061 | | <50 | <50 | 160 | <50 | 90 |
| G004062 | | <50 | <50 | 140 | <50 | 80 |
| G004063 | | <50 | <50 | 90 | <50 | 70 |
| G004064 | | <50 | <50 | 110 | <50 | 80 |
| G004065 | | <50 | <50 | 90 | <50 | 110 |
| G004066 | | <50 | <50 | 130 | <50 | 80 |
| G004067 | | <50 | <50 | 100 | <50 | 70 |
| G004068 | | <50 | <50 | 30 | <50 | 30 |
| G004069 | | <50 | <50 | 30 | <50 | 30 |
| G004091 | | <50 | <50 | 50 | <50 | 50 |
| G004092 | | <50 | <50 | 10 | <50 | 50 |
| G004093 | | <50 | <50 | 10 | <50 | 40 |
| G004094 | | <50 | <50 | 20 | <50 | 60 |
| G004095 | | <50 | <50 | 80 | <50 | 70 |
| G004096 | | <50 | <50 | 110 | <50 | 100 |
| G004097 | | <50 | <50 | 20 | <50 | 60 |
| G004098 | | <50 | <50 | 120 | <50 | 160 |
| G004099 | | <50 | <50 | 130 | <50 | 140 |
| G004100 | | <50 | <50 | 20 | <50 | 50 |
| G004101 | | <50 | <50 | 120 | <50 | 180 |
| G004102 | | <50 | <50 | 160 | <50 | 110 |
| G004103 | | <50 | <50 | 160 | <50 | 150 |
| G004104 | | <50 | <50 | 170 | <50 | 2930 |
| G004105 | | <50 | <50 | 170 | <50 | 1370 |
| G004106 | | <50 | <50 | 170 | <50 | 260 |
| G004107 | | <50 | <50 | 100 | <50 | 90 |
| G004108 | | <50 | <50 | 90 | <50 | 90 |
| G004109 | | <50 | <50 | <10 | <50 | <20 |
| G004110 | | <50 | <50 | 90 | <50 | 100 |
| G004111 | | <50 | <50 | 40 | <50 | 70 |
| G004112 | | <50 | <50 | 30 | <50 | 40 |
| G004113 | | <50 | <50 | 170 | <50 | 60 |
| G004114 | | <50 | <50 | 160 | <50 | 80 |
| G004115 | | <50 | <50 | 40 | <50 | 50 |
| G004125 | | <50 | <50 | 130 | <50 | 80 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

## CERTIFICATE VA08089720

Project: MOR-08-05

P.O. No.:

This report is for 35 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 2-JUL-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| PUL-QC | Pulverizing QC Test |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 25-JUL-2008
Account: F

Project: MOR-08-05

## CERTIFICATE OF ANALYSIS VA08089720

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.005 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 |
| G004026 | | 1.54 | 0.005 | 1 | 1.79 | <50 | <50 | <10 | <20 | 2.05 | <10 | 10 | 40 | 100 | 2.87 | <50 |
| G004027 | | 2.04 | <0.005 | <1 | 2.96 | <50 | 270 | <10 | <20 | 1.43 | <10 | <10 | 50 | 10 | 2.23 | <50 |
| G004028 | | 2.30 | <0.005 | 1 | 4.34 | <50 | 370 | <10 | <20 | 1.58 | <10 | 20 | 50 | 30 | 6.50 | <50 |
| G004029 | | 2.24 | <0.005 | 1 | 3.68 | <50 | <50 | <10 | <20 | 0.69 | <10 | 10 | 60 | 10 | 4.03 | <50 |
| G004030 | | 5.64 | 0.009 | <1 | 6.81 | <50 | 50 | <10 | <20 | 5.14 | <10 | 30 | 30 | 180 | 6.41 | <50 |
| G004031 | | 2.36 | <0.005 | <1 | 4.95 | <50 | 70 | <10 | <20 | 1.09 | <10 | 10 | 40 | 10 | 4.07 | <50 |
| G004032 | | 1.68 | <0.005 | <1 | 6.66 | <50 | 90 | <10 | <20 | 3.20 | <10 | 20 | 20 | 10 | 6.86 | <50 |
| G004033 | | 2.06 | 0.005 | <1 | 5.26 | <50 | 60 | <10 | 20 | 0.96 | <10 | 20 | 90 | 20 | 6.61 | <50 |
| G004034 | | 1.38 | <0.005 | <1 | 5.38 | <50 | 310 | <10 | <20 | 0.97 | <10 | 10 | 80 | 10 | 5.06 | <50 |
| G004035 | | 1.62 | 0.020 | <1 | 5.06 | <50 | 60 | <10 | <20 | 1.81 | <10 | 120 | 60 | 170 | 11.25 | <50 |
| G004036 | | 1.78 | 0.005 | <1 | 4.67 | <50 | 240 | <10 | <20 | 3.34 | <10 | 30 | 100 | 40 | 6.25 | <50 |
| G004037 | | 3.12 | <0.005 | <1 | 3.97 | <50 | 190 | <10 | <20 | 2.63 | <10 | 10 | 20 | 10 | 3.07 | <50 |
| G004038 | | 1.62 | 0.037 | 1 | 4.85 | <50 | 60 | <10 | <20 | 4.82 | <10 | 30 | 40 | 370 | 13.40 | <50 |
| G004039 | | 1.18 | <0.005 | <1 | 5.65 | <50 | 260 | <10 | <20 | 4.93 | <10 | 10 | 70 | 20 | 7.05 | <50 |
| G004040 | | 1.02 | <0.005 | <1 | 6.33 | <50 | 80 | <10 | <20 | 5.28 | <10 | 30 | 160 | 10 | 5.82 | <50 |
| G004041 | | 1.62 | <0.005 | <1 | 6.15 | <50 | 220 | <10 | <20 | 3.30 | <10 | 10 | 70 | 90 | 3.65 | <50 |
| G004042 | | 3.58 | <0.005 | <1 | 4.42 | <50 | 390 | <10 | <20 | 2.78 | <10 | 10 | 70 | 50 | 2.72 | <50 |
| G004043 | | 3.36 | <0.005 | <1 | 5.21 | <50 | 130 | <10 | <20 | 3.25 | <10 | 10 | 90 | 30 | 4.00 | <50 |
| G004044 | | 4.60 | <0.005 | <1 | 4.60 | <50 | <50 | <10 | <20 | 2.83 | <10 | 20 | 80 | 10 | 6.25 | <50 |
| G004045 | | 2.02 | <0.005 | <1 | 5.40 | <50 | 280 | <10 | <20 | 1.74 | <10 | 20 | 50 | 20 | 5.92 | <50 |
| G004046 | | 2.14 | 0.012 | <1 | 5.56 | <50 | 70 | <10 | <20 | 1.06 | <10 | 20 | 70 | 230 | 6.12 | <50 |
| G004047 | | 0.90 | <0.005 | <1 | 5.27 | <50 | 90 | <10 | <20 | 0.95 | <10 | 20 | 40 | 40 | 7.70 | <50 |
| G004048 | | 2.12 | <0.005 | <1 | 5.36 | <50 | 90 | <10 | <20 | 1.27 | <10 | 20 | 50 | 20 | 6.13 | <50 |
| G004049 | | 2.48 | 0.008 | <1 | 5.34 | <50 | 110 | <10 | <20 | 1.21 | <10 | 20 | 90 | 100 | 6.60 | <50 |
| G004050 | | 1.94 | <0.005 | 1 | 4.66 | <50 | 670 | <10 | <20 | 0.72 | <10 | 10 | 30 | 50 | 3.76 | <50 |
| G004051 | | 1.36 | <0.005 | <1 | 0.12 | <50 | <50 | <10 | <20 | 21.0 | <10 | <10 | 10 | 20 | 0.50 | <50 |
| G004052 | | 4.30 | 0.007 | <1 | 4.18 | <50 | 430 | <10 | <20 | 1.31 | <10 | 10 | 30 | 70 | 3.18 | <50 |
| G004053 | | 5.46 | 0.007 | <1 | 5.84 | <50 | 270 | <10 | <20 | 3.01 | <10 | 30 | 70 | 60 | 5.54 | <50 |
| G004054 | | 1.30 | 0.005 | <1 | 6.29 | <50 | 70 | <10 | <20 | 5.95 | <10 | 30 | 90 | 90 | 5.84 | <50 |
| G004055 | | 4.14 | 0.006 | <1 | 5.64 | <50 | 80 | <10 | <20 | 5.14 | <10 | 30 | 60 | 70 | 5.77 | <50 |
| G004056 | | 5.70 | 0.006 | <1 | 4.81 | <50 | 290 | <10 | <20 | 2.16 | <10 | 20 | 10 | 20 | 5.38 | <50 |
| G004057 | | 2.14 | <0.005 | <1 | 4.64 | <50 | 230 | <10 | <20 | 1.10 | <10 | 10 | <10 | <10 | 4.26 | <50 |
| G004151 | | 5.56 | <0.005 | <1 | 4.09 | <50 | 470 | <10 | <20 | 1.41 | <10 | 10 | <10 | 10 | 2.98 | <50 |
| G004152 | | 4.14 | 0.005 | <1 | 3.49 | <50 | 610 | <10 | <20 | 0.61 | <10 | 10 | <10 | <10 | 1.77 | <50 |
| G004153 | | 1.56 | 0.005 | <1 | 4.11 | <50 | 1370 | <10 | <20 | 3.50 | <10 | 10 | 30 | 10 | 2.41 | <50 |

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To: ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED
1016-510 W HASTINGS ST
VANCOUVER BC V6B 1L8


Finalized Date: 25-JUL-2008
Account: F

Project: MOR-08-05

## CERTIFICATE OF ANALYSIS VA08089720

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004026 | | 0.1 | <50 | 1.34 | 560 | <10 | 0.21 | 10 | 130 | <20 | 0.8 | <50 | <10 | 60 | <50 | 0.12 |
| G004027 | | 0.4 | <50 | 1.32 | 380 | <10 | 0.83 | 20 | 270 | <20 | 0.4 | <50 | <10 | 80 | <50 | 0.23 |
| G004028 | | 0.3 | <50 | 3.19 | 830 | <10 | 0.64 | 30 | 210 | <20 | 3.1 | <50 | 10 | 30 | <50 | 0.17 |
| G004029 | | <0.1 | <50 | 2.50 | 550 | <10 | 0.82 | 20 | 150 | <20 | 0.7 | <50 | 10 | 30 | <50 | 0.13 |
| G004030 | | <0.1 | <50 | 3.21 | 1650 | <10 | 2.56 | 30 | 410 | <20 | 0.3 | <50 | 20 | 310 | <50 | 0.32 |
| G004031 | | 0.1 | <50 | 2.55 | 860 | <10 | 1.83 | 10 | 650 | <20 | 0.6 | <50 | 10 | 30 | <50 | 0.19 |
| G004032 | | 0.1 | <50 | 3.18 | 1420 | <10 | 2.75 | 10 | 520 | <20 | 1.5 | <50 | 20 | 160 | <50 | 0.41 |
| G004033 | | <0.1 | <50 | 4.21 | 1200 | <10 | 0.82 | 20 | 300 | <20 | 1.6 | <50 | 10 | 30 | <50 | 0.21 |
| G004034 | | 0.3 | <50 | 3.06 | 860 | <10 | 2.25 | 20 | 360 | <20 | 1.1 | <50 | 10 | 50 | <50 | 0.26 |
| G004035 | | 0.1 | <50 | 3.22 | 910 | <10 | 1.93 | 30 | 270 | 20 | 8.1 | <50 | 10 | 60 | <50 | 0.14 |
| G004036 | | <0.1 | <50 | 3.43 | 1140 | <10 | 1.45 | 30 | 250 | <20 | 0.3 | <50 | 20 | 100 | <50 | 0.14 |
| G004037 | | 0.5 | <50 | 0.59 | 410 | <10 | 2.50 | <10 | 240 | <20 | <0.1 | <50 | 10 | 200 | <50 | 0.12 |
| G004038 | | 0.1 | <50 | 2.81 | 1450 | <10 | 1.67 | 10 | 320 | <20 | 5.4 | <50 | 10 | 290 | <50 | 0.25 |
| G004039 | | 0.2 | <50 | 2.68 | 1180 | <10 | 2.62 | 20 | 490 | <20 | 1.4 | <50 | 10 | 300 | <50 | 0.30 |
| G004040 | | 0.1 | <50 | 4.61 | 1510 | <10 | 3.14 | 70 | 530 | <20 | <0.1 | <50 | 30 | 160 | <50 | 0.36 |
| G004041 | | 0.1 | <50 | 2.23 | 1050 | <10 | 2.87 | 20 | 420 | <20 | 0.6 | <50 | 10 | 240 | <50 | 0.31 |
| G004042 | | 0.5 | <50 | 1.82 | 920 | <10 | 1.96 | 30 | 340 | <20 | 0.4 | <50 | 10 | 180 | <50 | 0.31 |
| G004043 | | 0.1 | <50 | 2.21 | 1370 | <10 | 2.34 | 20 | 430 | 20 | 0.1 | <50 | 10 | 200 | <50 | 0.26 |
| G004044 | | <0.1 | <50 | 3.08 | 870 | <10 | 1.32 | 20 | 300 | <20 | 1.5 | <50 | 20 | 140 | <50 | 0.21 |
| G004045 | | 0.3 | <50 | 2.19 | 600 | <10 | 2.25 | 20 | 370 | <20 | 1.1 | <50 | 10 | 140 | <50 | 0.15 |
| G004046 | | <0.1 | <50 | 2.98 | 960 | <10 | 2.59 | 10 | 400 | <20 | 1.2 | <50 | 10 | 70 | <50 | 0.14 |
| G004047 | | <0.1 | <50 | 3.35 | 1160 | <10 | 2.26 | 10 | 460 | <20 | 3.5 | <50 | 20 | 70 | <50 | 0.14 |
| G004048 | | <0.1 | <50 | 3.06 | 940 | <10 | 2.82 | 10 | 440 | <20 | 1.3 | <50 | 10 | 70 | <50 | 0.16 |
| G004049 | | 0.1 | <50 | 2.98 | 1040 | <10 | 2.28 | 10 | 400 | <20 | 2.2 | <50 | 20 | 80 | <50 | 0.11 |
| G004050 | | 1.0 | <50 | 1.86 | 650 | <10 | 1.63 | <10 | 360 | <20 | 0.9 | <50 | 10 | 70 | <50 | 0.09 |
| G004051 | | <0.1 | <50 | 11.90 | 210 | <10 | <0.05 | <10 | 180 | <20 | 0.1 | <50 | <10 | 50 | <50 | <0.05 |
| G004052 | | 0.6 | <50 | 1.61 | 850 | <10 | 2.38 | <10 | 370 | <20 | 0.8 | <50 | 10 | 70 | <50 | 0.09 |
| G004053 | | 0.4 | <50 | 3.03 | 1210 | <10 | 2.34 | 30 | 380 | 40 | 1.4 | <50 | 20 | 90 | <50 | 0.18 |
| G004054 | | 0.1 | <50 | 3.70 | 1430 | <10 | 1.58 | 30 | 170 | <20 | 0.1 | <50 | 30 | 150 | <50 | 0.25 |
| G004055 | | 0.1 | <50 | 3.23 | 1220 | <10 | 1.50 | 10 | 260 | 40 | 0.2 | <50 | 20 | 220 | <50 | 0.30 |
| G004056 | | 0.4 | <50 | 2.42 | 770 | <10 | 2.10 | 10 | 400 | 30 | 2.4 | <50 | 10 | 100 | <50 | 0.19 |
| G004057 | | 0.3 | <50 | 2.03 | 620 | <10 | 2.83 | <10 | 400 | <20 | 1.0 | <50 | 10 | 90 | <50 | 0.13 |
| G004151 | | 0.5 | <50 | 1.23 | 470 | <10 | 2.58 | <10 | 340 | <20 | 0.7 | <50 | 10 | 120 | <50 | 0.11 |
| G004152 | | 0.5 | <50 | 0.80 | 220 | <10 | 3.25 | <10 | 270 | <20 | 0.4 | <50 | <10 | 70 | <50 | 0.09 |
| G004153 | | 1.8 | <50 | 1.48 | 1400 | <10 | 1.35 | 10 | 160 | 20 | 0.1 | <50 | 10 | 90 | <50 | 0.13 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 25-JUL-2008**
**Account: F**

Project: MOR-08-05

## CERTIFICATE OF ANALYSIS VA08089720

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004026 | | <50 | <50 | 40 | <50 | 40 |
| G004027 | | <50 | <50 | 50 | <50 | <20 |
| G004028 | | <50 | <50 | 50 | <50 | 50 |
| G004029 | | <50 | <50 | 50 | <50 | 40 |
| G004030 | | <50 | <50 | 200 | <50 | 70 |
| G004031 | | <50 | <50 | 60 | <50 | 40 |
| G004032 | | <50 | <50 | 190 | <50 | 50 |
| G004033 | | <50 | <50 | 90 | <50 | 60 |
| G004034 | | <50 | <50 | 90 | <50 | 40 |
| G004035 | | <50 | <50 | 80 | <50 | 50 |
| G004036 | | <50 | <50 | 90 | <50 | 50 |
| G004037 | | <50 | <50 | 30 | <50 | <20 |
| G004038 | | <50 | <50 | 80 | <50 | 100 |
| G004039 | | <50 | <50 | 90 | <50 | 30 |
| G004040 | | <50 | <50 | 200 | <50 | 40 |
| G004041 | | <50 | <50 | 110 | <50 | 40 |
| G004042 | | <50 | <50 | 90 | <50 | 30 |
| G004043 | | <50 | <50 | 120 | <50 | 60 |
| G004044 | | <50 | <50 | 120 | <50 | 30 |
| G004045 | | <50 | <50 | 70 | <50 | 40 |
| G004046 | | <50 | <50 | 90 | <50 | 60 |
| G004047 | | <50 | <50 | 120 | <50 | 100 |
| G004048 | | <50 | <50 | 120 | <50 | 70 |
| G004049 | | <50 | <50 | 110 | <50 | 90 |
| G004050 | | <50 | <50 | 40 | <50 | 40 |
| G004051 | | <50 | <50 | <10 | <50 | 20 |
| G004052 | | <50 | <50 | 40 | <50 | 60 |
| G004053 | | <50 | <50 | 140 | <50 | 90 |
| G004054 | | <50 | <50 | 250 | <50 | 90 |
| G004055 | | <50 | <50 | 210 | <50 | 90 |
| G004056 | | <50 | <50 | 120 | <50 | 70 |
| G004057 | | <50 | <50 | 70 | <50 | 50 |
| G004151 | | <50 | <50 | 40 | <50 | 30 |
| G004152 | | <50 | <50 | 20 | <50 | <20 |
| G004153 | | <50 | <50 | 20 | <50 | 60 |

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To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 9-JUL-2008**
**Account: F**

## CERTIFICATE VA08085528

Project: MOR-08-05

P.O. No.:

This report is for 1 Rock sample submitted to our lab in Vancouver, BC, Canada on 27-JUN-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP41 | 35 Element Aqua Regia ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
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**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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**Finalized Date: 9-JUL-2008**
**Account: F**

Project: MOR-08-05

# CERTIFICATE OF ANALYSIS VA08085528

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | B | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.02 | 0.005 | 0.2 | 0.01 | 2 | 10 | 10 | 0.5 | 2 | 0.01 | 0.5 | 1 | 1 | 1 | 0.01 |
| C105461 | | 1.84 | 0.016 | 0.2 | 2.56 | 10 | <10 | 350 | <0.5 | 2 | 0.22 | 0.7 | 12 | 8 | 62 | 4.77 |

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**VANCOUVER BC V6B 1L8**


**Finalized Date: 9-JUL-2008**
**Account: F**

Project: MOR-08-05

# CERTIFICATE OF ANALYSIS VA08085528

| Sample Description | Method Analyte Units LOR | ME-ICP41 Ga ppm 10 | ME-ICP41 Hg ppm 1 | ME-ICP41 K % 0.01 | ME-ICP41 La ppm 10 | ME-ICP41 Mg % 0.01 | ME-ICP41 Mn ppm 5 | ME-ICP41 Mo ppm 1 | ME-ICP41 Na % 0.01 | ME-ICP41 Ni ppm 1 | ME-ICP41 P ppm 10 | ME-ICP41 Pb ppm 2 | ME-ICP41 S % 0.01 | ME-ICP41 Sb ppm 2 | ME-ICP41 Sc ppm 1 | ME-ICP41 Sr ppm 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C105461 | | <10 | <1 | 0.25 | <10 | 2.22 | 751 | 1 | 0.02 | 2 | 500 | 22 | 0.95 | 3 | 3 | 8 |

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**Finalized Date: 9-JUL-2008**
**Account: F**

Project: MOR-08-05

# CERTIFICATE OF ANALYSIS VA08085528

| Sample Description | Method | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 | ME-ICP41 |
|---|---|---|---|---|---|---|---|---|
| | Analyte | Th | Ti | Tl | U | V | W | Zn |
| | Units | ppm | % | ppm | ppm | ppm | ppm | ppm |
| | LOR | 20 | 0.01 | 10 | 10 | 1 | 10 | 2 |
| C105461 | | <20 | 0.01 | <10 | <10 | 37 | <10 | 534 |

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**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**


**Finalized Date: 11-JUL-2008**
**Account: F**

## CERTIFICATE VA08085527

Project: MOR-08-05

P.O. No.:

This report is for 3 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 27-JUN-2008.

The following have access to data associated with this certificate:

| | | |
|---|---|---|
| AL ARCHER<br>VANCOUVER OFFICE | DOUG EATON<br>BILL WENGZYNOWSKI | JOAN MARIACHER |

## SAMPLE PREPARATION

| ALS CODE | DESCRIPTION |
|---|---|
| WEI-21 | Received Sample Weight |
| LOG-22 | Sample login - Rcd w/o BarCode |
| CRU-31 | Fine crushing - 70% <2mm |
| SPL-21 | Split sample - riffle splitter |
| PUL-31 | Pulverize split to 85% <75 um |

## ANALYTICAL PROCEDURES

| ALS CODE | DESCRIPTION | INSTRUMENT |
|---|---|---|
| ME-ICP61a | High Grade Four Acid ICP-AES | ICP-AES |
| Au-AA23 | Au 30g FA-AA finish | AAS |

To: **ARCHER, CATHRO AND ASSOCIATES (1981) LIMITED**
**1016-510 W HASTINGS ST**
**VANCOUVER BC V6B 1L8**

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

**Signature:**

Colin Ramshaw, Vancouver Laboratory Manager

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**Finalized Date: 11-JUL-2008**
**Account: F**

Project: MOR-08-05

# CERTIFICATE OF ANALYSIS VA08085527

| Sample Description | Method | WEI-21 | Au-AA23 | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | Recvd Wt. | Au | Ag | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | Ga |
| | Units | kg | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % | ppm |
| | LOR | 0.02 | 0.005 | 1 | 0.05 | 50 | 50 | 10 | 20 | 0.05 | 10 | 10 | 10 | 10 | 0.05 | 50 |
| G004002 | | 1.70 | 0.008 | 2 | 2.07 | <50 | 60 | <10 | <20 | 1.54 | <10 | 70 | 40 | 2490 | 30.1 | <50 |
| G004007 | | 2.16 | 0.006 | 1 | 3.54 | <50 | 110 | <10 | <20 | 3.56 | <10 | 40 | 50 | 1620 | 18.55 | <50 |
| G004008 | | 1.72 | <0.005 | <1 | 0.09 | <50 | <50 | <10 | <20 | 21.7 | <10 | <10 | <10 | <10 | 0.50 | <50 |

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# CERTIFICATE OF ANALYSIS VA08085527

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Analyte | K | La | Mg | Mn | Mo | Na | Ni | P | Pb | S | Sb | Sc | Sr | Th | Ti |
| | Units | % | ppm | % | ppm | ppm | % | ppm | ppm | ppm | % | ppm | ppm | ppm | ppm | % |
| | LOR | 0.1 | 50 | 0.05 | 10 | 10 | 0.05 | 10 | 50 | 20 | 0.1 | 50 | 10 | 10 | 50 | 0.05 |
| G004002 | | <0.1 | <50 | 1.35 | 890 | <10 | 0.27 | 10 | 450 | <20 | 13.0 | <50 | <10 | 20 | <50 | 0.11 |
| G004007 | | 0.1 | <50 | 1.39 | 1110 | <10 | 0.70 | <10 | 310 | <20 | 3.7 | <50 | 10 | 110 | <50 | 0.18 |
| G004008 | | <0.1 | <50 | 12.20 | 180 | <10 | <0.05 | <10 | 200 | <20 | <0.1 | <50 | <10 | 50 | <50 | <0.05 |

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Project: MOR-08-05

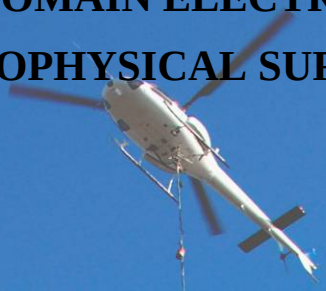
## CERTIFICATE OF ANALYSIS VA08085527

| Sample Description | Method | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a | ME-ICP61a |
|---|---|---|---|---|---|---|
| | Analyte | Tl | U | V | W | Zn |
| | Units | ppm | ppm | ppm | ppm | ppm |
| | LOR | 50 | 50 | 10 | 50 | 20 |
| G004002 | | <50 | <50 | 30 | <50 | 20 |
| G004007 | | <50 | <50 | 50 | <50 | <20 |
| G004008 | | <50 | <50 | <10 | <50 | <20 |

**APPENDIX III**

**GEOPHYSICAL REPORTS BY GEOTECH LTD.**
**AND CONDOR CONSULTING INC.**

# REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM) GEOPHYSICAL SURVEY



**MOR Project**

**Yukon, Canada**

**For:**

**ARCHER CATHRO & ASSOCIATES LTD.**

**By**


**Geotech Ltd.**

**245 Industrial Parkway North**

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**Survey flown during July, 2008**

**Project 8077**

**January 2009**

## TABLE OF CONTENTS

**Executive Summary** ..... **3**
**1. INTRODUCTION** ..... **4**
1.1 General Considerations ..... 4
1.2 Survey Location and Specifications ..... 5
1.3 Topographic Relief and Cultural Features ..... 5
**2. DATA ACQUISITION** ..... **7**
2.1 Survey Area ..... 7
2.2 Survey Operations ..... 7
2.3 Flight Specifications ..... 8
2.4 Aircraft and Equipment ..... 8
2.4.1 Survey Aircraft ..... 8
2.4.2 Electromagnetic System ..... 8
2.4.3 Airborne magnetometer ..... 12
2.4.4 Radar Altimeter ..... 12
2.4.5 GPS Navigation System ..... 12
2.4.6 Digital Acquisition System ..... 12
2.4.7 Base Station ..... 13
**3. PERSONNEL** ..... **14**
**4. DATA PROCESSING AND PRESENTATION** ..... **15**
4.1 Flight Path ..... 15
4.2 Electromagnetic Data ..... 15
4.3 Magnetic Data ..... 16
**5. DELIVERABLES** ..... **17**
5.1 Survey Report ..... 17
5.2 Maps ..... 17
5.3 Digital Data ..... 17
**6. CONCLUSIONS AND RECOMMENDATIONS** ..... **21**
6.1 Conclusions ..... 21
6.2 Recommendations ..... 21

### LIST OF FIGURES

Figure 1 - Property Location ..... 4
Figure 2 - Google Earth Image with Flight Paths ..... 6
Figure 3 - VTEM Configuration ..... 9
Figure 4 - VTEM Waveform & Sample Times ..... 9
Figure 5 - VTEM system configuration ..... 11

### LIST OF TABLES

Table 1 - Survey blocks ..... 7
Table 2 - Survey schedule ..... 7
Table 3 – Decay Sampling Scheme ..... 10
Table 4 – Acquisition Sampling Rates ..... 12
Table 5 – Geosoft GDB Data Format. ..... 18

### APPENDICES

A. Survey location maps ..... 22
B. Survey Block Coordinates ..... 26
C. VTEM Waveform ..... 27
D. Geophysical Maps ..... 28
E. Modelling VTEM Data ..... 33

# REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC SURVEY

MOR Project
Yukon, Canada

## Executive Summary

During July 28th to July 30th, 2008 Geotech Ltd. carried out a helicopter-borne geophysical survey for Archer Cathro & Associates Ltd. over one (1) block of the MOR Project situated near Teslin, Yukon, Canada.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM) system, and a caesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 208 line-kilometres were flown.

The survey operations were based out of Teslin, Yukon. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as electromagnetic stacked profiles, and as a colour grid of the B-field EM late time channels and total magnetic intensity.

Digital data includes all electromagnetic and magnetic products, plus ancillary data including the waveform.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set. No formal interpretation is included.

# 1. INTRODUCTION

## 1.1 General Considerations

These services are the result of the Agreement made between Geotech Ltd. and Archer Cathro & Associates Ltd. to perform a helicopter-borne geophysical survey one (1) block on the MOR property located near Teslin, Yukon, Canada (Figure 1).

Matthew Dumala and Bill Wengzynowski acted on behalf of Archer Cathro & Associates Ltd. during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM) system and aeromagnetics using a caesium magnetometer. A total of 208 line-km of geophysical data were acquired during the survey.

At the client's request, these data have been merged with data previously flown on MOR Project[1]. The survey parameters and details covering these flights are described in their reports separately. The survey area showing the combined blocks is shown in Figure 2.

The crew was based out of Teslin, Yukon during the acquisition phases of the survey. Survey flying started on July 28th and was completed on July 30th 2008.

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final data processing followed immediately after the end of the survey. Final reporting, data presentation and archiving were completed from the Aurora office of Geotech Ltd. in January, 2009.




**Figure 1** - Property Location

[1] 7067: Flown July 26th and September 18th, 2007, lines 4800 to 5370, 284 line-kilometres.

## 1.2 Survey Location and Specifications

The MOR block (60° 3'29.14"N, 132° 6'49.22"W) is located approximately 36 kilometres east of Teslin, Yukon, the base of operations for the surveys.

The survey block was flown in a N 26° E direction with a traverse line spacing of 100 metres, as depicted in Figure 2. Tie lines were flown perpendicular to the traverse lines with 1000 metre spacings in the direction of N 116° E. For more detailed information on the flight spacing and direction see Table 1.

## 1.3 Topographic Relief and Cultural Features

Topographically, the property exhibits moderate relief, with elevations ranging from 792 to 1442 metres above sea level (see Figure 2). There are a number of small rivers, streams, lakes and wetlands located throughout the block. The block is accessible by a road located to the south. Cultural features such as buildings are also present south of the block. The survey block is covered by NTS (National Topographic Survey) of Canada sheets 105C01, 104N16.

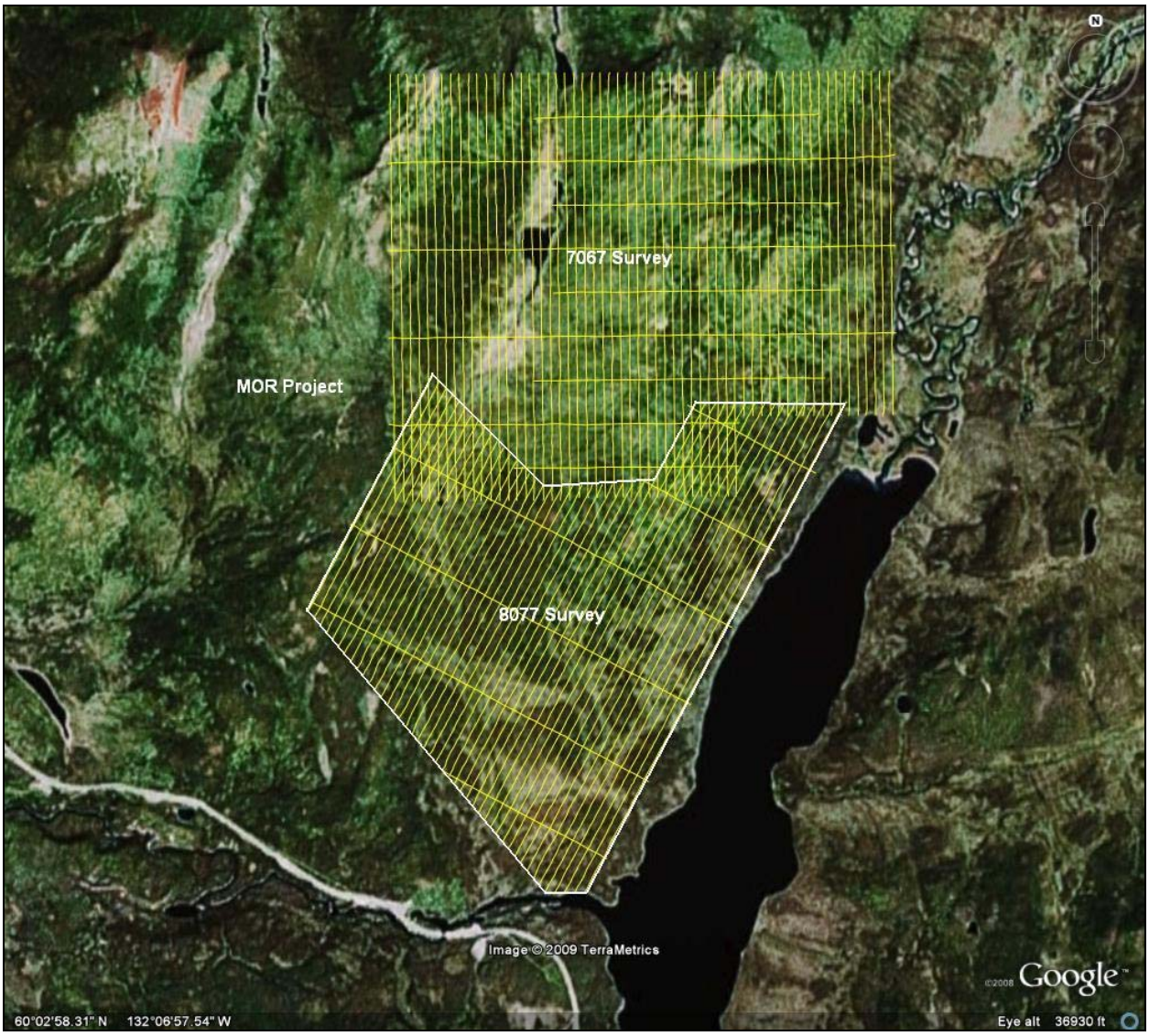



**Figure 2 -** Google Earth Image with Flight Paths

# 2. DATA ACQUISITION

## 2.1 Survey Area

The survey block (see Location map, Figure 2) and general flight specifications are as follows:

**Table 1** - Survey blocks

| Survey block | Line spacing (m) | Area ($km^2$) | Planned Line-km | Actual Line-$km^2$ | Flight direction | Line number |
|---|---|---|---|---|---|---|
| MOR | Traverse: 100 | 18 | 186 | 189 | N 26°E | L13000 – L13430 |
| | Tie: 1000 | | 22 | 19 | N 116°E | T13490 – T13540 |
| **TOTAL** | | 18 | 208 | 208 | | |

Survey block boundary co-ordinates are provided in Appendix B.

## 2.2 Survey Operations

Survey operations were based out of Teslin, Yukon from July 28th to July 30th, 2008. The following table shows the timing of the flying.

**Table 2** - Survey schedule

| Date | Flight # | Flown $km^3$ | Block | Crew location | Comments |
|---|---|---|---|---|---|
| 28-July-08 | 64 | 72 | MOR | Teslin, Yukon | Production aborted – low ceiling and high winds. |
| 29-July-08 | | | | Teslin, Yukon | No production – low ceiling. |
| 30-July-08 | 65 - 68 | 292 | MOR and CAR | Teslin, Yukon | Production |

[2]Note: Actual line-km represents the total line-km contained in the final databases. These line-km normally exceed the Planned line-km, as outlined in the contract-proposal and defined in the survey NAV files.

[3] Note: Flown line kilometers include line-km flown the same day for other blocks not included in this study.

## 2.3 Flight Specifications

The helicopter was maintained at a mean height of 81 metres above the ground where possible (due to rugged terrain) with a nominal survey speed of 80 km/hour. This allowed for a nominal EM sensor terrain clearance of 46 metres and a magnetic sensor clearance of 68 metres. The data recording rates of the data acquisition was 0.1 second for electromagnetics, magnetometer and 0.2 second for altimeter and GPS. This translates to a geophysical reading about every 2 metres along flight track. Navigation was assisted by a CDGPS receiver and data acquisition system, which reports GPS co-ordinates as latitude/longitude and directs the pilot over a pre-programmed survey grid.

The operator was responsible for monitoring of the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by qualified personnel, operating remotely.

## 2.4 Aircraft and Equipment

### 2.4.1 Survey Aircraft

This survey was flown using a Eurocopter Aerospatiale (Astar) 350 B3 helicopter, registration (C-GTRK). The helicopter was operated by TRK Helicopters Ltd. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd.

### 2.4.2 Electromagnetic System

The electromagnetic system was a Geotech Time Domain EM (VTEM) system. The configuration is as indicated in Figure 3 below.

Receiver and transmitter coils are concentric and Z-direction oriented. The coils were towed at a mean distance of 35 metres below the aircraft as shown in Figures 3 and 5. The receiver decay recording scheme is shown diagrammatically in Figure 4.

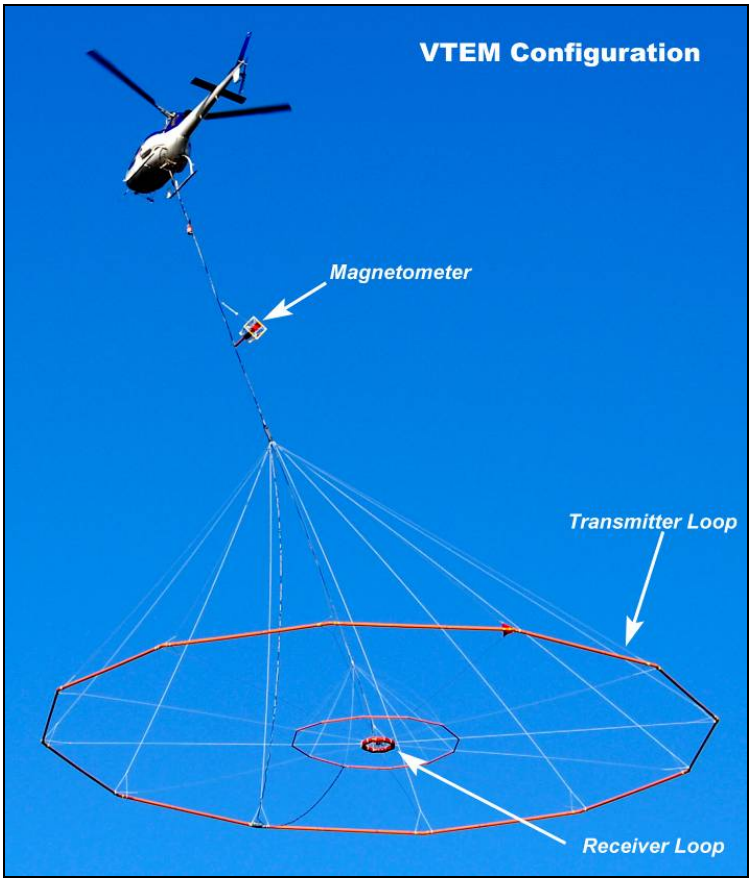



**Figure 3** - VTEM Configuration

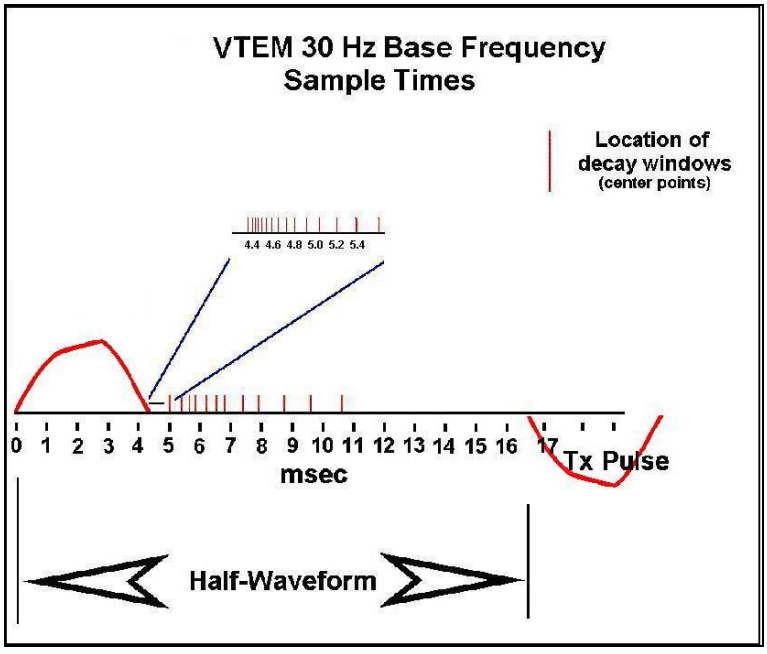



**Figure 4 –** VTEM Short Pulse Waveform & Sample Times

The VTEM decay sampling scheme is shown in Table 3 below. Twenty six measurement gates (ch 10-35) were used for the final data processing in the range from 120 to 9245 μ sec, as shown in Table 5.

**Table 3** – Decay Sampling Scheme

| VTEM Decay Sampling scheme[4] | | | | |
|---|---|---|---|---|
| Array Index | ( Microseconds ) | | | |
| | Time Gate | Start | End | Width |
| 0 | 0 | | | |
| 1 | 10 | 10 | 21 | 11 |
| 2 | 21 | 16 | 26 | 11 |
| 3 | 31 | 26 | 37 | 11 |
| 4 | 42 | 37 | 47 | 11 |
| 5 | 52 | 47 | 57 | 10 |
| 6 | 62 | 57 | 68 | 11 |
| 7 | 73 | 68 | 78 | 11 |
| 8 | 83 | 78 | 91 | 13 |
| 9 | 99 | 91 | 110 | 19 |
| 10 | 120 | 110 | 131 | 21 |
| 11 | 141 | 131 | 154 | 24 |
| 12 | 167 | 154 | 183 | 29 |
| 13 | 198 | 183 | 216 | 34 |
| 14 | 234 | 216 | 258 | 42 |
| 15 | 281 | 258 | 310 | 53 |
| 16 | 339 | 310 | 373 | 63 |
| 17 | 406 | 373 | 445 | 73 |
| 18 | 484 | 445 | 529 | 84 |
| 19 | 573 | 529 | 628 | 99 |
| 20 | 682 | 628 | 750 | 123 |
| 21 | 818 | 750 | 896 | 146 |
| 22 | 974 | 896 | 1063 | 167 |
| 23 | 1151 | 1063 | 1261 | 198 |
| 24 | 1370 | 1261 | 1506 | 245 |
| 25 | 1641 | 1506 | 1797 | 292 |
| 26 | 1953 | 1797 | 2130 | 333 |
| 27 | 2307 | 2130 | 2526 | 396 |
| 28 | 2745 | 2526 | 3016 | 490 |
| 29 | 3286 | 3016 | 3599 | 583 |
| 30 | 3911 | 3599 | 4266 | 667 |
| 31 | 4620 | 4266 | 5058 | 792 |
| 32 | 5495 | 5058 | 6037 | 979 |
| 33 | 6578 | 6037 | 7203 | 1167 |
| 34 | 7828 | 7203 | 8537 | 1334 |
| 35 | 9245 | 8537 | 10120 | 1584 |

[4] Note: Measurement time-delays are referenced to time-zero marking the end of the transmitter current turn-off, as illustrated in Figure 6 and Appendix C.

VTEM system parameters[5]:

Transmitter Section
- Transmitter coil diameter: 26 m
- Number of turns: 4
- Transmitter base frequency: 30 Hz
- Peak current: 262 A
- Pulse width: 4.2 ms
- Pulse width: Duty cycle: 25%
- Peak dipole moment: 556,400 nIA
- Nominal terrain clearance: 81 m

Receiver Section
- Receiver coil diameter: 1.2 m
- Number of turns: 100.
- Effective coil area: 113.04 $m^2$
- Wave form shape: trapezoid
- Power Line Monitor: 60 Hz

Magnetometer
- Nominal terrain clearance: 68 m

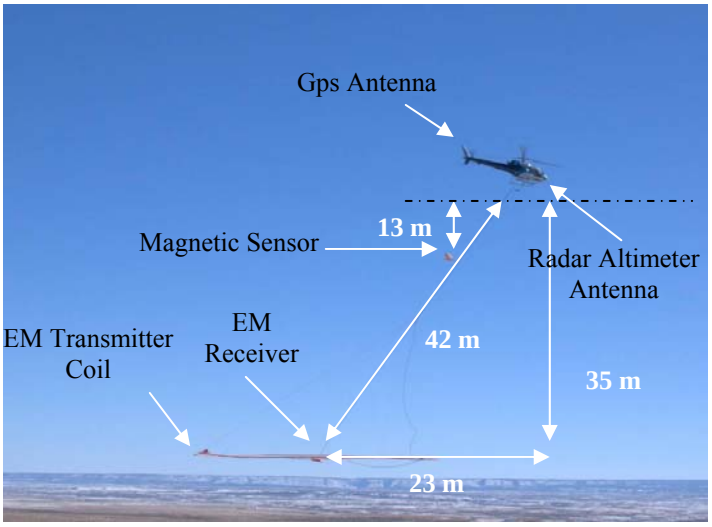



**Figure 5** - VTEM system configuration

[5] Note: Lines 4800 to 5370 were flown in a previous survey (7067) and have been merged with the current survey data. They were surveyed with a pulse width of 7.2 ms resulting in a duty cycle of 43% and a peak dipole moment of 427, 400 nIA (Ref., project 7067. Report on a Helicopter –Borne Versatile Time Domain Electromagnetic (VTEM) Geophysical Survey, MOR Property, Yukon, Canada for Tarsis Capital Corp.; Geotech Ltd., January, 2008).

### 2.4.3 Airborne magnetometer

The magnetic sensor utilized for the survey was a Geometrics optically pumped caesium vapour magnetic field sensor, mounted in a separate bird, 13 metres below the helicopter, as shown in Figure 5. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds. The magnetometer sends the measured magnetic field strength as nanoTesla to the data acquisition system via the RS-232 port.

### 2.4.4 Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit (Figure 5).

### 2.4.5 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel CDGPS (Canada-Wide Differential Global Positioning System Correction Service) enabled OEM4-G2-3151W GPS receiver. Geotech's Navigate software uses a full screen display with controls in front of the pilot that then allows him to direct the flight. A NovAtel GPS antenna is mounted on the helicopter tail (Figure 5). As many as 11 GPS and two CDGPS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with CDGPS active, it is 1.0 m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

### 2.4.6 Digital Acquisition System

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The data type and sampling interval as provided in Table 4.

**Table 4** – Acquisition Sampling Rates

| DATA TYPE | SAMPLING |
|---|---|
| TDEM | 0.1 sec |
| Magnetometer | 0.1 sec |
| GPS Position | 0.2 sec |
| Radar Altimeter | 0.2 sec |

### 2.4.7 Base Station

A combined magnetometer/GPS base station was utilized on this project. A Geometrics Caesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer.

The base station magnetometer sensor was installed 50 metres south of the apron at the airport in Teslin, Yukon (60°10'25.5"N, 132°43'68.5"W), away from electric transmission lines and moving ferrous objects such as motor vehicles. The base station data were backed-up to the data processing computer at the end of each survey day.

# 3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field:

| | |
|---|---|
| Project Manager: | Les Moschuk (office) |
| Data QC/QA: | Nick Venter (office) |
| Crew Chief: | Ryan MacIver |
| System Operator: | Jason McKinnon |

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – TRK Helicopters Ltd.

| | |
|---|---|
| Pilot: | Randy Marks |
| Mechanical Engineer: | Chris Ward |

Office:

| | |
|---|---|
| Preliminary Data Processing: | Nick Venter |
| Final Data Processing: | Neil Fiset |
| Mapping/Reporting: | Kyle Orlowski |

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Surveys Manager. Processing phase was carried out under the supervision of Jean Legault, P. Geo, Manager of Processing and Interpretation. The overall contract management and customer relations were by Paolo Berardelli.

# 4. DATA PROCESSING AND PRESENTATION

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

## 4.1 Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the NAD83 Datum, UTM Zone 8 North coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM easting's (x) and UTM northing's (y).

## 4.2 Electromagnetic Data

A three stage digital filtering process was used to reject major sferic events and to reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. The filter used was a 16 point non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 15 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for both B-field and dB/dt response. B-field time channel recorded at 1.641 milliseconds after the termination of the impulse is also presented as contour colour image. A de-corrugation and micro levelling was applied to the B-field 1.641 millisecond grid to reduce the effects, due to varying radar clearance resulting from roughed terrain.

Graphical representations of the VTEM transmitter current waveform output voltage of the receiver coil are shown in Appendix C.

Generalized modeling results of VTEM data, written by consultant Roger Barlow and Nasreddine Bournas, P. Geo., are shown in Appendix E.

## 4.3 Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along traverse lines. A micro-levelling procedure was applied to remove persistent low-amplitude components of flight-line noise remaining in the data.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 0.2 cm at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

# 5. DELIVERABLES

## 5.1 Survey Report

The survey report describes the data acquisition, processing, and final presentation of the survey results.

The survey report is provided in two paper copies and digitally in PDF format.

## 5.2 Maps

Final maps were produced at scale of 1:10,000. The coordinate/projection system used was NAD 83, UTM Zone 8 North. All maps show the flight path trace and topographic data; latitude and longitude are also noted on maps.

The preliminary and final results of the survey are presented as EM profiles, a late-time gate gridded EM channel, and color magnetic TMI contour maps. The following maps are presented on paper;

- VTEM B-field profiles, Time Gates 0.234 – 9.245 ms in linear - logarithmic scale over total magnetic intensity colour grid and.
- VTEM dB/dt profiles, Time Gates 0.234 – 9.245 ms in linear – logarithmic scale.
- VTEM B-field late time, Time Gate 1.641 ms colour image.
- Total magnetic intensity (TMI) colour image and contours.

.

## 5.3 Digital Data

- Two copies of the data and maps on DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj format as well as the maps in Geosoft Montaj Map and PDF format.

- DVD structure.

  There are two (2) main directories;

  **Data** contains databases, grids and maps, as described below.
  **Report** contains a copy of the report and appendices in PDF format.

  Databases in Geosoft GDB format, containing the channels listed in Table 5.

**Table 5** – Geosoft GDB Data Format.

| Channel Name | Description |
|---|---|
| X: | X positional data (metres – NAD83, UTM zone 8 north) |
| Y: | Y positional data (metres – NAD83, UTM zone 8 north) |
| Z: | GPS antenna elevation (metres - ASL) |
| Lon: | Longitude data (degree – NAD83) |
| Lat: | Latitude data (degree – NAD83) |
| Date: | Flight Date (DD/MM/YYYY) |
| FltNo | Flight Number |
| Radar: | Helicopter terrain clearance from radar altimeter (metres - AGL) |
| RadarB: | EM Bird terrain clearance from radar altimeter (metres - AGL) |
| DEM: | Digital elevation model (metres) |
| Gtime: | GPS time (seconds of the day) |
| Mag1: | Raw Total Magnetic field data (nT) |
| Basemag: | Magnetic diurnal variation data (nT) |
| Mag2 | Total Magnetic field diurnal variation corrected data (nT) |
| Mag3 | Total Magnetic field final microlevelled data (nT) |
| SF[10]: | dB/dt 120 microsecond time channel pV/(A*m$^4$) |
| SF[11]: | dB/dt 141 microsecond time channel pV/(A*m$^4$) |
| SF[12]: | dB/dt 167 microsecond time channel pV/(A*m$^4$) |
| SF[13]: | dB/dt 198 microsecond time channel pV/(A*m$^4$) |
| SF[14]: | dB/dt 234 microsecond time channel pV/(A*m$^4$) |
| SF[15]: | dB/dt 281 microsecond time channel pV/(A*m$^4$) |
| SF[16]: | dB/dt 339 microsecond time channel pV/(A*m$^4$) |
| SF[17]: | dB/dt 406 microsecond time channel pV/(A*m$^4$) |
| SF[18]: | dB/dt 484 microsecond time channel pV/(A*m$^4$) |
| SF[19]: | dB/dt 573 microsecond time channel pV/(A*m$^4$) |
| SF[20]: | dB/dt 682 microsecond time channel pV/(A*m$^4$) |
| SF[21]: | dB/dt 818 microsecond time channel pV/(A*m$^4$) |
| SF[22]: | dB/dt 974 microsecond time channel pV/(A*m$^4$) |
| SF[23]: | dB/dt 1151 microsecond time channel pV/(A*m$^4$) |
| SF[24]: | dB/dt 1370 microsecond time channel pV/(A*m$^4$) |
| SF[25]: | dB/dt 1641 microsecond time channel pV/(A*m$^4$) |
| SF[26]: | dB/dt 1953 microsecond time channel pV/(A*m$^4$) |
| SF[27]: | dB/dt 2307 microsecond time channel pV/(A*m$^4$) |
| SF[28]: | dB/dt 2745 microsecond time channel pV/(A*m$^4$) |
| SF[29]: | dB/dt 3286 microsecond time channel pV/(A*m$^4$) |
| SF[30]: | dB/dt 3911 microsecond time channel pV/(A*m$^4$) |
| SF[31]: | dB/dt 4620 microsecond time channel pV/(A*m$^4$) |

| Channel Name | Description |
|---|---|
| SF[32]: | dB/dt 5495 microsecond time channel pV/(A*m$^4$) |
| SF[33]: | dB/dt 6578 microsecond time channel pV/(A*m$^4$) |
| SF[34]: | dB/dt 7828 microsecond time channel pV/(A*m$^4$) |
| SF[35]: | dB/dt 9245 microsecond time channel pV/(A*m$^4$) |
| BF[10]: | B-field 120 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[11]: | B-field 141 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[12]: | B-field 167 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[13]: | B-field 198 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[14]: | B-field 234 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[15]: | B-field 281 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[16]: | B-field 339 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[17]: | B-field 406 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[18]: | B-field 484 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[19]: | B-field 573 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[20]: | B-field 682 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[21]: | B-field 818 microsecond time channel (pV*ms)/(A*m$^4$) |
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| BF[31]: | B-field 4620 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[32]: | B-field 5495 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[33]: | B-field 6578 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[34]: | B-field 7828 microsecond time channel (pV*ms)/(A*m$^4$) |
| BF[35]: | B-field 9245 microsecond time channel (pV*ms)/(A*m$^4$) |
| PLM: | Power Line monitor (60Hz) |

Electromagnetic B-field and dB/dt data is found in array channel format between indexes 10 – 35, as described above.

- Database of the VTEM Waveform "VTEM_waveform.gdb" in Geosoft GDB format, containing the following channels:

  Time: Sampling rate interval, 10.416 microseconds
  Rx_Volt: Output voltage of the receiver coil (Volt)
  Tx_Curr: Output current of the transmitter (Amp)

- Grids in Geosoft GRD format, as follows:

  BF25_MOR: B-Field Channel 25 (Time Gate 1.641 ms)
  Mag3_MOR: Total magnetic intensity (nT)

  A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 25 metres was used.

- Maps at 1:10,000 in Geosoft MAP format, as follows:

  8077_Bfield_MOR_**: B-field profiles, Time Gates 0.234 – 9.245 ms in linear logarithmic scale over TMI.
  8077_dBdt_MOR_**: dB/dt profiles, Time Gates 0.234 – 9.245 ms in linear logarithmic scale.
  8077_BF25_MOR_**: B-field Time Gate 1.641 ms colour image.
  8077_TMI_MOR_**: Total magnetic intensity colour image and contours.

  Note: ** represent map name i.e. (8077_TMI_MOR_South)

  Maps are also presented in PDF and MapInfo format.

  1:50,000 topographic vectors were taken from the NRCAN Geogratis database at; http://geogratis.gc.ca/geogratis/en/index.html.

- Google Earth files *8077_MOR_fltpath.kml* showing the flight path of each block. Free versions of Google Earth software from: http://earth.google.com/download-earth.html

# 6. CONCLUSIONS AND RECOMMENDATIONS

## 6.1 Conclusions

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the MOR Project in the Yukon Territory, Canada.

The total area coverage is 18 km$^2$. Total survey line coverage is 208 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as stacked profiles and contour colour images at a scale of 1:10,000. No formal interpretation is included in this report.

## 6.2 Recommendations

Based on the geophysical results obtained, a number of interesting EM and magnetic anomaly groupings were identified across the property. We therefore recommend a more detailed interpretation of the EM and magnetic data, in conjunction with the known geology. It should include EM anomaly picking and magnetic derivative processing, as well as 3D inversion and modelling techniques to further characterize the observed anomalies and to more accurately determine their parameters (depth, conductance, dip, etc.) prior to ground follow up and drill testing.

Respectfully submitted[6],


Kyle Orlowski
**Geotech Ltd.**

Jean Legault, P. Geo, P. Eng
**Geotech Ltd.**

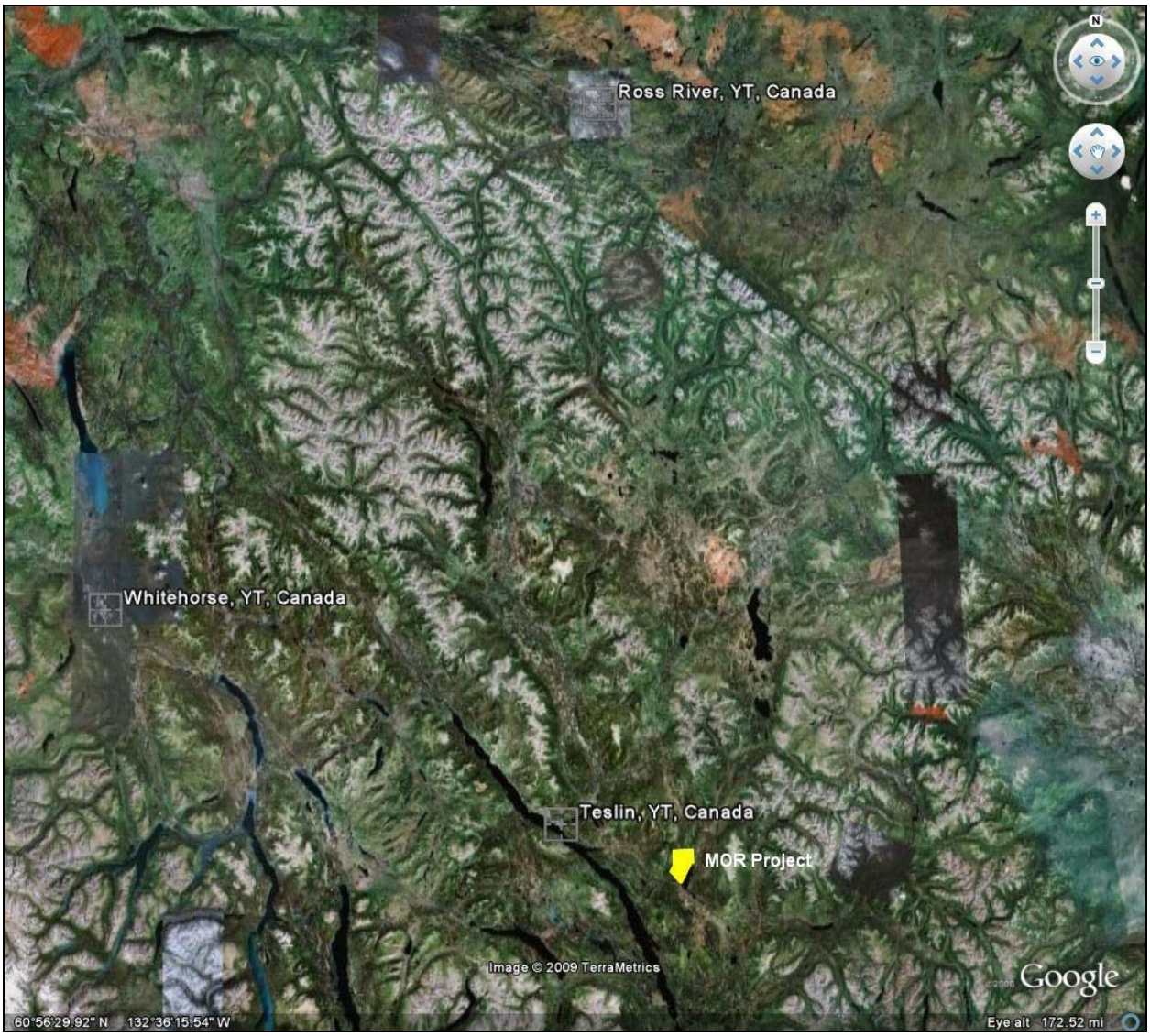
Neil Fiset
**Geotech Ltd.**


January 2009

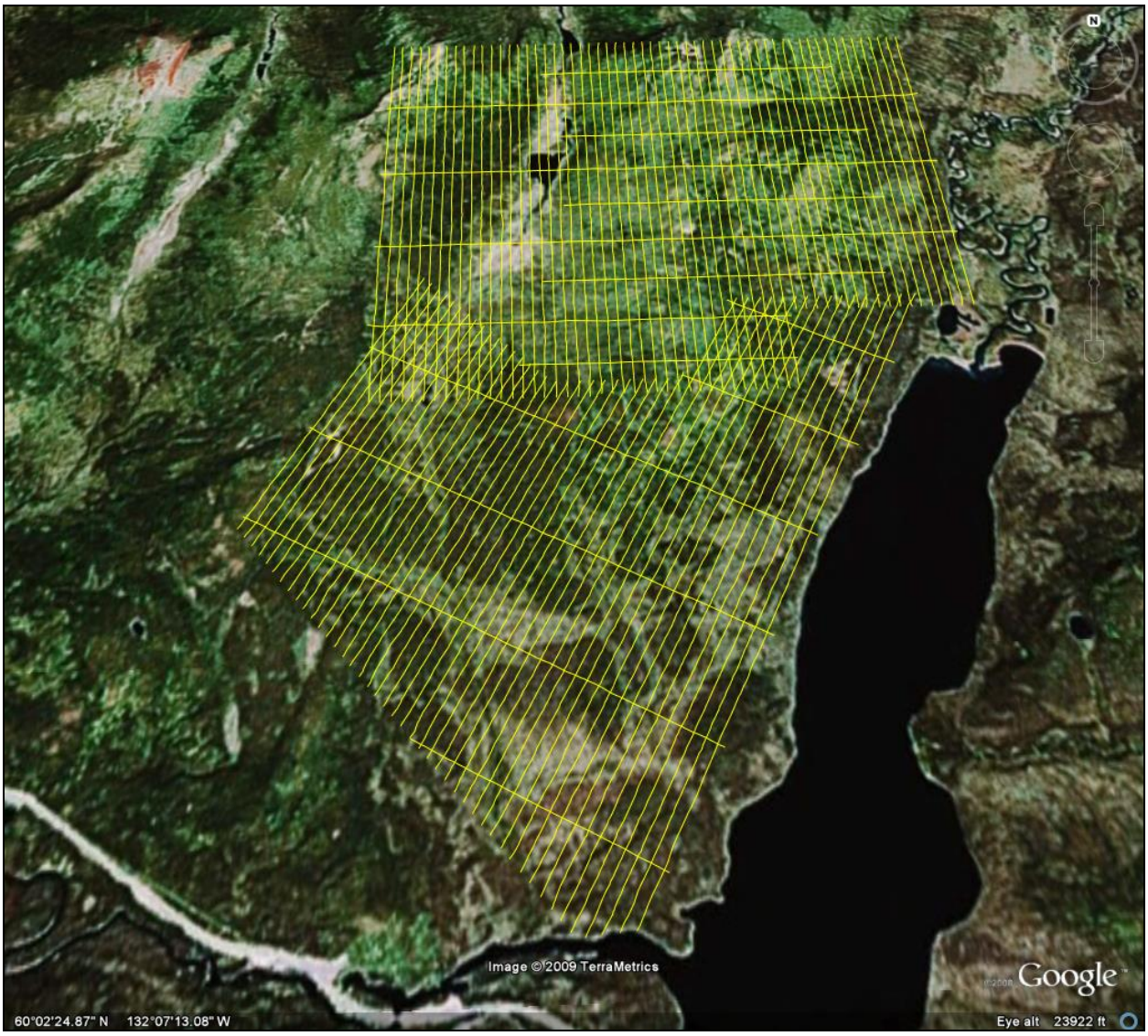
[6]Final data processing and interpretation of the EM and magnetic data were carried out by Neil Fiset, from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Jean Legault, P. Geo, Manager of Data Processing and Interpretation.

# APPENDIX A

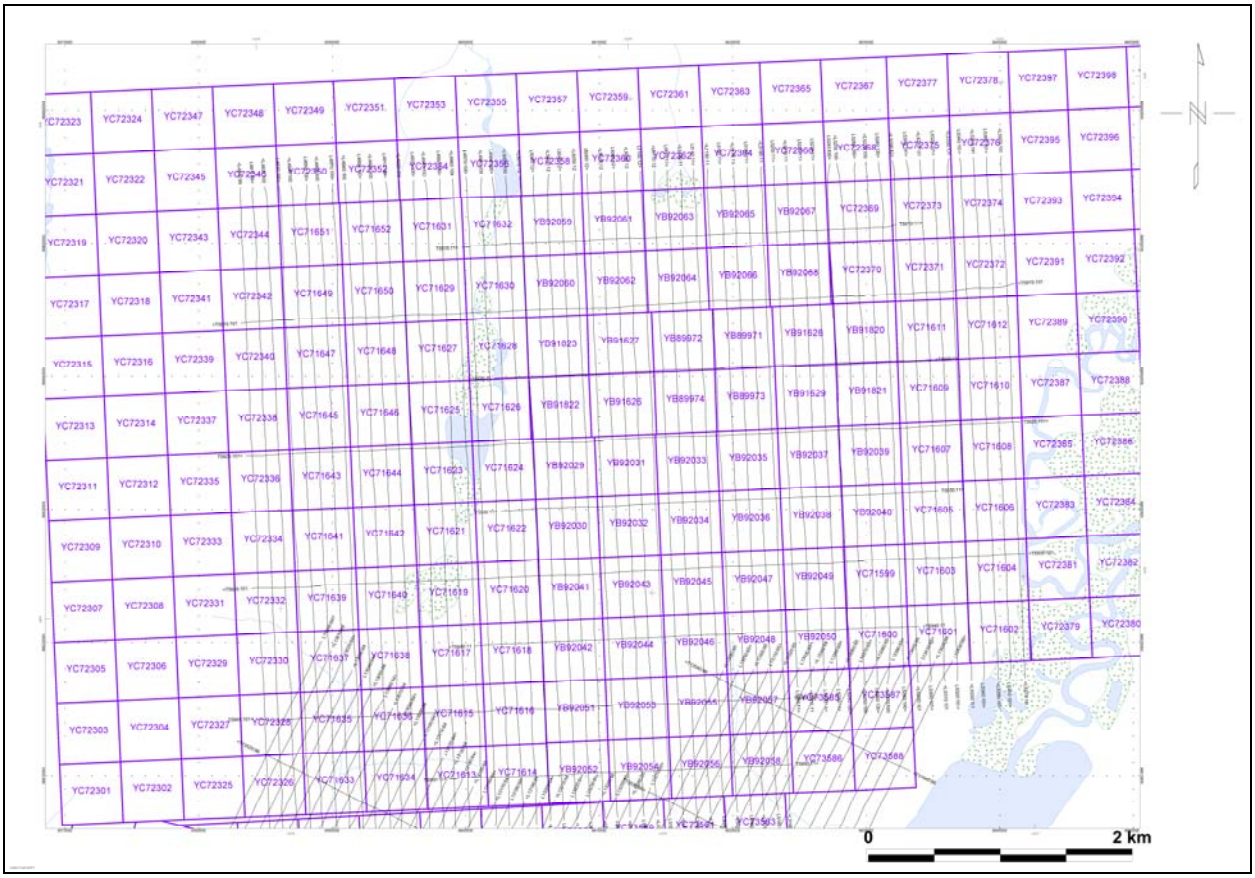
# SURVEY BLOCK LOCATION MAPS



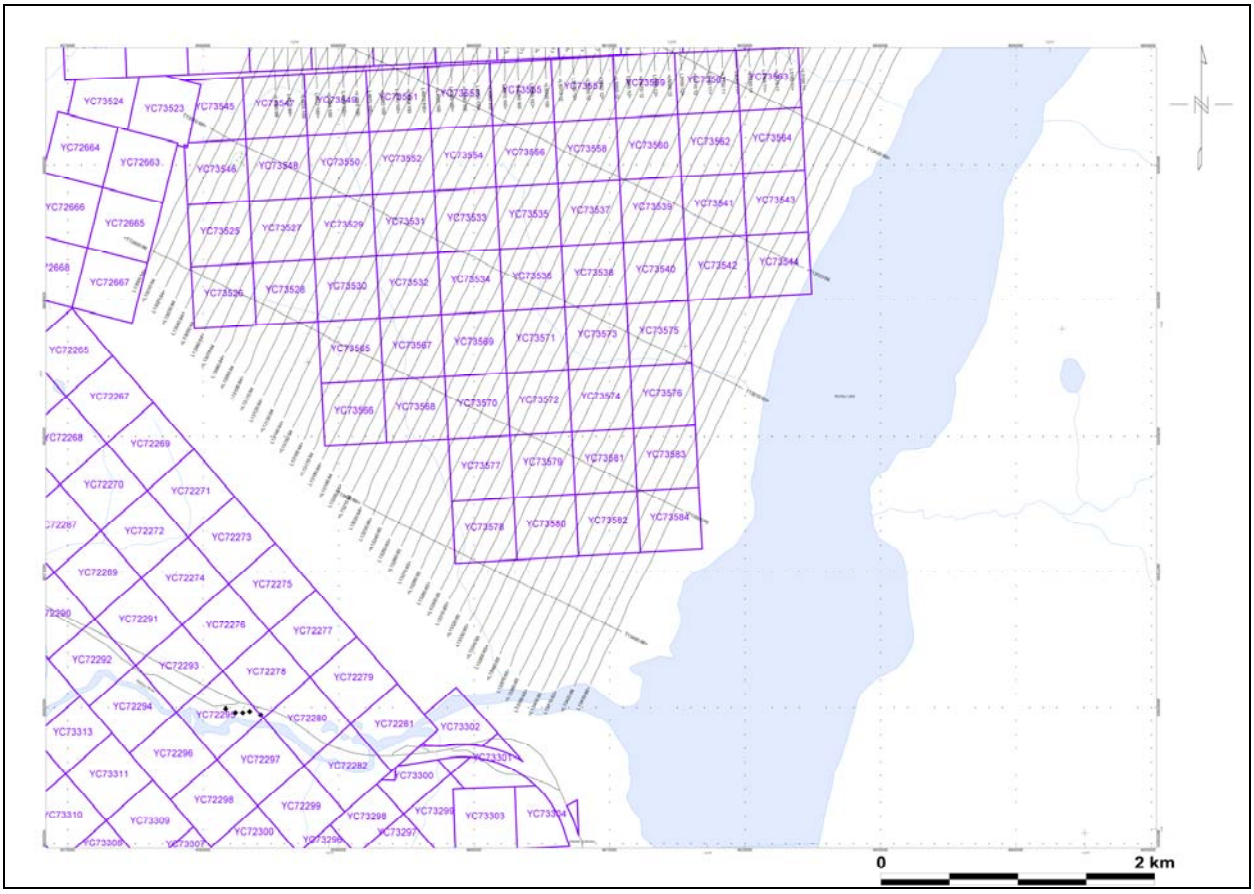

**Google Earth Image: MOR Project**




**Google Earth Image: MOR Block**




**Mining Claims Map: MOR Project - North**




**Mining Claims Map: MOR Project - South**

# APPENDIX B

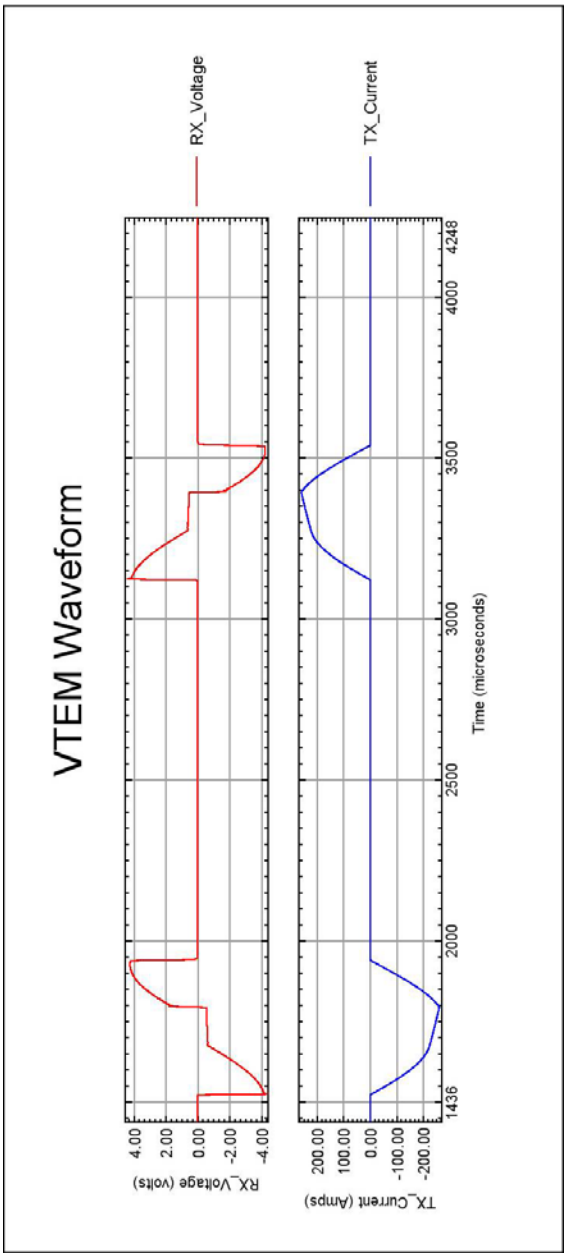
## SURVEY BLOCK COORDINATES

(NAD83, UTM Zone 8 North)

| MOR | |
|---|---|
| X | Y |
| 657589.6 | 6659279 |
| 658903.2 | 6661994 |
| 660180.3 | 6660768 |
| 661362.6 | 6660819 |
| 661858.8 | 6661760 |
| 663705.2 | 6661840 |
| 660887.1 | 6656206 |
| 660443.1 | 6656148 |

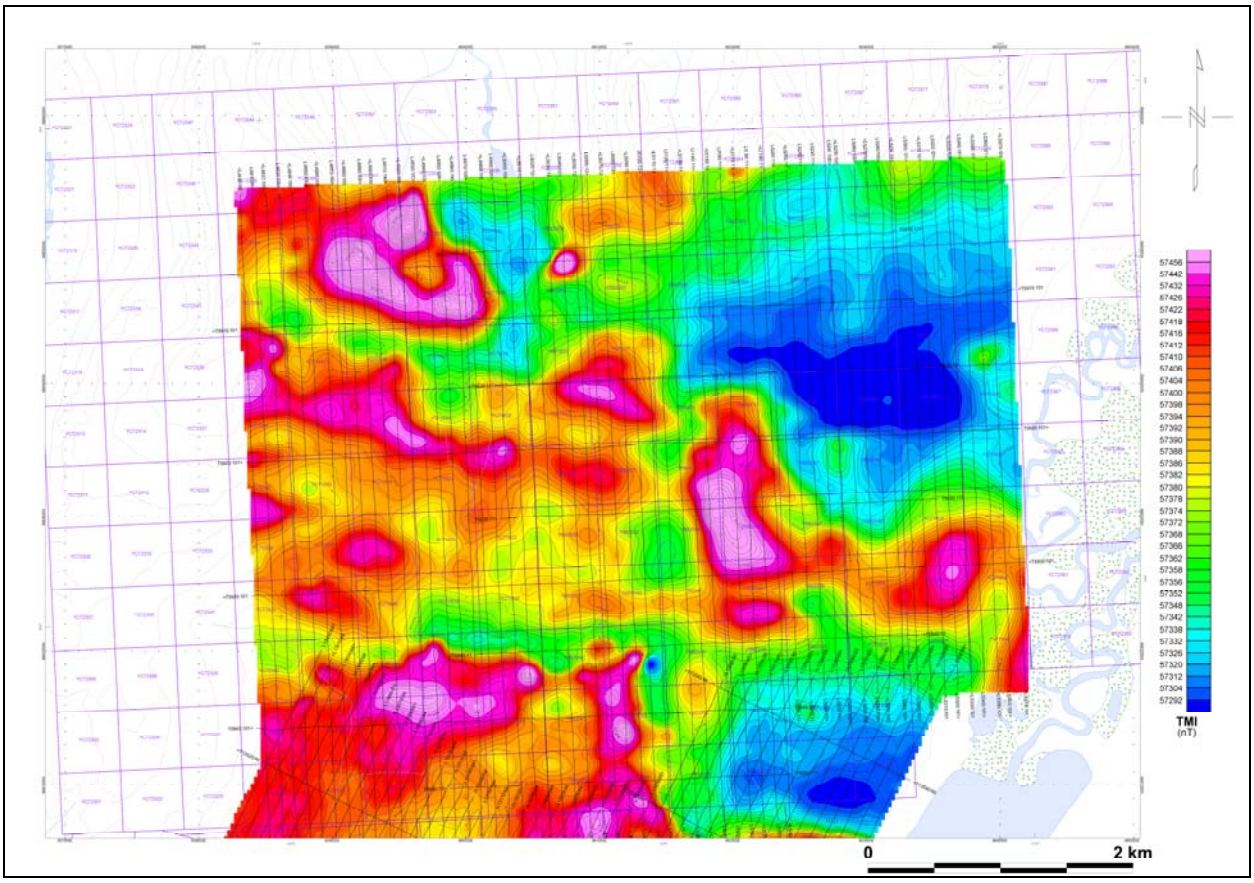
# APPENDIX C

## VTEM WAVEFORM



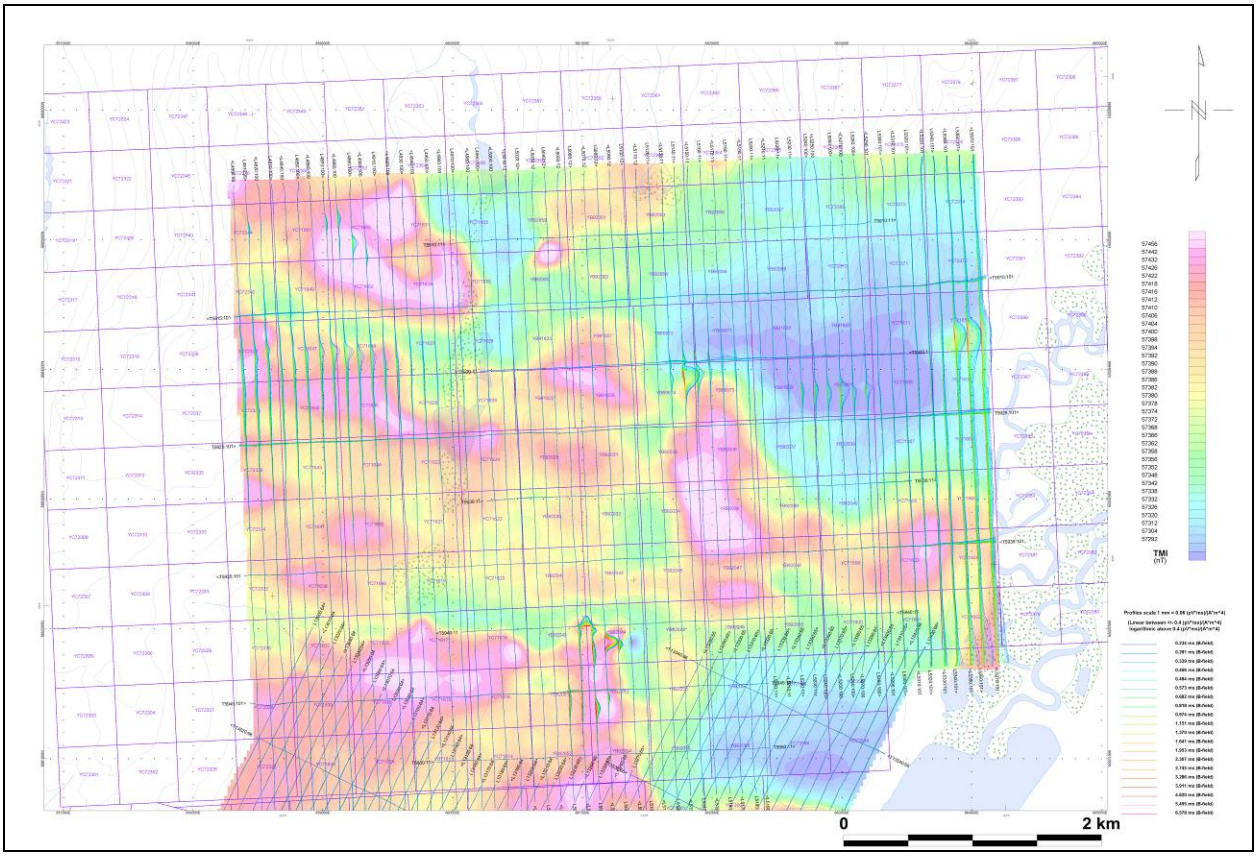
## APPENDIX D

## GEOPHYSICAL MAPS[1]

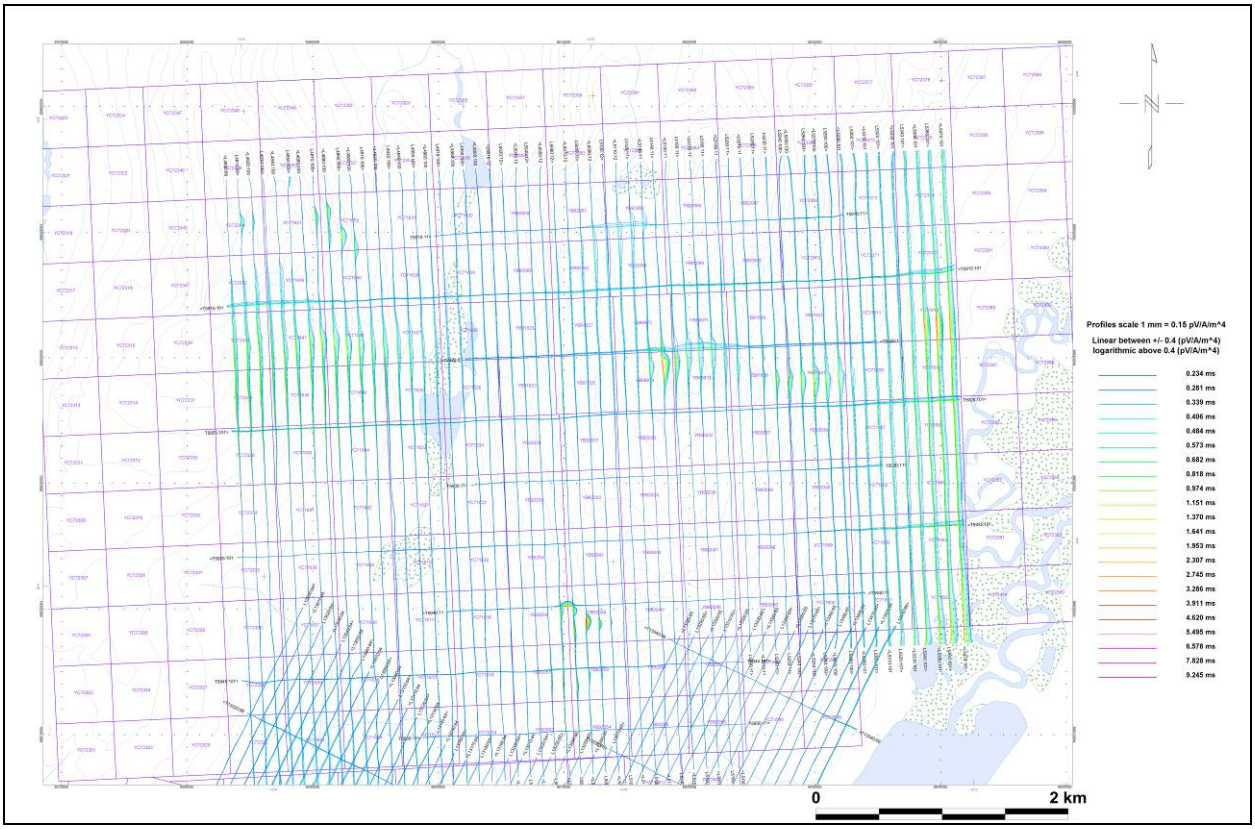



**MOR Property - North: Total Magnetic Intensity (TMI)**

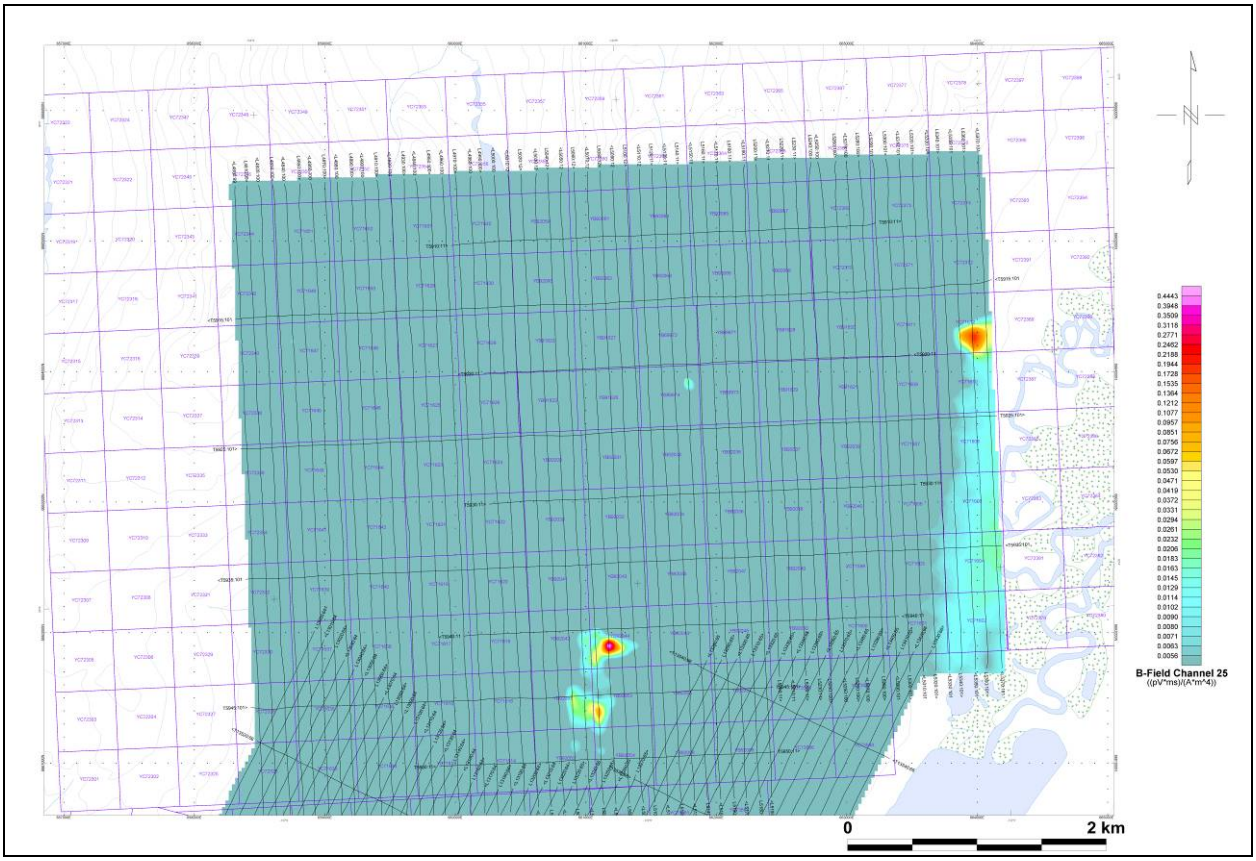
[1] Note: Present maps are a selection of the final geophysical maps. Full size geophysical maps are also available in PDF format on the final DVD.



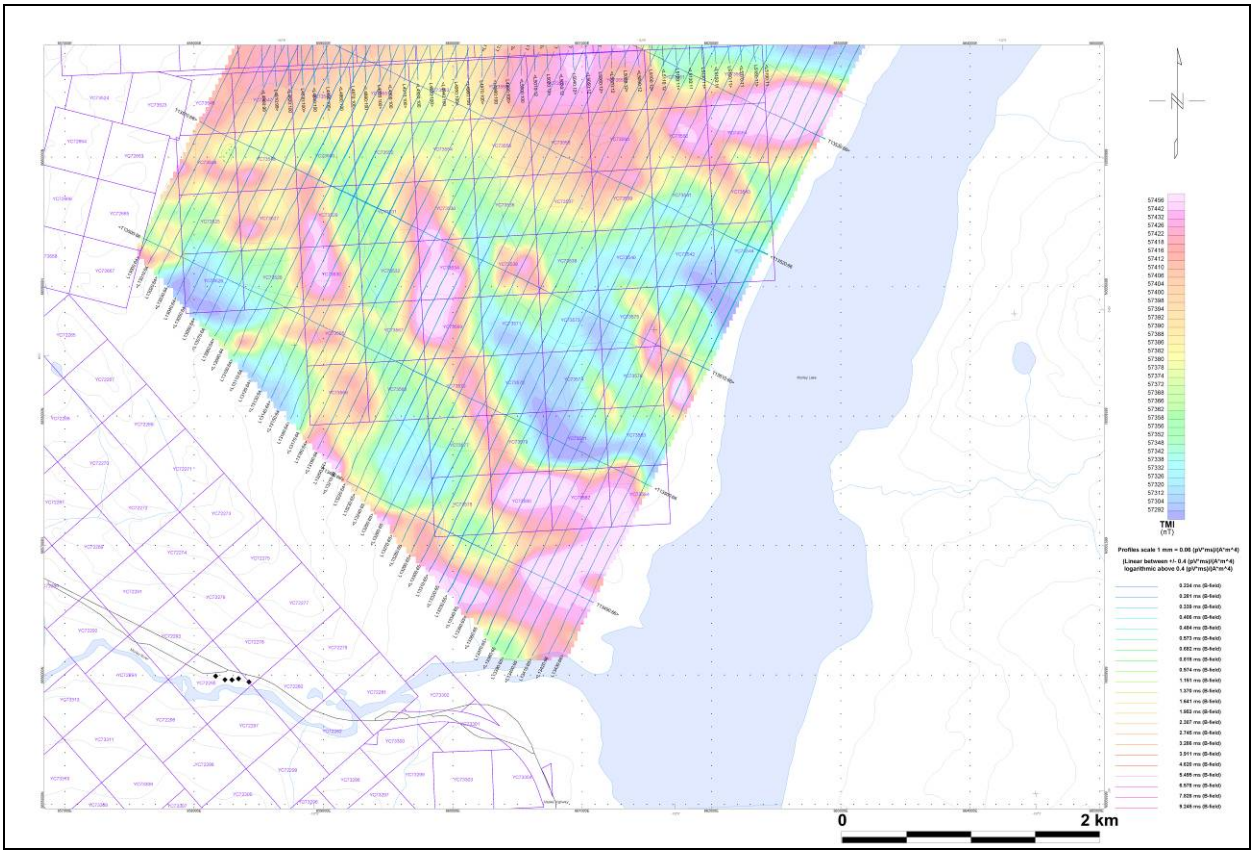

**MOR Property - North: VTEM B-Field Profiles**
**– Time Gates 0.234 to 9.245 ms, over TMI**




**MOR Property - North: VTEM dB/dt Profiles**
**- Time Gates 0.234 to 9.245 ms**




**MOR Property - North: VTEM B-Field Contours**
**- Time Gate 1.641 ms**




**MOR Property - South: VTEM B-Field Profiles – Time Gates 0.234 to 9.245 ms, over TMI**

# APPENDIX E

# GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM

## Introduction

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a 26.1 metres diameter transmitter loop that produces a dipole moment up to 556,400 nIA at peak current. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end. With a base frequency of 30 Hz, the duration of each pulse is approximately 4.2 milliseconds followed by an off time where no primary field is present.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

Measurements are made during the on and off-time, when only the secondary field (representing the conductive targets encountered in the ground) is present.

Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

## General Modeling Concepts

A set of models has been produced for the Geotech VTEM® system with explanation notes (see models C1 to C18). The Maxwell ™ modeling program (EMIT Technology Pty. Ltd., Midland, AU) used to generate the following responses assumes a resistive half-space. The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.
When producing these models, a few key points were observed and are worth noting as follows:

- For near vertical and vertical plate models, the top of the conductor is always located directly under the centre low point between the two shoulders in the classic **M** shaped response.

- As the plate is positioned at an increasing depth to the top, the shoulders of the **M** shaped response, have a greater separation distance.

- When faced with choosing between a flat lying plate and a prism model to represent the target (broad response) some ambiguity is present and caution should be exercised.

- With the concentric loop system and Z-component receiver coil, virtually all types of conductors and most geometries are most always well coupled and a response is generated. Only concentric loop systems can succefully map this type great variety of targets.

## Variation of Plate Depth

Geometries represented by plates of different strike length, depth extent, dip, plunge and depth below surface can be varied with characteristic parameters like conductance of the target, conductance of the host and conductivity/thickness and thickness of the overburden layer.

Diagrammatic models for a vertical plate are shown in Figures C-1 & C-2 and C-5 & C-6 at two different depths, all other parameters remaining constant. With this transmitter-receiver geometry, the classic **M** shaped response is generated. Figures C-1 and C-2 show a plate where the top is near surface. Here, amplitudes of the duel peaks are higher and symmetrical with the zero centre positioned directly above the plate. Most important is the separation distance of the peaks. This distance is small when the plate is near surface and widens with a linear relationship as the plate (depth to top) increases. Figures C-5 and C-6 show a much deeper plate where the separation distance of the peaks is much wider and the amplitudes of the channels have decreased.

## Variation of Plate Dip

As the plate dips and departs from the vertical position, the peaks become asymmetrical. Figures C-3 & C-4 and C-7 and C-8 show a near surface plate dipping 80º at two different depths. Note that the direction of dip is toward the high shoulder of the response and the top of the plate remains under the centre minimum.

As the dip increases, the aspect ratio (Min/Max) decreases and this aspect ratio can be used as an empirical guide to dip angles from near 90º to about 30º. The method is not sensitive enough where dips are less than about 30º. For example, for a plate dipping 45º, the minimum shoulder starts to vanish. In Figures C-9 & C-10 and C-11 & C-12, a flat lying plate is shown, relatively near surface. Note that the twin peak anomaly has been replaced by a symmetrical shape with large, bell shaped, channel amplitudes which decay relative to the conductance of the plate.

In the special case where two plates are positioned to represent a synclinal structure. Note that the main characteristic is that the centre amplitudes are higher (approximately double) compared to the high shoulder of a single plate. This model is very representative of tightly folded formations where the conductors where once flat lying.

### Variation of Prism Dip

Finally, with thicker, prism models, another algorithm is required to represent current on the plate. A plate model is considered to be infinitely thin with respect to thickness and incapable of representing the current in the thickness dimension. A prism model is constructed to deal with this problem, thereby, representing the thickness of the body more accurately.

Figures C-13 & C-14 and C-15 & C-16 show the same prism at the same depths with variable dips. Aside from the expected differences asymmetry prism anomalies show a characteristic change from a double-peaked anomaly to single peak signatures.

## I. THIN PLATE

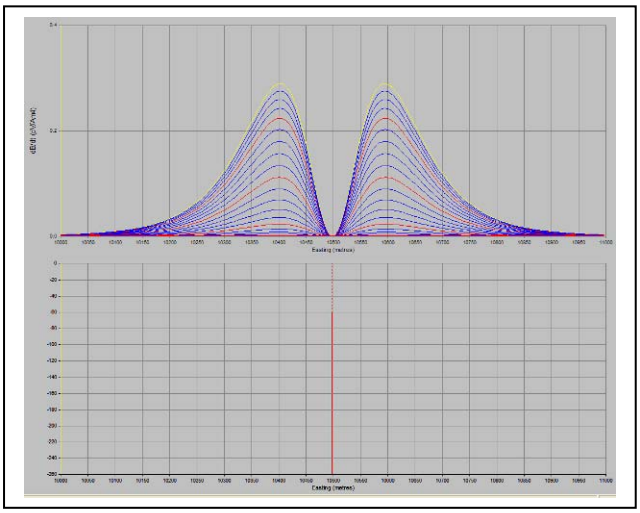


Figure C-1: dB/dt response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

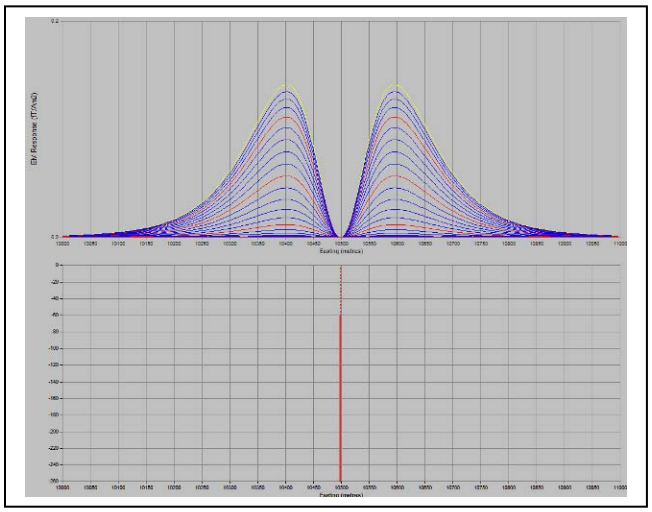


Figure C-2: B-field response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

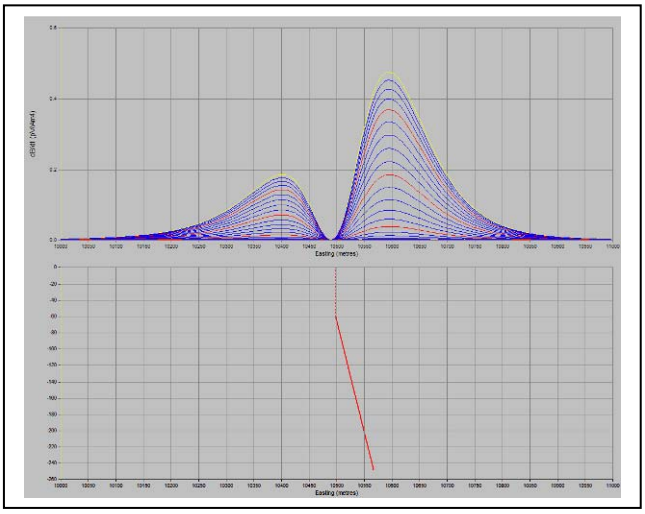


Figure C-3: dB/dt response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

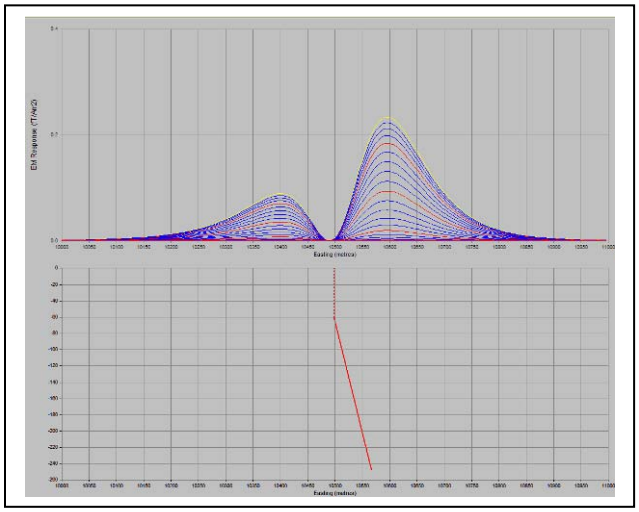


Figure C-4: B-field response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

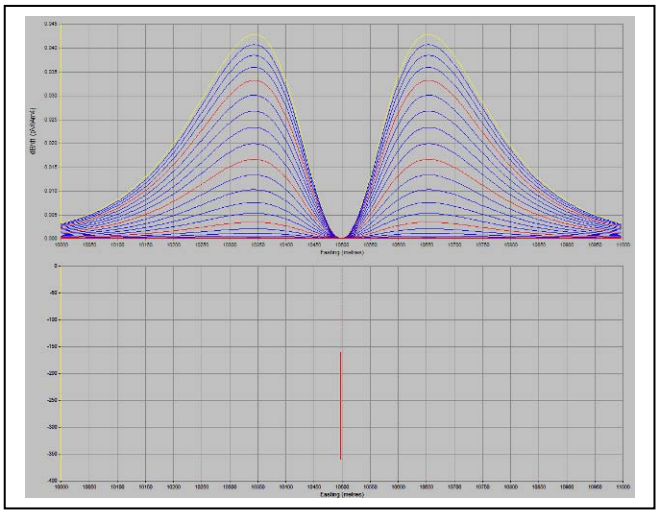


Figure C-5: dB/dt response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

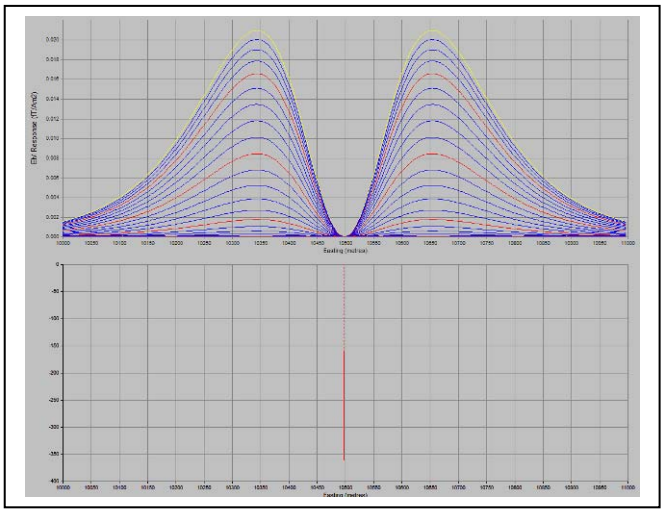


Figure C-6: B-Field response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

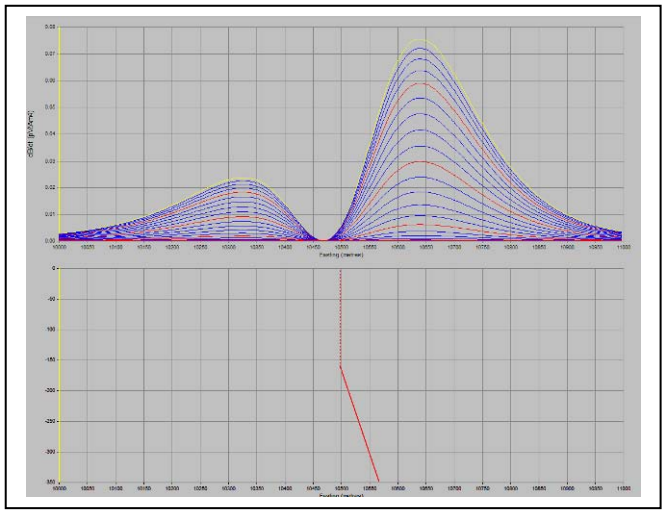


Figure C-7: dB/dt response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

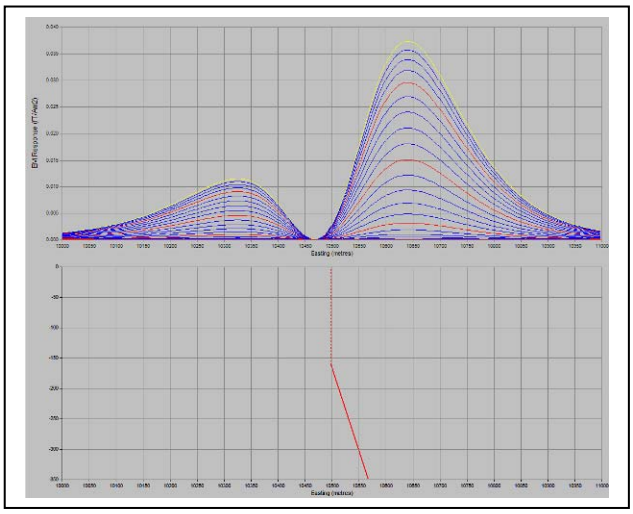


Figure C-8: B-field response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

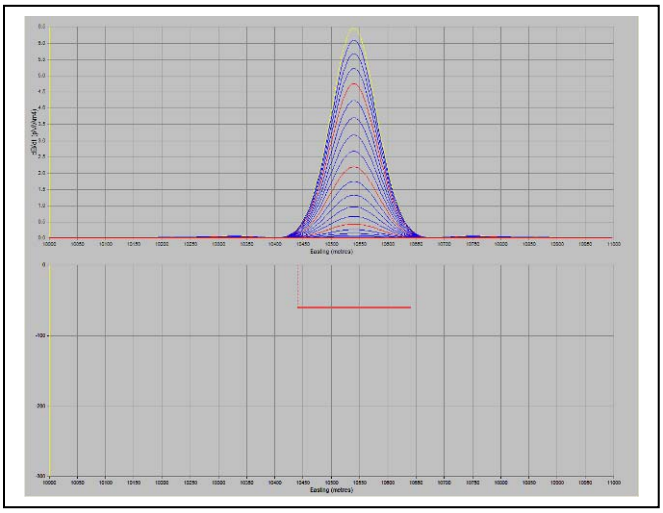


Figure C-9: dB/dt response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

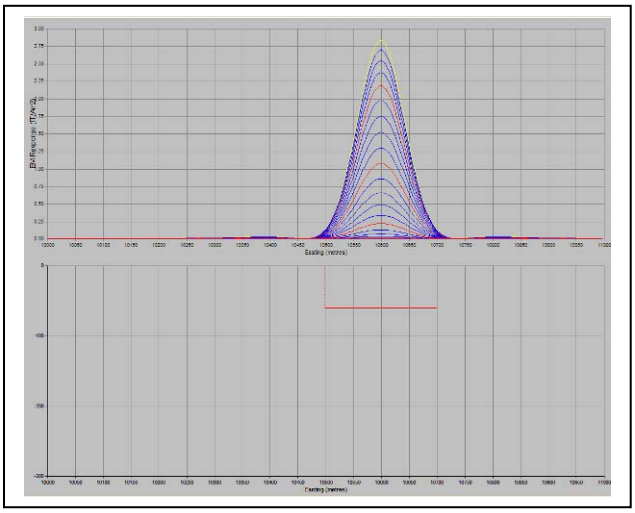


Figure C-10: B-Field response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

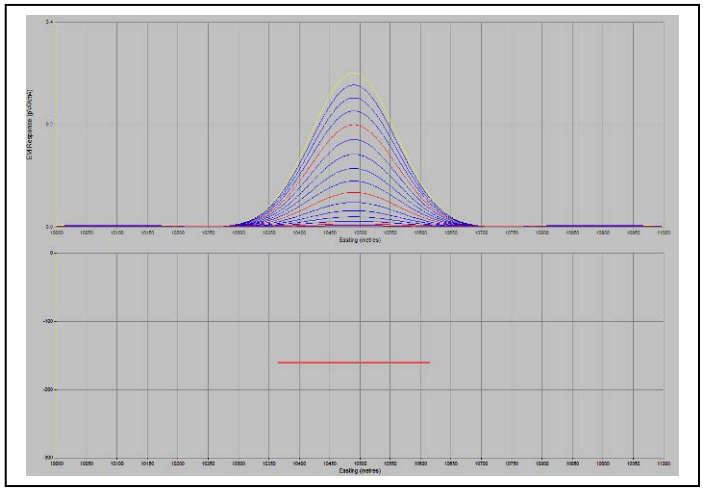


Figure C-11: dB/dt response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

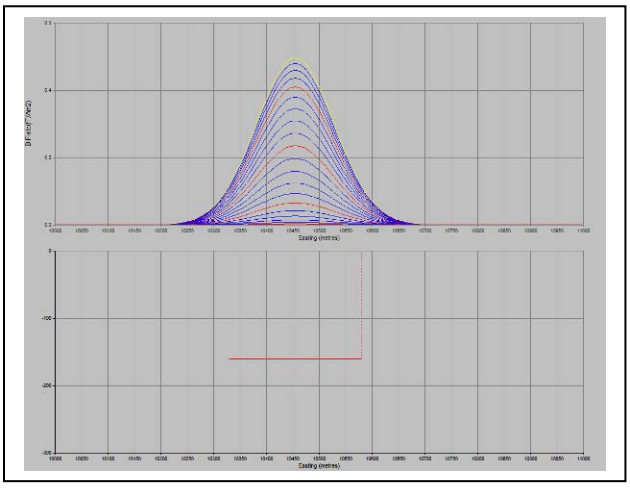


Figure C-12: B-Field response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

## II. THICK PLATE

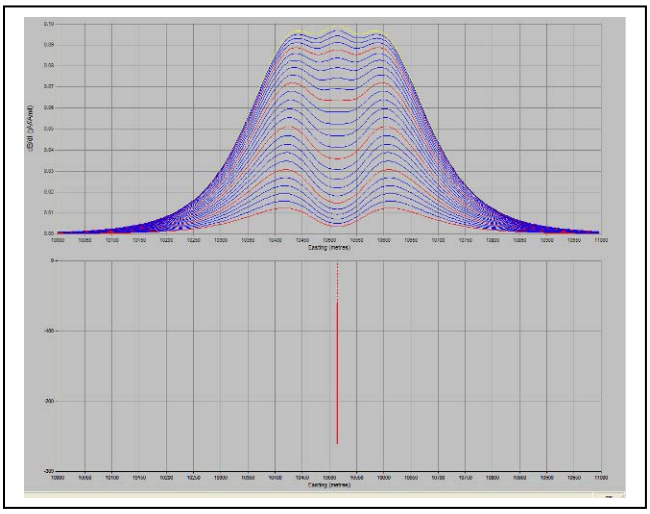


Figure C-13: dB/dt response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

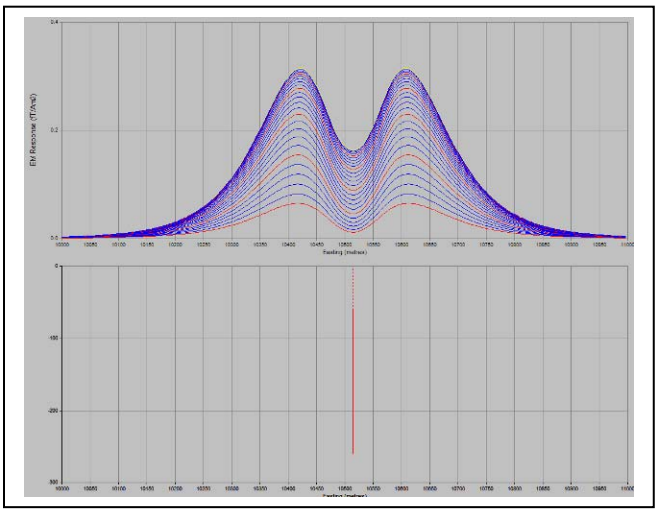


Figure C-14: B-Field response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness= 20 m. The EM response is normalized by the dipole moment.

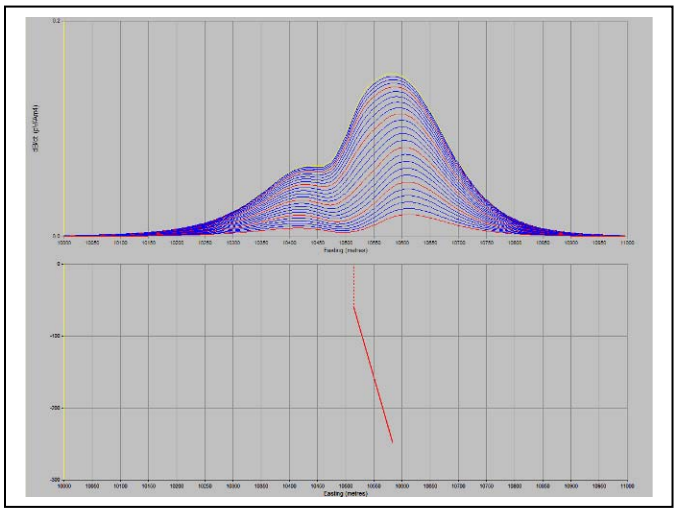


Figure C-15: dB/dt response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

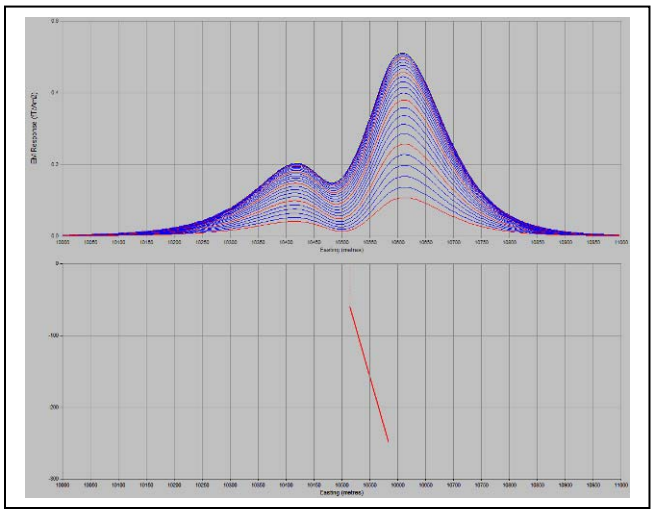


Figure C-16: B-Field response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment.

## III. MULTIPLE THIN PLATES

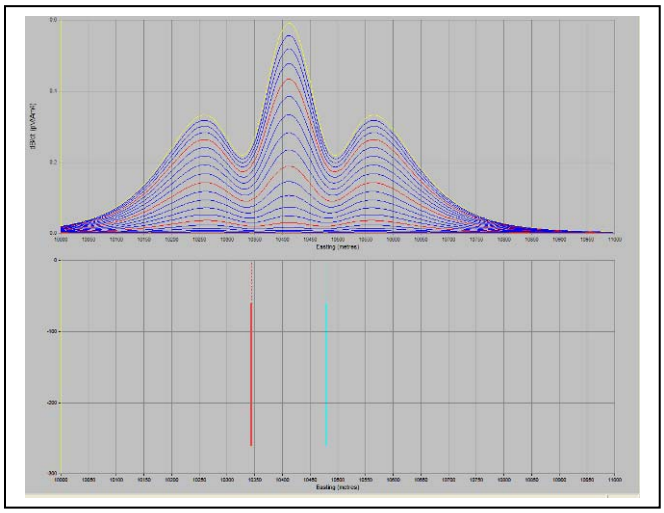


Figure C-17: dB/dt response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

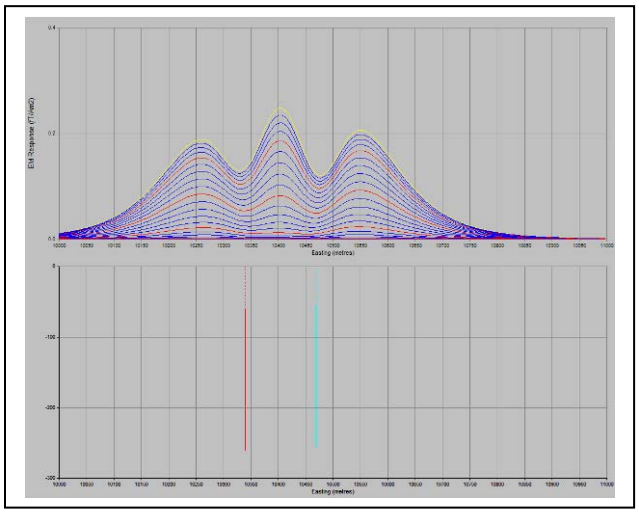


Figure C-18: B-Field response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

## General Interpretation Principals

*Magnetics*

The total magnetic intensity responses reflect major changes in the magnetite and/or other magnetic minerals content in the underlying rocks and unconsolidated overburden. Precambrian rocks have often been subjected to intense heat and pressure during structural and metamorphic events in their history. Original signatures imprinted on these rocks at the time of formation have, it most cases, been modified, resulting in low magnetic susceptibility values.

The amplitude of magnetic anomalies, relative to the regional background, helps to assist in identifying specific magnetic and non-magnetic rock units (and conductors) related to, for example, mafic flows, mafic to ultramafic intrusives, felsic intrusives, felsic volcanics and/or sediments etc. Obviously, several geological sources can produce the same magnetic response. These ambiguities can be reduced considerably if basic geological information on the area is available to the geophysical interpreter.

In addition to simple amplitude variations, the shape of the response expressed in the wave length and the symmetry or asymmetry, is used to estimate the depth, geometric parameters and magnetization of the anomaly. For example, long narrow magnetic linears usually reflect mafic flows or intrusive dyke features. Large areas with complex magnetic patterns may be produced by intrusive bodies with significant magnetization, flat lying magnetic sills or sedimentary iron formation. Local isolated circular magnetic patterns often represent plug-like igneous intrusives such as kimberlites, pegmatites or volcanic vent areas.

Because the total magnetic intensity (TMI) responses may represent two or more closely spaced bodies within a response, the second derivative of the TMI response may be helpful for distinguishing these complexities. The second derivative is most useful in mapping near surface linears and other subtle magnetic structures that are partially masked by nearby higher amplitude magnetic features. The broad zones of higher magnetic amplitude, however, are severely attenuated in the vertical derivative results. These higher amplitude zones reflect rock units having strong magnetic susceptibility signatures. For this reason, both the TMI and the second derivative maps should be evaluated together.

Theoretically, the second derivative, zero contour or color delineates the contacts or limits of large sources with near vertical dip and shallow depth to the top. The vertical gradient map also aids in determining contact zones between rocks with a susceptibility contrast, however, different, more complicated rules of thumb apply.

*Concentric Loop EM Systems*

Concentric systems with horizontal transmitter and receiver antennae produce much larger responses for flat lying conductors as contrasted with vertical plate-like conductors. The amount of current developing on the flat upper surface of targets having a substantial area in this dimension, are the direct result of the effective coupling angle, between the primary magnetic field and the flat surface area. One therefore, must not compare the amplitude/conductance of responses generated from flat lying bodies with those derived from near vertical plates; their ratios will be quite different for similar conductances.

Determining dip angle is very accurate for plates with dip angles greater than 30º. For angles less than 30º to 0º, the sensitivity is low and dips can not be distinguished accurately in the presence of normal survey noise levels.

A plate like body that has near vertical position will display a two shoulder, classic **M** shaped response with a distinctive separation distance between peaks for a given depth to top.

It is sometimes difficult to distinguish between responses associated with the edge effects of flat lying conductors and poorly conductive bedrock conductors. Poorly conductive bedrock conductors having low dip angles will also exhibit responses that may be interpreted as surficial overburden conductors. In some situations, the conductive response has line to line continuity and some magnetic correlation providing possible evidence that the response is related to an actual bedrock source.

The EM interpretation process used, places considerable emphasis on determining an understanding of the general conductive patterns in the area of interest. Each area has different characteristics and these can effectively guide the detailed process used.

The first stage is to determine which time gates are most descriptive of the overall conductance patterns. Maps of the time gates that represent the range of responses can be very informative.

Next, stacking the relevant channels as profiles on the flight path together with the second vertical derivative of the TMI is very helpful in revealing correlations between the EM and Magnetics.

Next, key lines can be profiled as single lines to emphasize specific characteristics of a conductor or the relationship of one conductor to another on the same line. Resistivity Depth sections can be constructed to show the relationship of conductive overburden or conductive bedrock with the conductive anomaly.

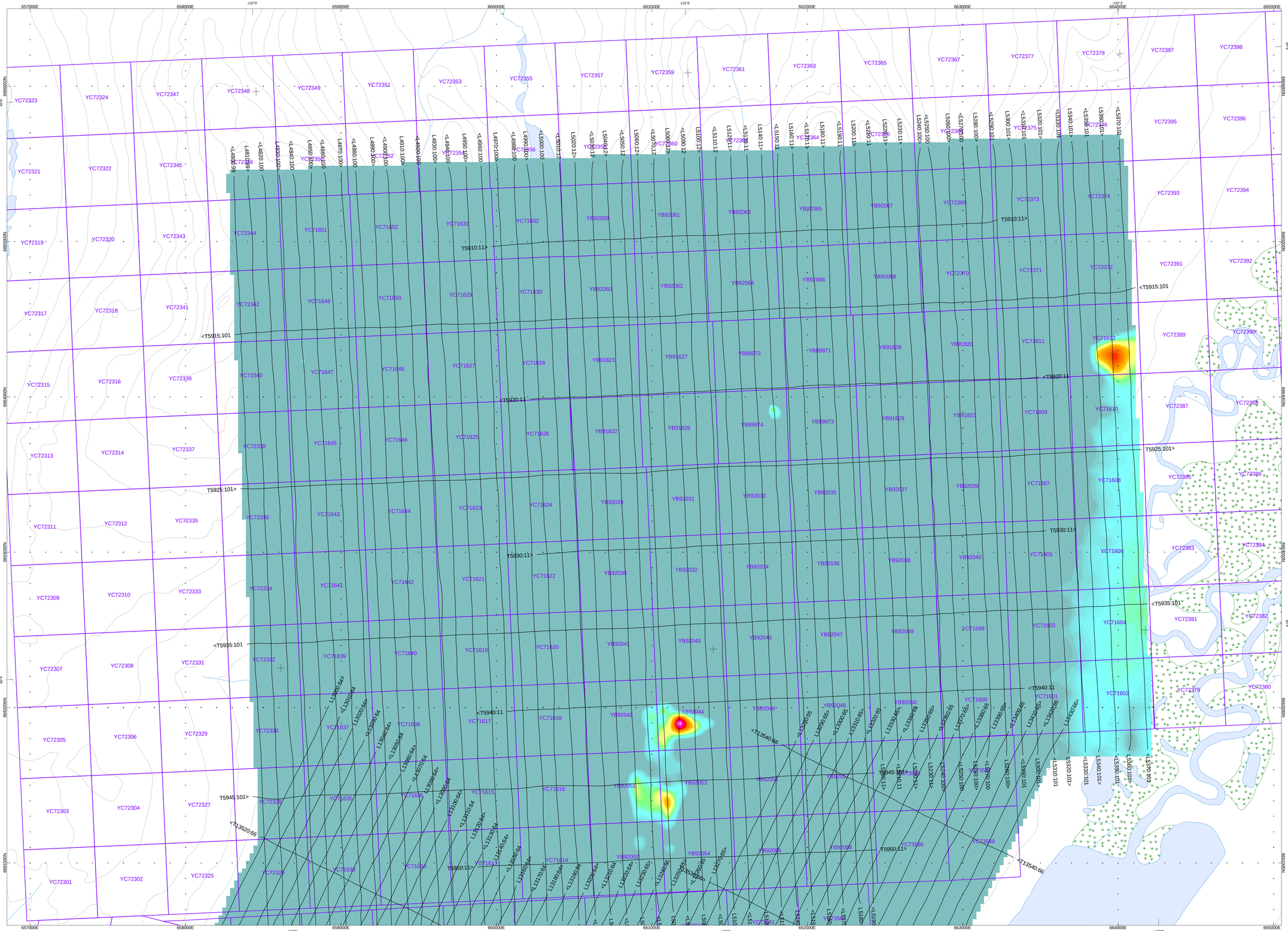
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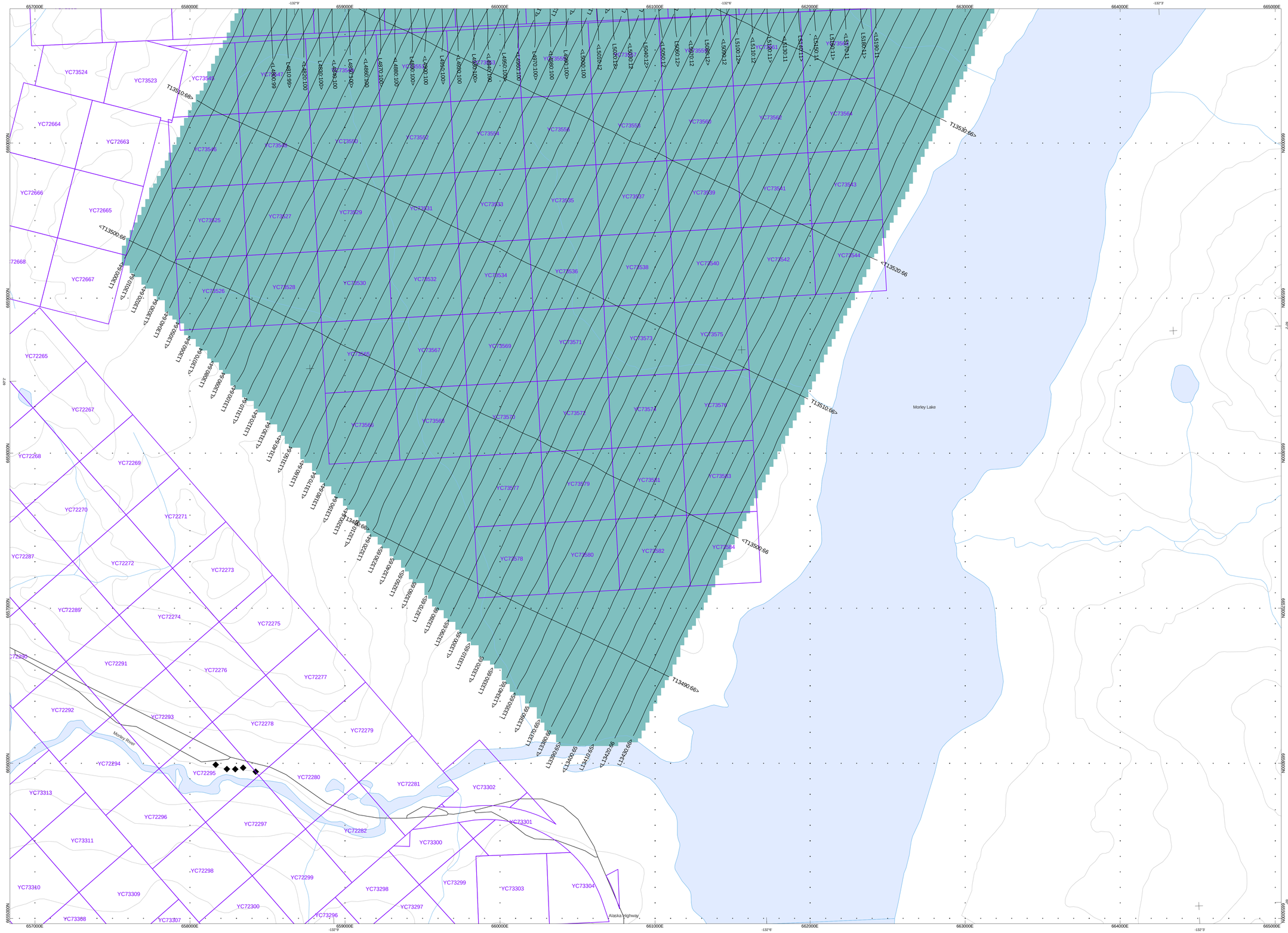
Roger Barlow
**Consultant**

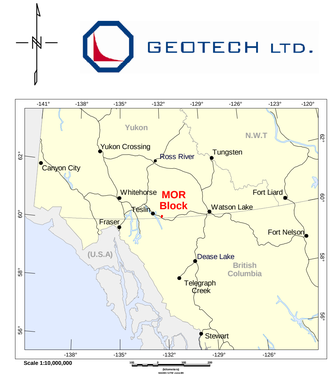
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Nasreddine Bournas, P. Geo.
**Geotech Ltd.**

December 2008


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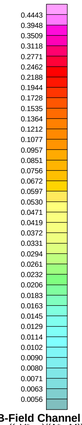



SURVEY SPECIFICATIONS:
- Survey Date: July 28th to July 30th, 2008
- Survey Base: Teslin, Yukon
- Aircraft: Aerospatiale A-Star 350 B3 (C-GTRK)
- Nominal Survey Line Spacing: 100 Meters
- Nominal Survey Line Direction: N 178° E, N 26° E
- Nominal Tie Line Spacing: 900 Meters, 1000 Meters
- Nominal Tie Line Direction: N 88° E, N 116° E
- Nominal Terrain Clearance: 81 Meters
- EM Loop: Towed at a mean distance of 35 meters below the Helicopter
- Magnetic Sensor: Towed at a mean distance of 13 meters below the Helicopter

INSTRUMENTS
- Geotech Time Domain Electromagnetic System (VTEM)
- Concentric Rx/Tx Geometry
- Transmitter Loop: Diameter 26 Meters,Base Frequency 30 Hz
- Dipole Moment: 556,400 nIA
- Transmitter Wave Form: Trapezoid, Pulse Width 4.2 ms.
- Geometrics High Sensitivity Cesium Magnetometer
- Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
- Datum: NAD 83
- Projection: Universal Transverse Mercator
- Central Meridian: 135°W (Zone 8)
- Central Scale Factor: 0.9996
- False Easting/Northing: 500,000m/0m
- Major Axis: 6378137.000
- Eccentricity: 0.081819191
- NTS: 105C01, 104N16




**B-Field Channel 25**
((pV*ms)/(A*m^4))

**TOPOGRAPHIC LEGEND:**

- Buildings
- Roads
- Trails
- Contours
- Rivers & Streams
- Lakes
- Wetlands
- Mining Rights

**Scale 1:10000**

100 0 100 200 300 400 500
(meters)
NAD83 / UTM zone 8N

The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data
Background shading is derived from NASA SRTM (Shuttle Radar Topography Mission) data
Inset data derived from Geocommunities 1:250,000 Canadian National Topographic database
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www.geocomm.com/(www.geogratis.ca)
(http://geomaticsyukon.ca/data_download.html)

Archer Cathro & Associates Ltd.
MOR Block - South
Teslin Area, Yukon

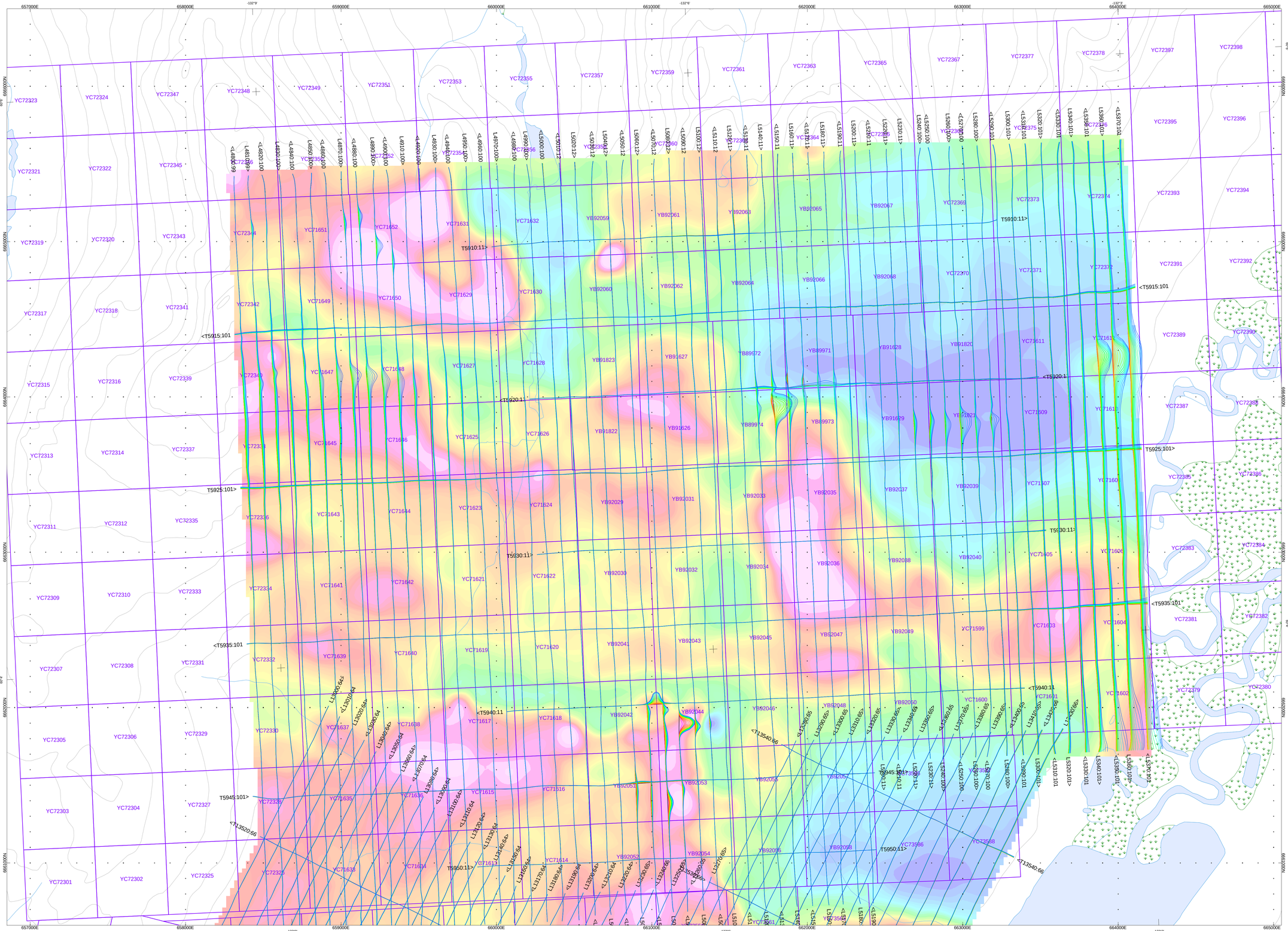
Geotech VTEM System

VTEM B-FIELD CHANNEL 25
TIME GATE 1.641 ms

**Flown and processed by Geotech Ltd.**
**245 Industrial Parkway North,**
**Aurora, Ontario, Canada L4G 4C4**
www.geotech.ca

***January 2009***

Geotech Project # 8077


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GEOTECH LTD.




SURVEY SPECIFICATIONS:
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- False Easting/Northing: 500,000m/0m
- Major Axis: 6378137.000
- Eccentricity: 0.081819191
- NTS: 105C01, 104N16

**Profiles scale 1 mm = 0.06 (pV*ms)/(A*m^4)**

**(Linear between +/- 0.4 (pV*ms)/(A*m^4) logarithmic above 0.4 (pV*ms)/(A*m^4)**

| | |
|---|---|
| 0.234 ms (B-field) | 57456 |
| 0.281 ms (B-field) | 57442 |
| 0.339 ms (B-field) | 57432 |
| 0.406 ms (B-field) | 57426 |
| 0.484 ms (B-field) | 57422 |
| 0.573 ms (B-field) | 57418 |
| 0.682 ms (B-field) | 57416 |
| 0.818 ms (B-field) | 57412 |
| 0.974 ms (B-field) | 57410 |
| 1.151 ms (B-field) | 57406 |
| 1.370 ms (B-field) | 57404 |
| 1.641 ms (B-field) | 57400 |
| 1.953 ms (B-field) | 57398 |
| 2.307 ms (B-field) | 57394 |
| 2.745 ms (B-field) | 57392 |
| 3.286 ms (B-field) | 57390 |
| 3.911 ms (B-field) | 57388 |
| 4.620 ms (B-field) | 57386 |
| 5.495 ms (B-field) | 57382 |
| 6.578 ms (B-field) | 57380 |
| 7.828 ms (B-field) | 57378 |
| 9.245 ms (B-field) | 57374 |
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**TMI** (nT)

**TOPOGRAPHIC LEGEND:**

- Buildings
- Roads
- Trails
- Contours
- Rivers & Streams
- Lakes
- Wetlands
- Mining Rights

**Scale 1:10000**

100 0 100 200 300 400 500

**(meters)**

*NAD83 / UTM zone 8N*

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# Archer Cathro & Associates Ltd.
# MOR Block - South
# Teslin Area, Yukon

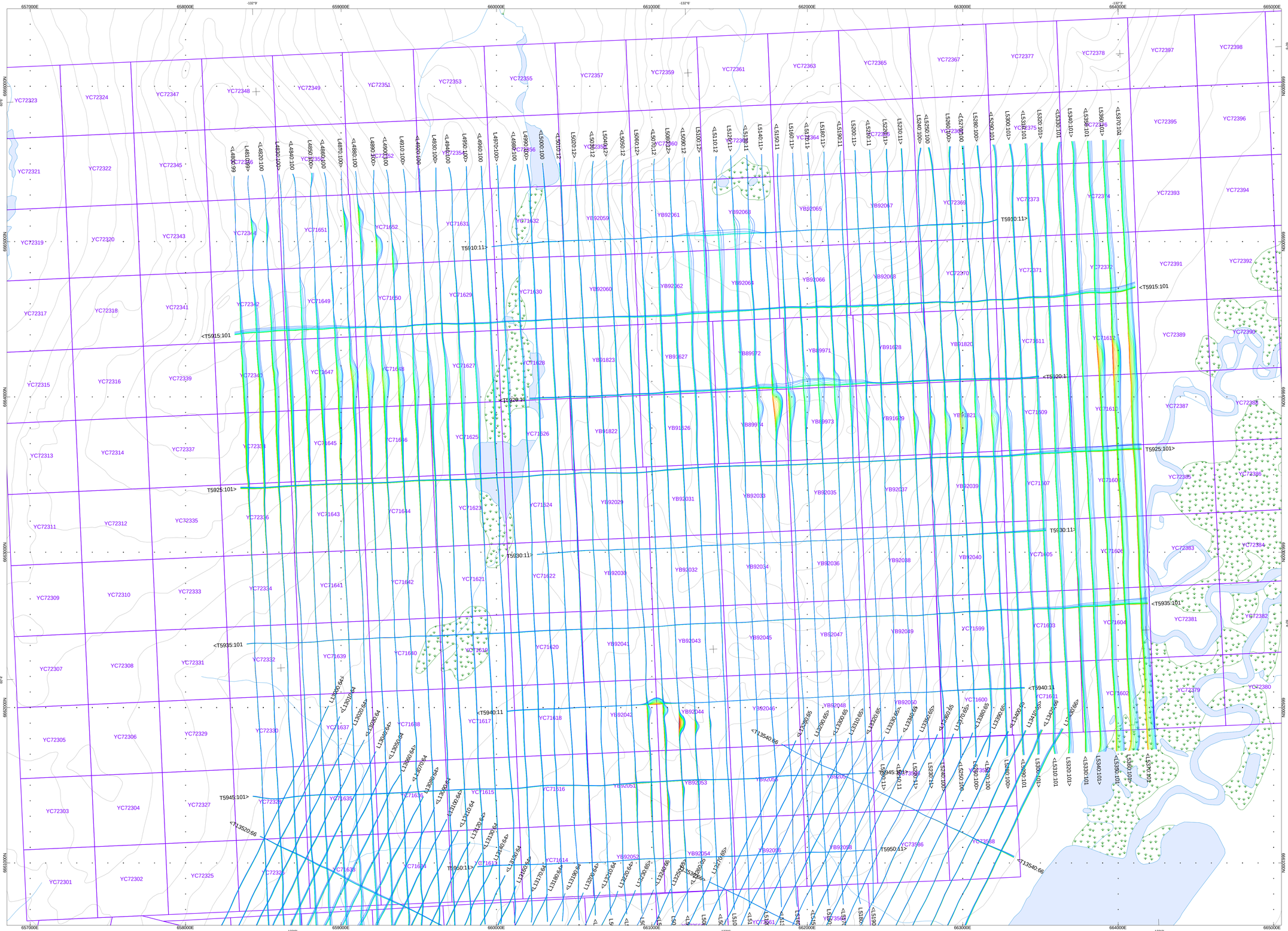
Geotech VTEM System

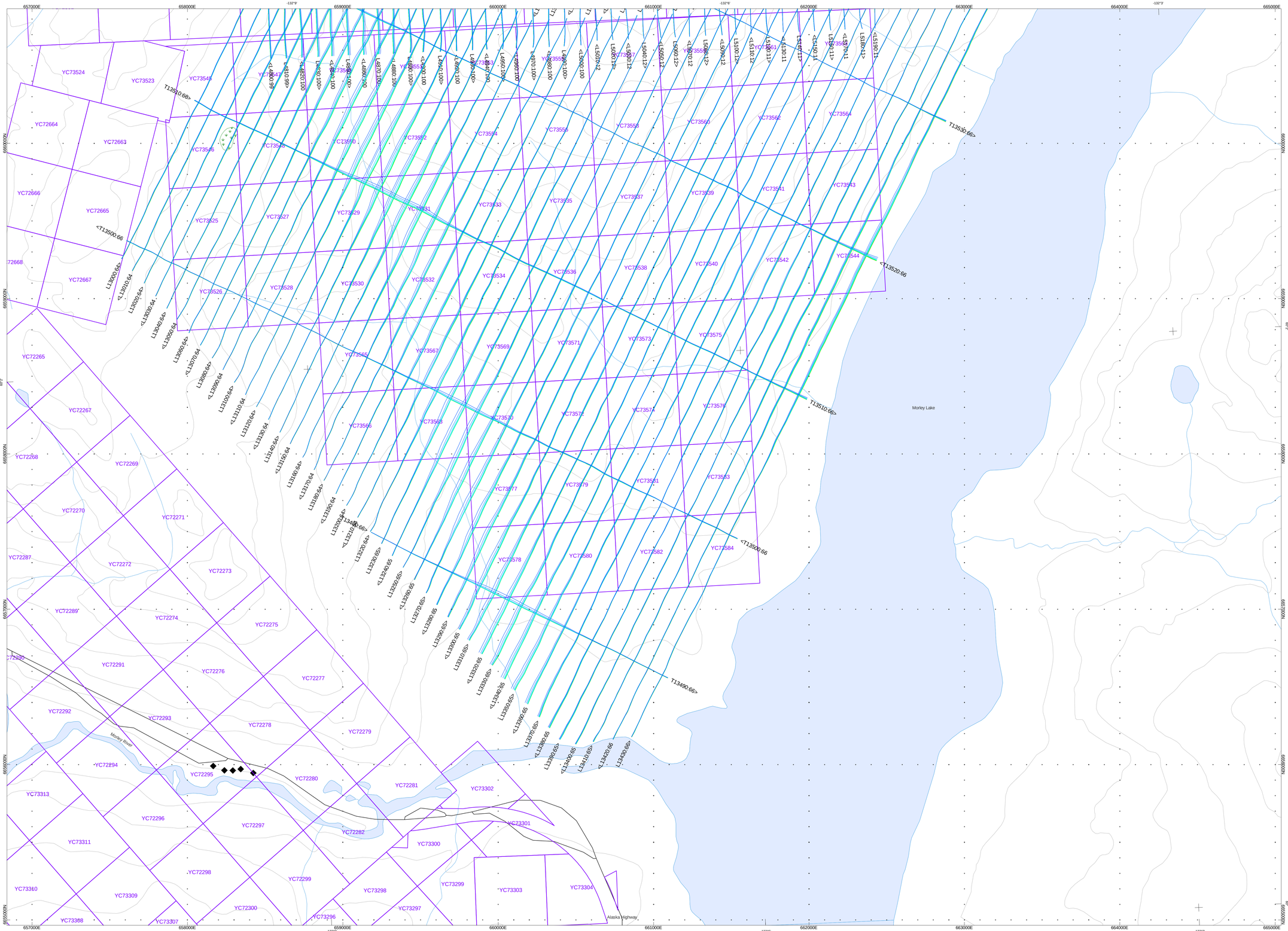
## VTEM B-FIELD PROFILES
## TIME GATES 0.234 to 9.245 ms
## with TMI Colour Image

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**245 Industrial Parkway North,**
**Aurora, Ontario, Canada L4G 4C4**
www.geotech.ca

***January 2009***

Geotech Project # 8077


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- Nominal Tie Line Spacing: 900 Meters, 1000 Meters
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- Nominal Terrain Clearance: 81 Meters
- EM Loop: Towed at a mean distance of 35 meters below the Helicopter
- Magnetic Sensor: Towed at a mean distance of 13 meters below the Helicopter

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- Concentric Rx/Tx Geometry
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- Dipole Moment: 556,400 nIA
- Transmitter Wave Form: Trapezoid, Pulse Width 4.2 ms.
- Geometrics High Sensitivity Cesium Magnetometer
- Mag Resolution: 0.02 nT at 10 samples/sec

MAP PROJECTION
- Datum: NAD 83
- Projection: Universal Transverse Mercator
- Central Meridian: 135°W (Zone 8)
- Central Scale Factor: 0.9996
- False Easting/Northing: 500,000m/0m
- Major Axis: 6378137.000
- Eccentricity: 0.081819191
- NTS: 105C01, 104N16

**Profiles scale 1 mm = 0.15 pV/A/m^4**

**Linear between +/- 0.4 (pV/A/m^4)**
**logarithmic above 0.4 (pV/A/m^4)**

- 0.234 ms
- 0.281 ms
- 0.339 ms
- 0.406 ms
- 0.484 ms
- 0.573 ms
- 0.682 ms
- 0.818 ms
- 0.974 ms
- 1.151 ms
- 1.370 ms
- 1.641 ms
- 1.953 ms
- 2.307 ms
- 2.745 ms
- 3.286 ms
- 3.911 ms
- 4.620 ms
- 5.495 ms
- 6.578 ms
- 7.828 ms
- 9.245 ms

**TOPOGRAPHIC LEGEND:**

- Buildings
- Roads
- Trails
- Contours
- Rivers & Streams
- Lakes
- Wetlands
- Mining Rights

**Scale 1:10000**

100 0 100 200 300 400 500
(meters)
NAD83 / UTM zone 8N

The topographic data base was derived from 1:50000 NRC (Natural Resources Canada) NTDB data
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# Archer Cathro & Associates Ltd.
# MOR Block - South
# Teslin Area, Yukon

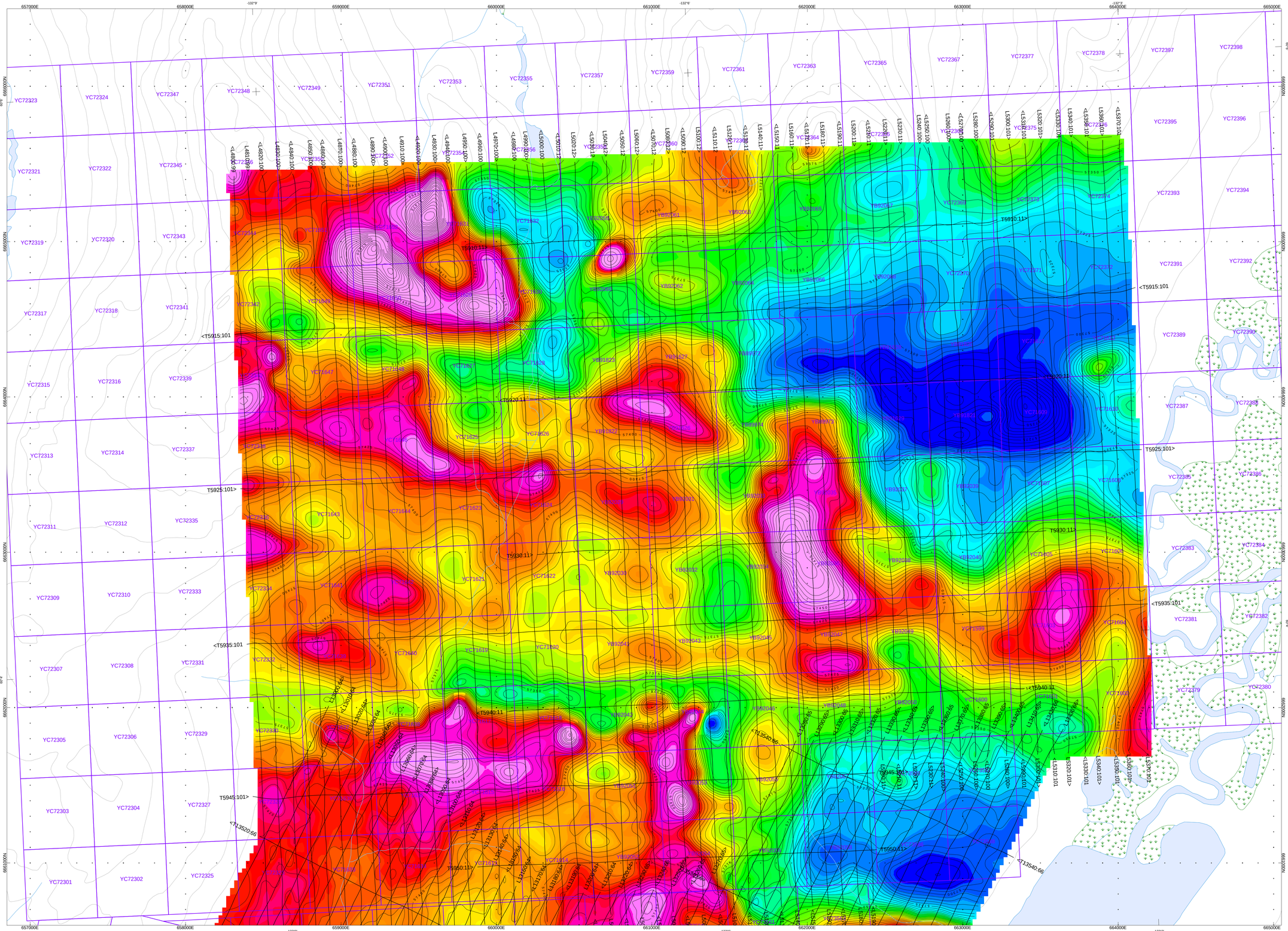
Geotech VTEM System

## VTEM dB/dt PROFILES
## TIME GATES 0.234 to 9.245 ms

**Flown and processed by Geotech Ltd.**
**245 Industrial Parkway North,**
**Aurora, Ontario, Canada L4G 4C4**
www.geotech.ca

***January 2009***

Geotech Project # 8077


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GEOTECH LTD.




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- Eccentricity: 0.081819191
- NTS: 105C01, 104N16




**TMI**
(nT)

Contour Intervals (nT):
5
25
125

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Scale 1:10000
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Archer Cathro & Associates Ltd.
MOR Block - South
Teslin Area, Yukon

Geotech VTEM System

TOTAL MAGNETIC INTENSITY (TMI)

**Flown and processed by Geotech Ltd.**
**245 Industrial Parkway North,**
**Aurora, Ontario, Canada L4G 4C4**
www.geotech.ca

***January 2009***

Geotech Project # 8077

# REPORT ON PROCESSING & ANALYSIS OF

# VTEM 30 HZ EM AND MAGNETICS DATA

# MOR, MOR EXTENSION, CABIN LAKE AND CARIBOU

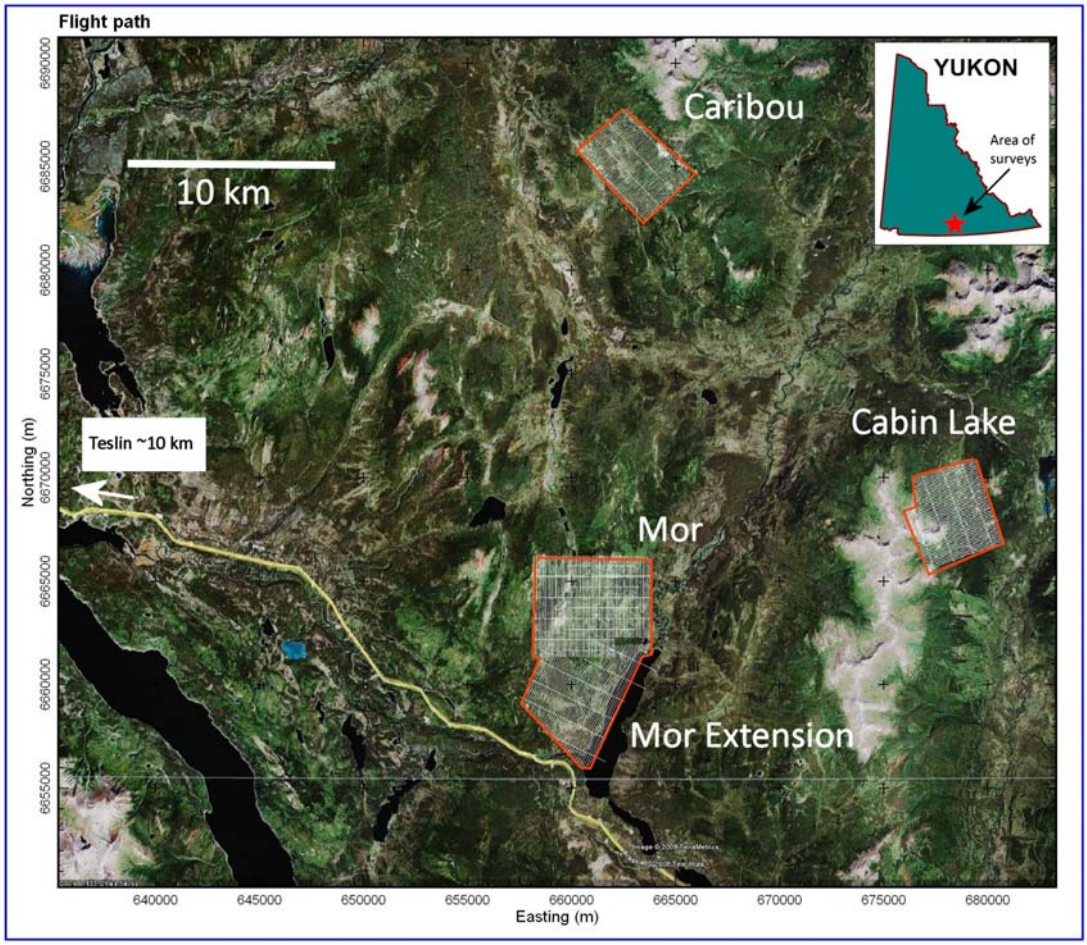
# PROPERTIES

# TESLIN AREA, YUKON TERRITORY

# FOR

# TARSIS CAPITAL CORP.

# FEBRUARY 2009




Condor Consulting
Lakewood Colorado
USA




# REPORT ON PROCESSING & ANALYSIS OF

# VTEM 30 HZ EM AND MAGNETICS DATA

# MOR, MOR EXTENSION, CABIN LAKE AND CARIBOU

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## CONTENTS


1. SUMMARY ..... 1

2. INTRODUCTION ..... 2
VTEM Survey ..... 2
Target Model ..... 3
Local Geology ..... 5

3. PROCESSING, ANALYSIS TECHNIQUES AND PRODUCTS ..... 9
PROCESSING ..... 9
EM Data Processing ..... 9
Conductivity 3D Model ..... 10
Magnetic Data Processing ..... 10
Magnetic Data Modeling ..... 10
EM ANALYSIS TECHNIQUES ..... 10
Profile Analysis ..... 10
Picking ..... 10
Wide Zones ..... 11
Target Zones ..... 11
PRODUCTS ..... 11
Table 3-1 Survey Products ..... 12

4. SURVEY RESULTS ..... 14
Data Quality ..... 14
Magnetic Results ..... 14
Mor…… ..... 14
Cabin Lake ..... 15
Caribou ..... 16
EM Survey Results ..... 16
Mor…….. ..... 16
Cabin Lake ..... 24
Caribou ..... 27
Discussion ..... 29
Mor…… ..... 29
Cabin Lake ..... 29
Caribou ..... 29

5. CONCLUSIONS & RECOMMENDATIONS ..... 30

6. REFERENCES ..... 31

7. APPENDICES ..... 33
APPENDIX A: BACKGROUND ON EM PROCESSING ..... 34

APPENDIX B: ANOMALY LISTING ..... 35
MOR…… ..... 36
CABIN LAKE ..... 37
CARIBOU ..... 38
APPENDIX C: NOTES ON MAGNETIC PROCESSING & EM3D MODELS ..... 39
APPENDIX D: ARCHIVE DVD ..... 40

# 1. SUMMARY

This report covers the processing and analysis performed by Condor Consulting, Inc. of VTEM EM and magnetic surveys on three properties held by Tarsis Capital Corp. and being operated by Archer Cathro & Associates. The properties are the Mor, Cabin Lake and Caribou and are located east and north of community of Teslin, Yukon Territory. The primary deposit model for all three properties is VMS.

Mineralization located on the Mor property shows a strong response in the VTEM survey. Follow-up of the 2007 VTEM survey (prior to Condor Consulting, Inc.'s involvement) revealed another zone of mineralization on Mor. The present assessment suggests both areas of known mineralization have likely extensions at depth which are deemed to warrant follow-up. As well several other zones of interest were recognized and are also recommended for follow-up.

On the Cabin Lake property, one zone of interest was indentified and is recommended for further work. This zone is believed to be at least several 100 meters deep and therefore a staged follow up is recommended to upgrade the target prior to drilling.

On the Caribou property, only one bedrock conductor was recognized. As this feature lies on the edge of the survey block, follow-up work to upgrade and better define the overall strike of this zone is recommended prior to drill testing.

# 2. INTRODUCTION

## VTEM Survey

At the request of Tarsis Capital Corp. (Tarsis), Condor Consulting Inc. (Condor) has undertaken to process and analyze VTEM 30 Hz EM and magnetics data over Tarsis's Mor, Mor Extension, Cabin Lake and Caribou properties located east of Teslin, Yukon Territory. The surveys were flown in 2007 and 2008 by Geotech Ltd.; full details of the survey and equipment specifications are provided in Lev, 2007, Lev, 2008, Orlowski et al 2008 and Orlowski et al 2009. These reports are provided in digital form in Appendix D, the archive DVD.

The location of the surveys is shown in Figure 1 and the path plot in Figure 2. A total of 867 line km of data were processed and analyzed.

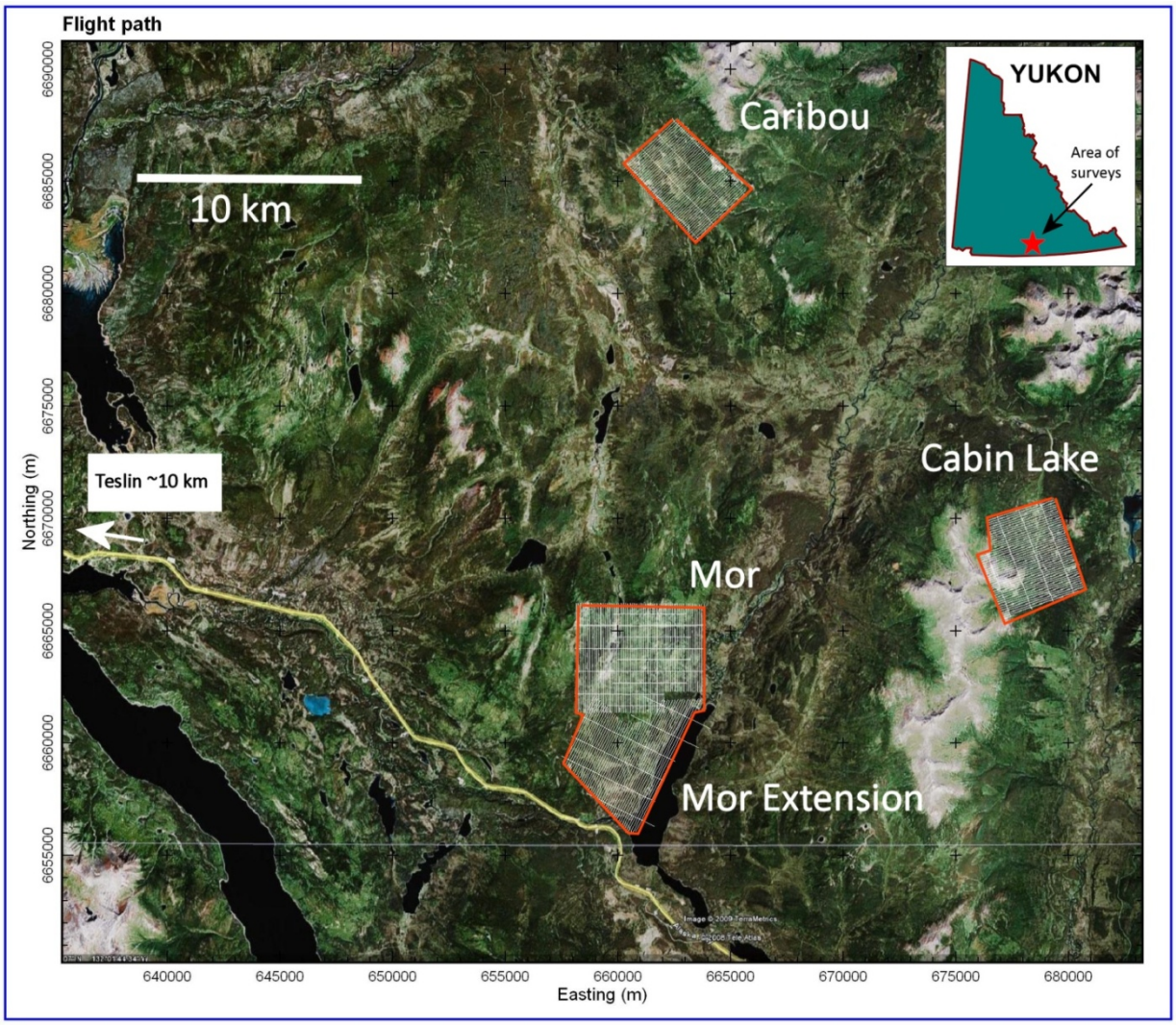



Figure 1: Location of VTEM surveys.

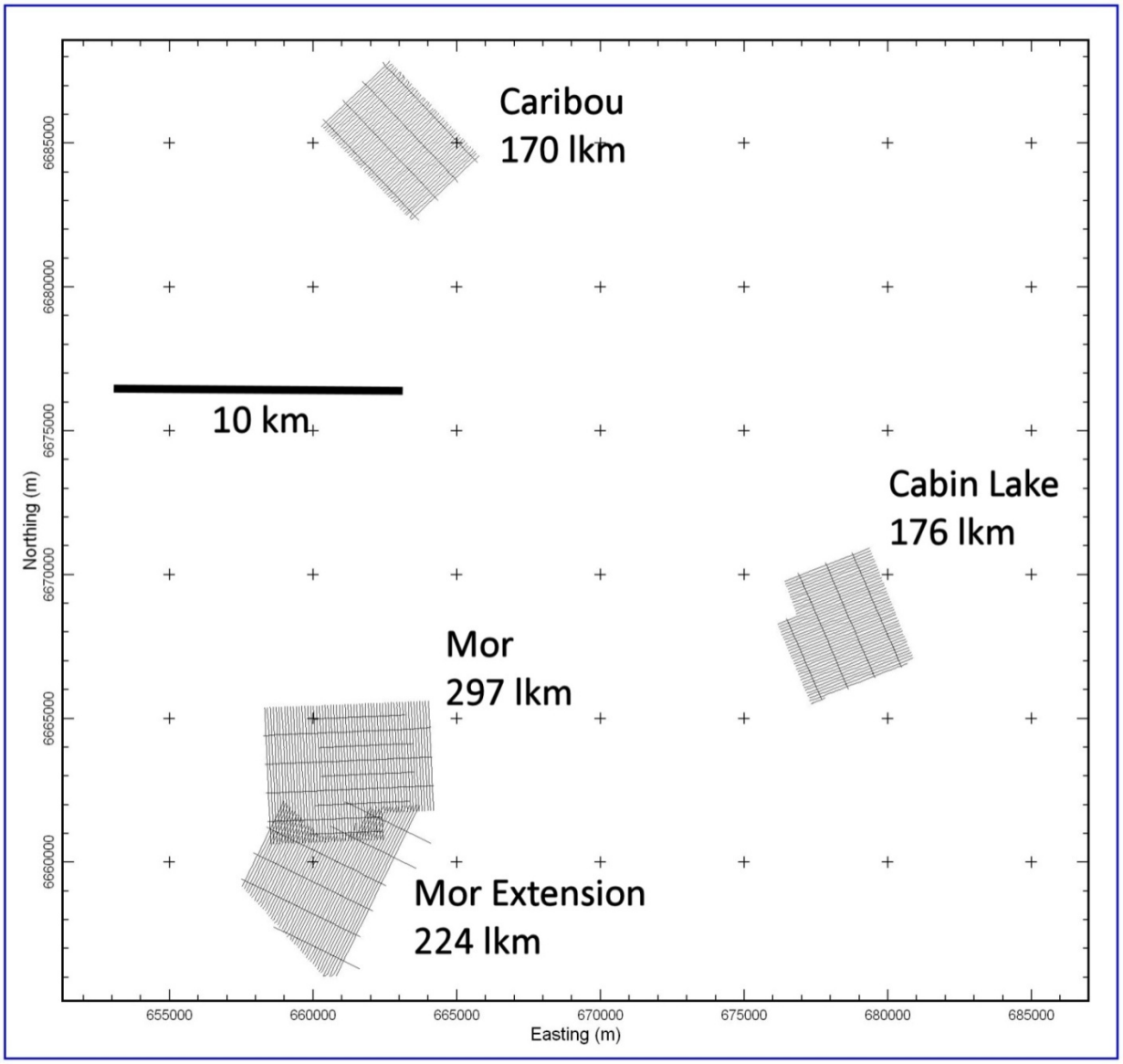



Figure 2: Flight path plots for VTEM surveys.

## Target Model

The regional geology for the area is shown in Figure 3 (Downie 2007). The primary target model is VHMS (volcanic hosted massive sulfide) but Cabin Lake has the potential for intrusive related mineralization as well. The VMS-style deposits would contain significant sulfides and would be expected to be at least moderately conductive. An example of such a deposit in the area is the Kudz Ze Kayah (Holroyd et al 1997). They report the deposit had a high conductance (40 S) and strong magnetic response (700-1 000 nT). Figure 4 shows the HLEM (horizontal loop EM or MaxMin) response over the deposit, superimposed on the magnetic response. A copy of their paper is provided in Appendix D.

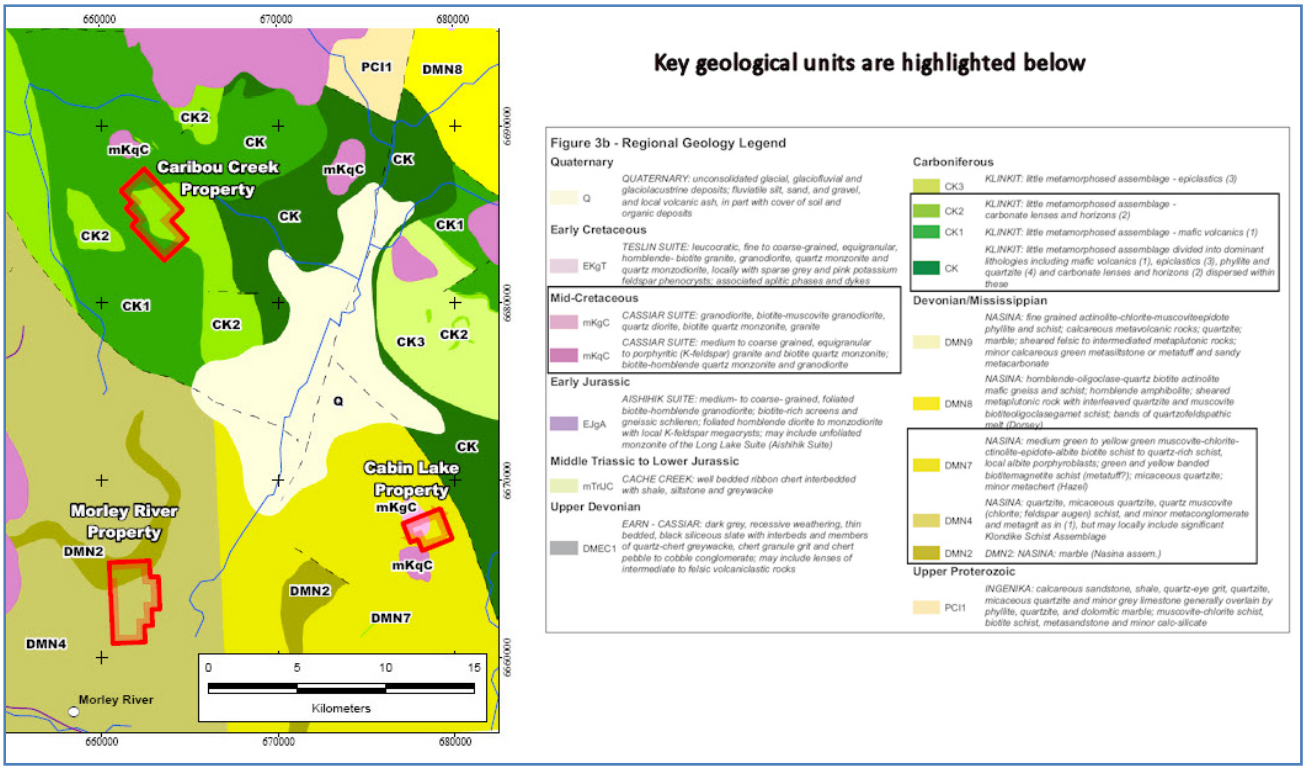



Figure 3: Regional geology for Mor, Cabin Lake and Caribou properties (from Downie 2007).

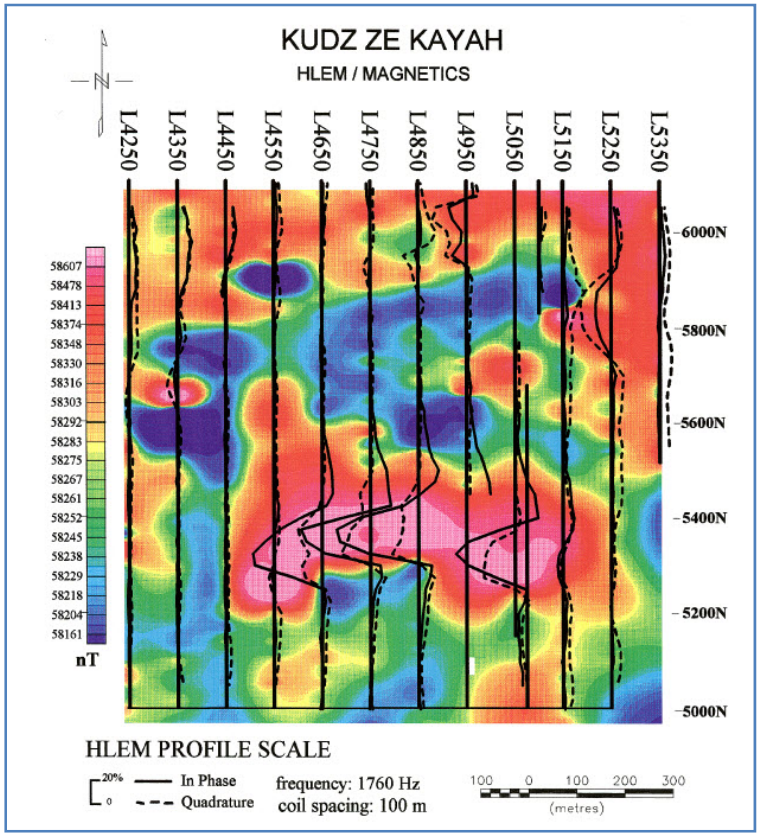



Figure 4: HLEM and magnetic results (from Holroyd et al 1997).

They note the presence of "mudstones and shales which typically have pyrrhotite disseminations, and are variably carbonaceous, making these metasediments locally both magnetic and conductive". While not an issue in the present study, these responsive sediments are a frequent part of the mineralogically favorable geology elsewhere in the Yukon.

## Local Geology

### MOR

Of the three projects, the Mor area is best known. The local geology is provided in Downie (2007):

> The Morley River Property is mainly underlain by a thick sequence of green quartz-chlorite schist and chlorite schist of which protoliths are interpreted as mafic to intermediate volcanic tuffs and minor flows. This assemblage is mainly composed of fine grained, bright to dark green, well foliated chlorite schists/mafic tuff to lapilli tuff. The mafic rocks are interbedded with quartz chlorite schist/intermediate tuff on a centimeter to meter scale. These rocks contain varying amounts of layer parallel quartz and feldspar. Quartzite/chert was also observed locally as interbeds within the mafic dominated succession but never sufficiently thick to form a mappable unit. The rocks are strongly deformed and have a strong, nearly parallel to layering, schistosity which generally strikes east and dips moderately to the south. The sequence has been significantly thickened by tight high amplitude folds which were observed at an outcrop scale. Metamorphic grade is middle greenschist facies. This assemblage of dominantly mafic volcanics may correlate with the "greenstone sequence" of the Big Salmon Complex mapped by Mihalynuk et al (1998).
>
> The northeast portion of the property is underlain by a grey-white, thickly bedded, medium to coarsegrained marble. This unit was observed in flat lying, conformable contact with and overlying the greenstone sequence described above. Bedding in the recrystallized limestone strikes east and dips south at 30 degrees.

One historic zone of mineralization called the Discovery Zone has been recognized and a second zone has been defined in recent work as a follow-up to the 2007 VTEM survey (source Tarsis web site: www.tarsis.ca). Downie (2007) provides the following description of the Discovery Zone:

> On the Morley River Property, the main mineralized zone consists of at least four separate quartz-sericite schist/ rhyolitic tuff horizons within a dominantly mafic volcanic sequence. These horizons, where exposed, range from 20 centimeters to 1.75 meters thick, are strongly gossanous and contain pyrite with locally significant amounts of chalcopyrite, gold and silver. Mafic schists in contact with the mineralized quartz-sericite schist units are strongly pyritic and commonly anomalous in copper. The quartz-sericite schist units have been traced over a strike length of 900 meters.

These two areas are outlined in Figure 5. Both zones have a VMS affinity and could be expected to be quite conductive and likely magnetic. A detailed image over the Discovery Zone is shown in Figure 6. Prior to the first VTEM survey being performed over Mor in 2007, an IP survey was conducted over the Discovery area (Power 2004). The results of this survey are shown in Figure 7. Also shown on this figure is the basic geological mapping for the area.

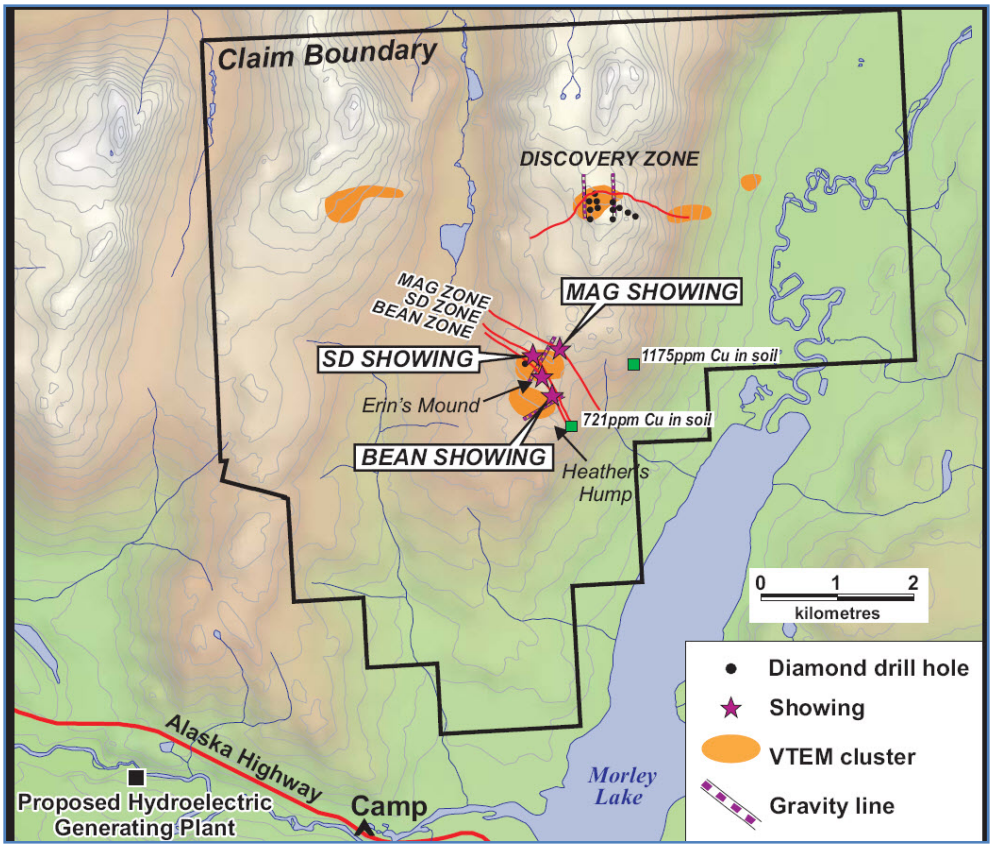



Figure 5: Location of major showings on the Mor property (source-Tarsis web site).

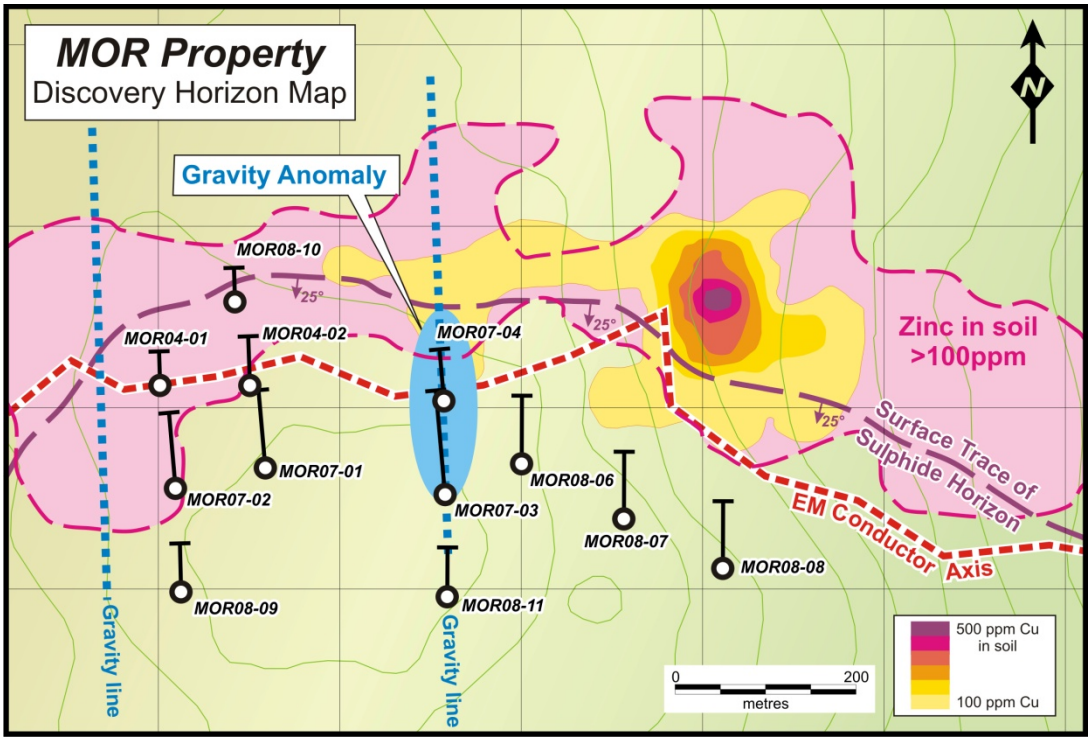



Figure 6: Mor-Discovery Zone showing drilling and geochemical results.

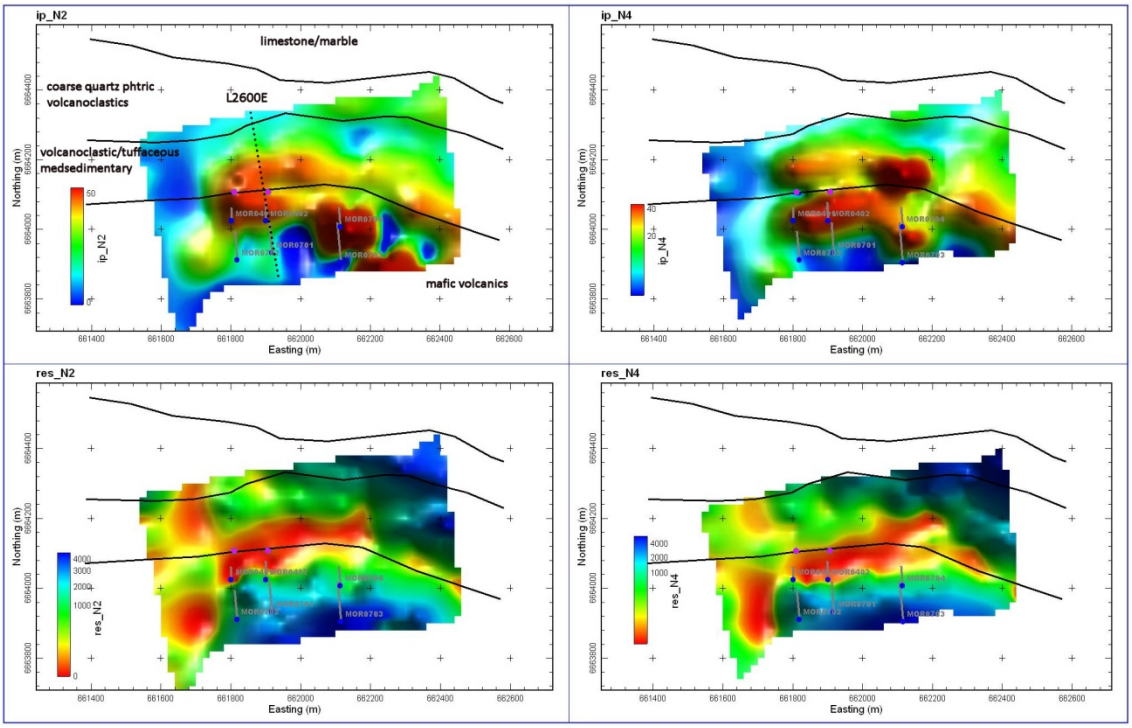



Figure 7: Mor-Discovery Zone: IP chargeability and resistivity; geology annotated in upper left image.

The IP results show the Discovery Zone is a distinct chargeability high and resistivity low. An attempt was made to correlate between the drilling results and IP outcomes and Figure 8 shows the representation of this assessment. Given the narrowness of the mineralized zones and averaging that

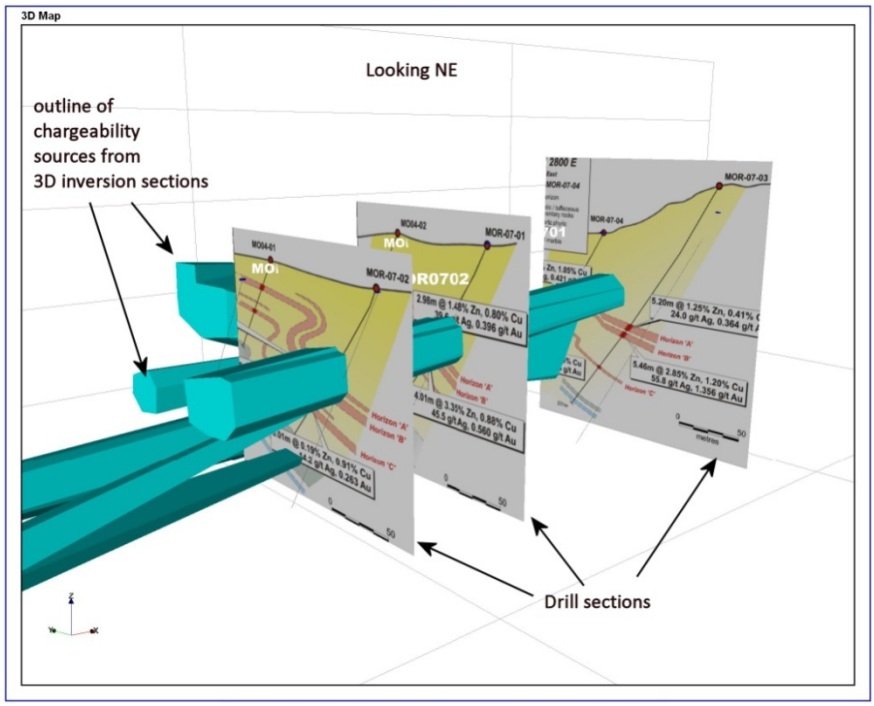



Figure 8: Mor-Discovery Zone: 3D chargeability model and drill sections.

takes place in with the IP measurement and subsequent inversion, the correlation is deemed to be satisfactory. A section of the resistivity inversion through roughly the center of the Zone (L2600E) is shown in Figure 9 (located in Figure 7 upper left image). From the inversion processing, the mineralized zone appears to have a resistivity the order of 10-50 ohm-m. This level of response would be sufficient to be detected with an airborne EM survey assuming there was a sufficient volume of material.

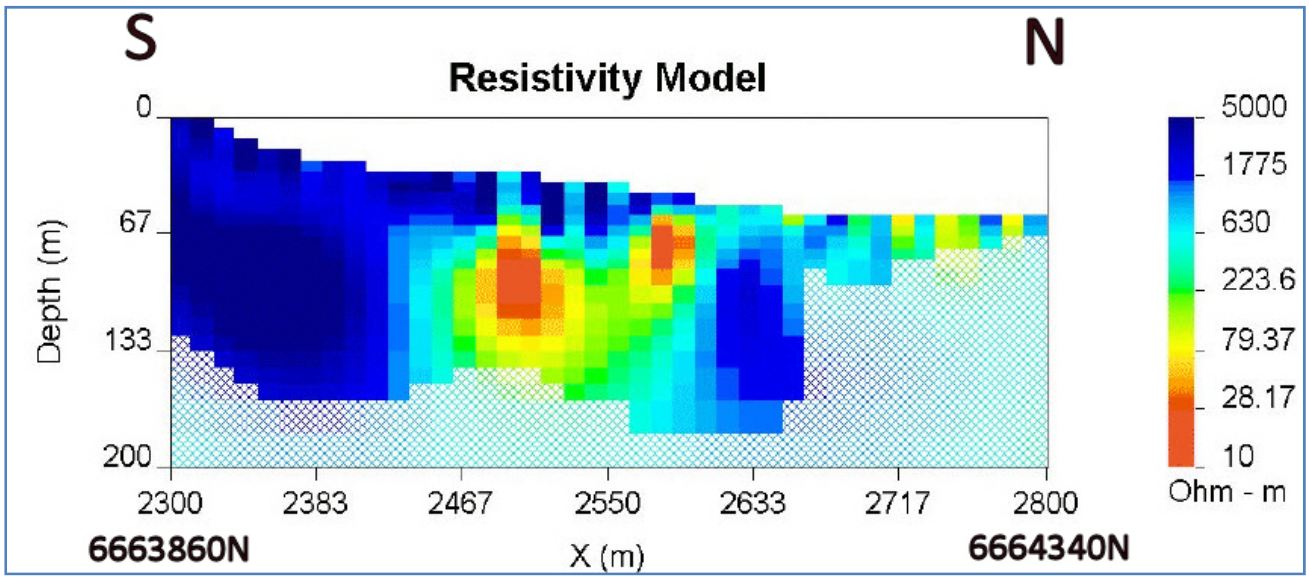



Figure 9: Mor-Discovery Zone: Inverted resistivity data for L2600E-located in Figure 7; Source-Power 2004.

**Cabin Lake**

No geology (apart from regional shown in Figure 3) is available.

**Caribou**

No geology (apart from regional shown in Figure 3) is available.

# 3. PROCESSING, ANALYSIS TECHNIQUES AND PRODUCTS

## PROCESSING

To enhance the data and to assist interpretation, the following processing steps were carried out on the VTEM EM and magnetic data. The survey contractor provided the client with both Z off-time (dB/dT) and Z on-time (B-f) data (no X or Y data is recorded with VTEM). Condor processed both data types and selected what was deemed the best outcome for the various products provided.

### EM Data Processing

#### Layered-Earth Inversion

The layered-earth inversion (LEI) algorithm models the EM data with a 28-layered earth model (Farquharson and Oldenburg, 1993, Ellis 1998), increasing in thickness from the surface to depth in an approximately logarithmic fashion. The first layer was 5 m thick and the deepest was 232 m thick. A starting model of 1 000 ohm-m (0.001 S/m) was used, with a reference model of 10 000 ohm-m (0.0001 S/m). The reference model is what the program defaults to at depth when there is no longer enough information to further refine the inversion outcome. The results of the inversion are presented in the form of a conductivity depth section (CDS).

#### Time Constant: AdTau

The AdTau program calculates the time constant (tau) from time domain decay data. The program is termed AdTau since rather than using a fixed suite of channels as commonly done, the user sets a noise level and depending on the local characteristics of the data, the program will then select the set of five channels above this noise level. In resistive areas, the earlier channels will tend to be used, whereas in conductive terrains the latest channels available can generally be used. Figure 10 shows a typical decay fit; in this case, the last five channels are used.

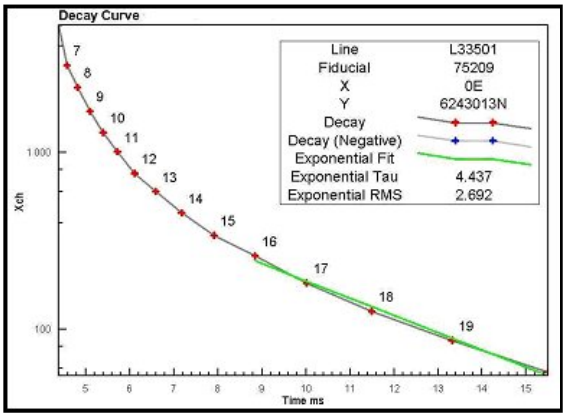



Figure 10: Typical decay showing the derivation of AdTau.

### Conductivity 3D Model

Using the 1D inversions created from the EM data, a 3D voxel model of the conductivity has been created using the encom pa application.

Additional information on the EM processing is provided in Appendix A.

### Magnetic Data Processing

In addition to the normal filters available in the Geosoft application, additional processing was done using encom pa software and algorithms described by Shi and Butt (2004) – this paper is included in Appendix C. Where one of these products is used, the prefix ZS is attached to the file name.

### Magnetic Data Modeling

The magnetic data for the Mor survey block was modeled using the code Mag3D; this is a voxel-style inversion program developed at the University of British Colombia (Li and Oldenburg 1996). Details on the modeling are provided in Appendix C.

## EM ANALYSIS TECHNIQUES

### Profile Analysis

For discrete plate-like targets, the VTEM system produces two main types of responses; those termed inductively thin or double-peaked responses (DPR) and those termed inductively thick or single-peak responses (SPR). These basic shapes are shown in profile form in Figure 11. While these two classes of response have been picked separately, for the purposes of this review they are treated as having the same geological significance.

### Picking

The MultiPlot™[1] display was the primary means to identify and rank the anomalies. This overall process is termed anomaly picking and was done on a line-by-line basis, with several passes being required to finalize the process. An EM picking scheme was used that made use of the following data:

- EM profiles
- AdTau, power line monitor and magnetic profiles and grids
- Conductivity Depth Sections (CDS)

[1] The MultiPlot is produced using the encom pa software from Encom Technology Pty. Ltd.

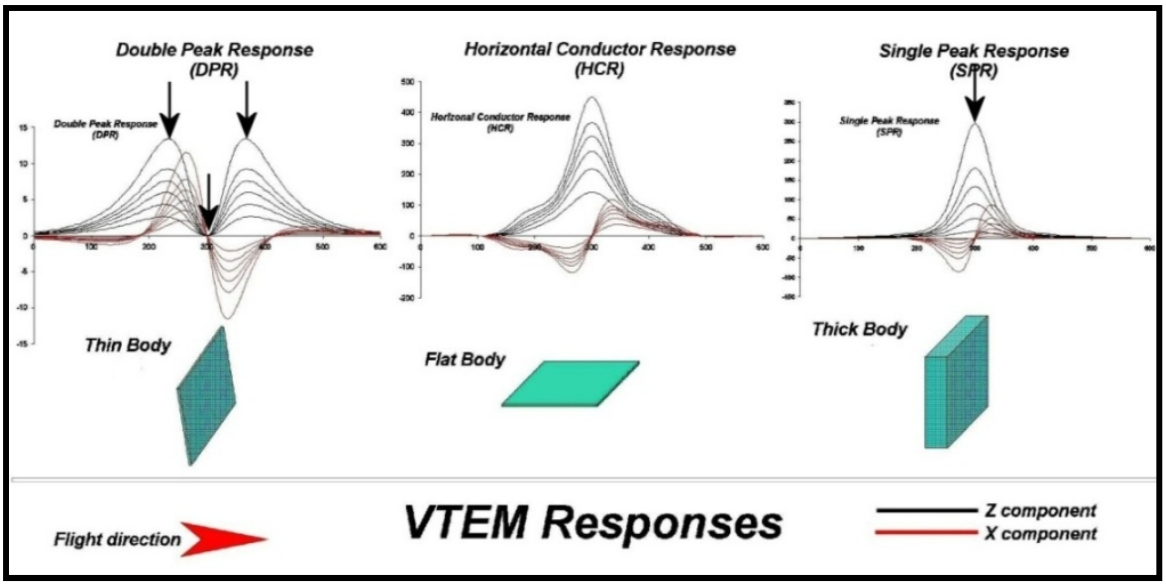



Figure 11: Examples of VTEM responses.

### Wide Zones

Wide zones (WZ) are a category of picking where there a broader zone of conductivity recognized in the data. Near-surface WZ are typically related to surficial geology whereas deeper WZ are related to bedrock sources. Frequently discrete conductors and WZ are picked in the same location and represent different aspects of the same mineralized system.

### Target Zones

Groupings of conductors are termed Target Zones or TZ. A TZ is deemed as a logical grouping of conductors within the data set and is based on an assessment of the distribution of individual conductor picks, plus any other available geoscience data. The TZs are then prioritized for follow up work based on their overall geophysical character and how this relates to the defined target models for the project.

## PRODUCTS

Table 3-1 lists the maps and products that are provided. Other products can be prepared from the existing dataset, if required.

Base Maps: All maps are created using the following parameters:

Projection Description:
Datum: WGS84
Ellipsoid: WGS84
Projection: UTM (Zone: 8N)

Central Meridian: 135ºW

False Northing: 0

False Easting: 500 000

Scale Factor: 0.9996

## Table 3-1 Survey Products

TargetMaps @ 1:30 000 (1 hard copy + digital)

All maps show the indicated themes as well as the Condor discrete picks and Target Zones

- Total magnetic Intensity (TMI)
- ZS TMI-Tilt
- EM (dB/dT) Ch 1
- AdTau (dB/dT 0.002 pV/Am^4) + Wide Zones
- DTM (from VTEM survey)

MultiPlots™ @ 1:20 000 (digital only)

Mini-Plates™: TMI, TMI-ZS_Tilt and as noted below for each area:

Cabin Lake: Miniplate 3: EM B-f Ch 1, Miniplate 4: AdTau B-f 0.01 pVms/$Am^4$

Caribou: Miniplate 3: EM dB/dT Ch 1, Miniplate 4: AdTau dB/dT 0.002 pV/$Am^4$

MOR: Miniplate 3: EM B-f Ch 1, Miniplate 4: AdTau B-f 0.01 pVms/$Am^4$

MOR-Ext: Miniplate 3: EM dB/dT Ch 1, Miniplate 4: AdTau dB/dT 0.002 pV/$Am^4$

On each MultiPlot™ the picked anomalies and Target Zones are indicated along with the following:

- Profiles-EM dB/dT Ch 1-25
- Profiles-EM B-f Ch 1-25
- Profiles-Magnetics: TMI, 1st Vertical derivative and Analytic Signal
- Profiles-AdTau dB/dT (0.005 pV/ $Am^4$); B-f (0.005 pVms/$Am^4$) + power line monitor
- LEI-CDS dB/dT;
  Cabin: (0.1-100 mS/m) + bird height
  Caribou: (0.1-10 mS/m) + bird height
  Mor: (0.1-50 mS/m) + bird height + drill holes[2] (± 50 m from section)
  Mor Ext: (0.1-50 mS/m) + bird height)

[2] The drill holes displayed are from the data base provided by the client.

- Susceptibility Depth Section + drill holes (± 50 m from section)
- TrackMap 1: TMI-ZS Tilt filter

Mag3D Modeling

The following products are provided as part of the Mag3D modeling. Some are stand-alone and some are imbedded with other products; the letters S and I are used to flag which; S= stand-alone and I = imbedded.

- UBC mesh and sus files (S)
- Magnetic model X, Y and Z format (S)
- 3D DXFs (S)
- Susceptibility Depth Section (I- in MultiPlots)
- AVI of model (S)
- Notes on processing (S)-Appendix C

Conductivity 3D Model

Using the 1D inversions created from the EM data, a 3D voxel model of the conductivity has been created using the encom application. The suite of products (primary and derived) is listed below.

- UBC mesh and con files (S)
- Conductivity model X, Y and Z format (S)
- 3D DXFs (S)
- AVI of model (S)

Processing and Analysis Report (1 copy)

On the Archive DVD (Appendix D) the following files are provided:

-Digital archive in Geosoft format

-Profile Analyst session file (to create MultiPlots™)

-Anomaly data bases in Excel and Geosoft formats

-PDFs of TargetMaps and MultiPlots™

-Processing and Analysis Report (PDF)

-Set of images from report (higher resolution than is possible to reproduce in the report).

- encom Viewer (provided at no cost)

# 4. SURVEY RESULTS

## Data Quality

The quality of the EM and magnetic data was deemed to be acceptable and shows noise levels similar to other VTEM data sets acquired in the same time frame as the present survey.

## Magnetic Results

### Mor

The magnetic results (TMI and TMI-Tilt) are shown in Figure 12. A number of the major linears have been marked on the images. There appears to be at least three magnetic domains or blocks in the survey area; these have been indicated in Figure 12-left image. Block A shows an alternating series of N75W trending bands with several intrusive areas or tightly folded centers (circled in orange). The Discovery Zone lies on the northern edge of one of these more discrete zones. These discrete zones could represent the locations of volcanic centers that have breached the paleostratigraphy. Massive sulfide deposits are associated with these volcanic centers.

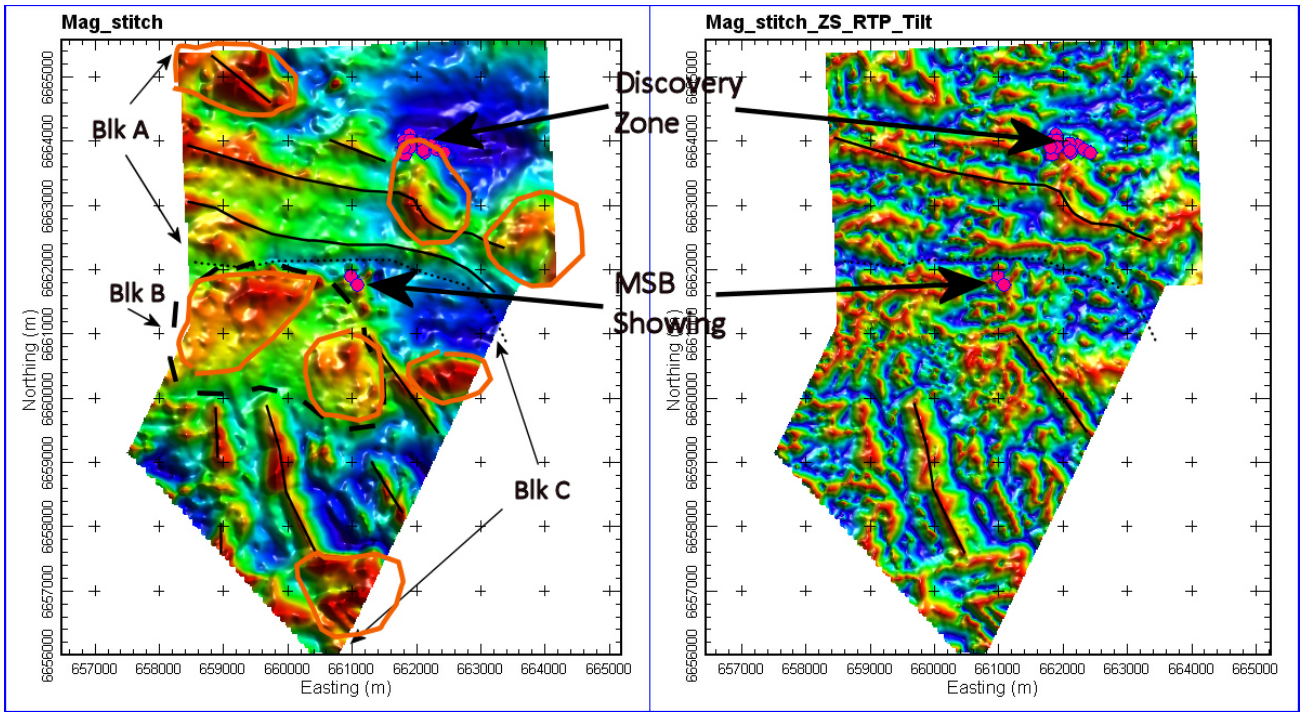



Figure 12: Mor/Mor Extension: TMI and TMI-Tilt with interpretive layer and 2007-2008 drilling (red dots).

### Mag3D

A Mag3D model (UBC voxel-style model) was run for the Mor 2007 survey and the provided products are listed in Table 3-1. A snap-shot of the Mag3D model with the Tarsis drilling is shown in Figure 13. The 3D model appears to reinforce the association of mineralization at the edges of discrete magnetic zones. This could be useful in targeting other prospective areas on the property.

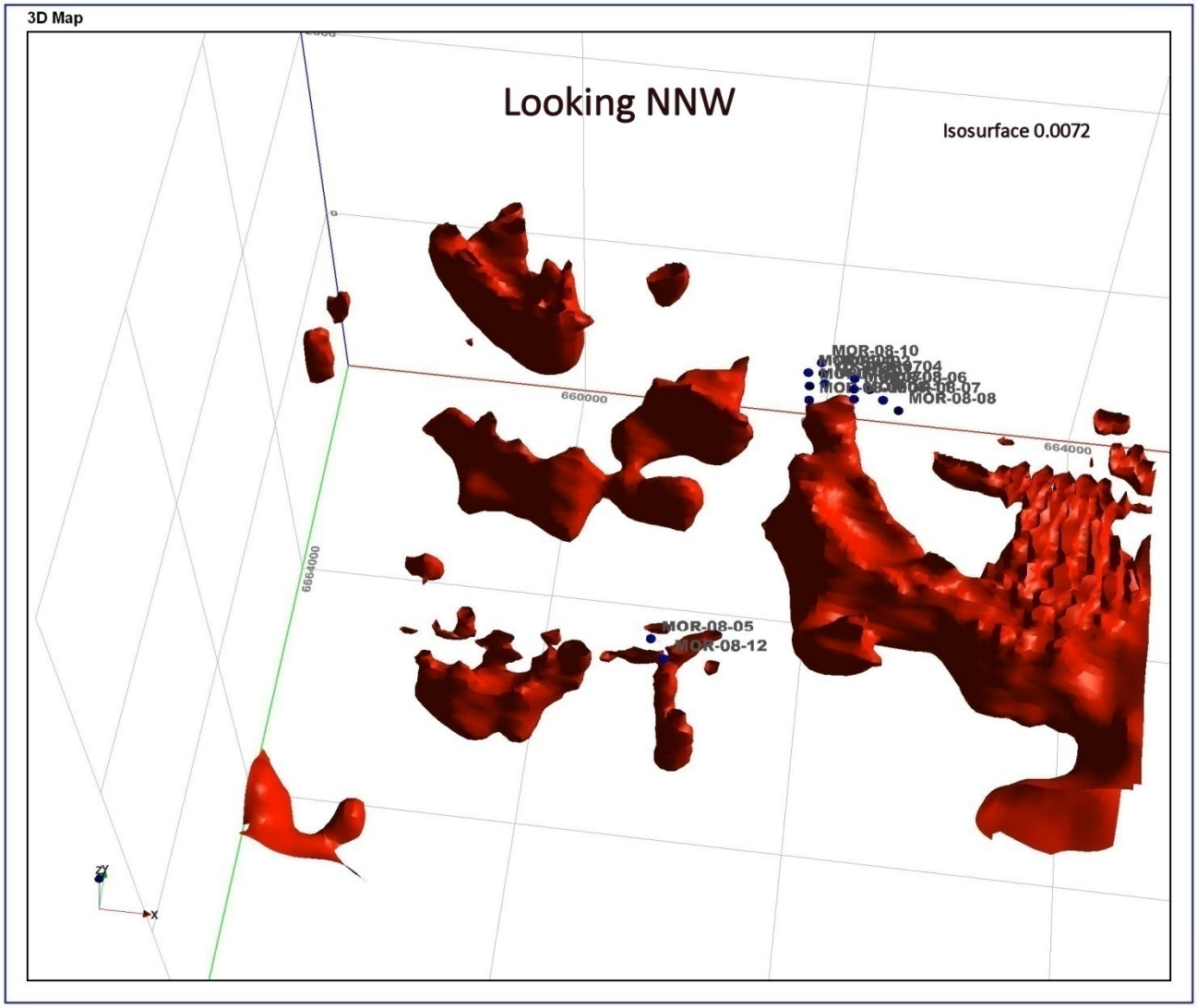



Figure 13: Mor: Mag3D model; 0.0072 SI isosurface + 2007-2008 drilling.

### Cabin Lake

The TMI and TMI-Tilt images are shown in Figure 14. A number of the major linears and closures have been annotated on these images. The regional geology map suggests there are intrusives located in the northern end of the block and the SW corner (granodiorite and quartz monzonite). There are

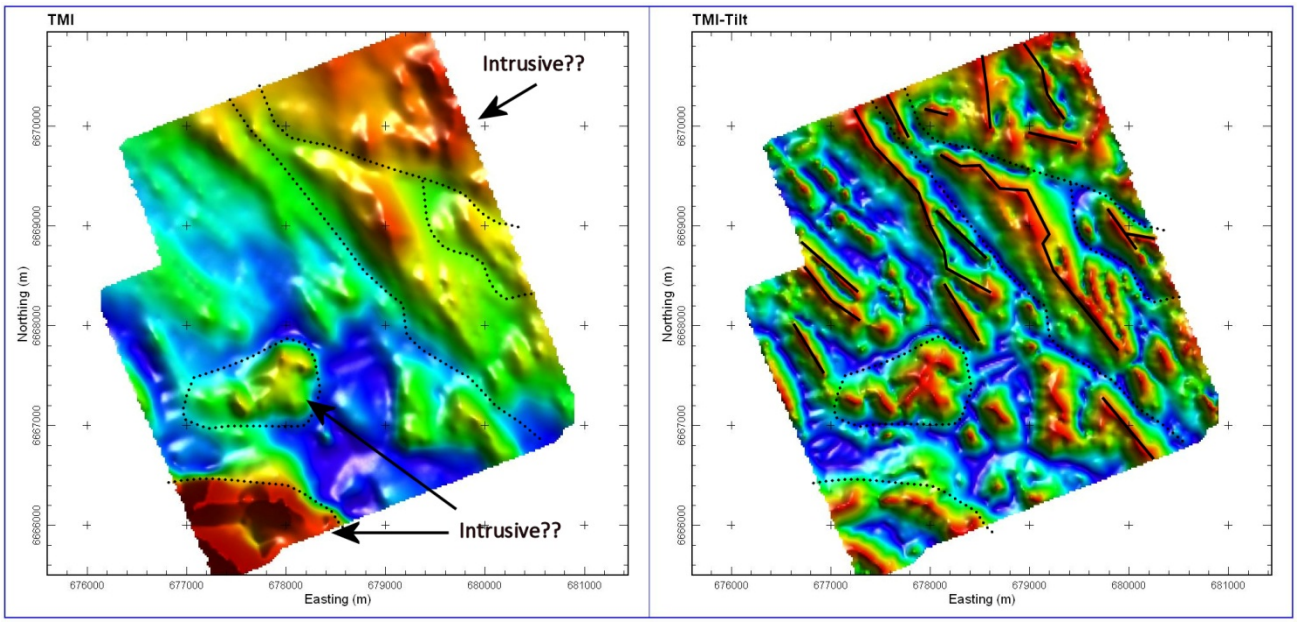



Figure 14: Cabin Lake: TMI and TMI-Tilt with interpretation.

two discrete or semi-discrete sources in the SW part of the block that are suggestive of being intrusives. A zone of elevated magnetic response in the northern end of the block could be intrusive rocks as well. The grain of the magnetic response otherwise is close to N40W. There are no 'knots' of discrete response along the linears as noted on the Mor property.

### Caribou

The TMI and TMI-Tilt images are shown in Figure 15. The regional geology indicates there is a mixture of mafic volcanics and carbonate lenses. The images are dominated by a number of semi-discrete highs, showing locally what appears to be tight folding. This terrain does not look like either Cabin Lake or Mor.

## EM Survey Results

### Mor

The EM Channel 1 and AdTau (B-field) is shown in Figure 16. The two zones of known mineralization are highlighted with the drill hole collars (white dots). The central zone (designated as Mag Showing, SD Showing and Bean Showing in Figure 5 or shortened to MSB Area for this report) appears as a strong, very discrete feature, especially in the AdTau image. The Discovery Zone appears reasonably discrete in the EM Channel 1 image but less so in the AdTau where the zone merges into a larger more formational type feature to the east. The Mor Extension block appears to host only several large formational conductors and no discrete bedrock features were recognized.

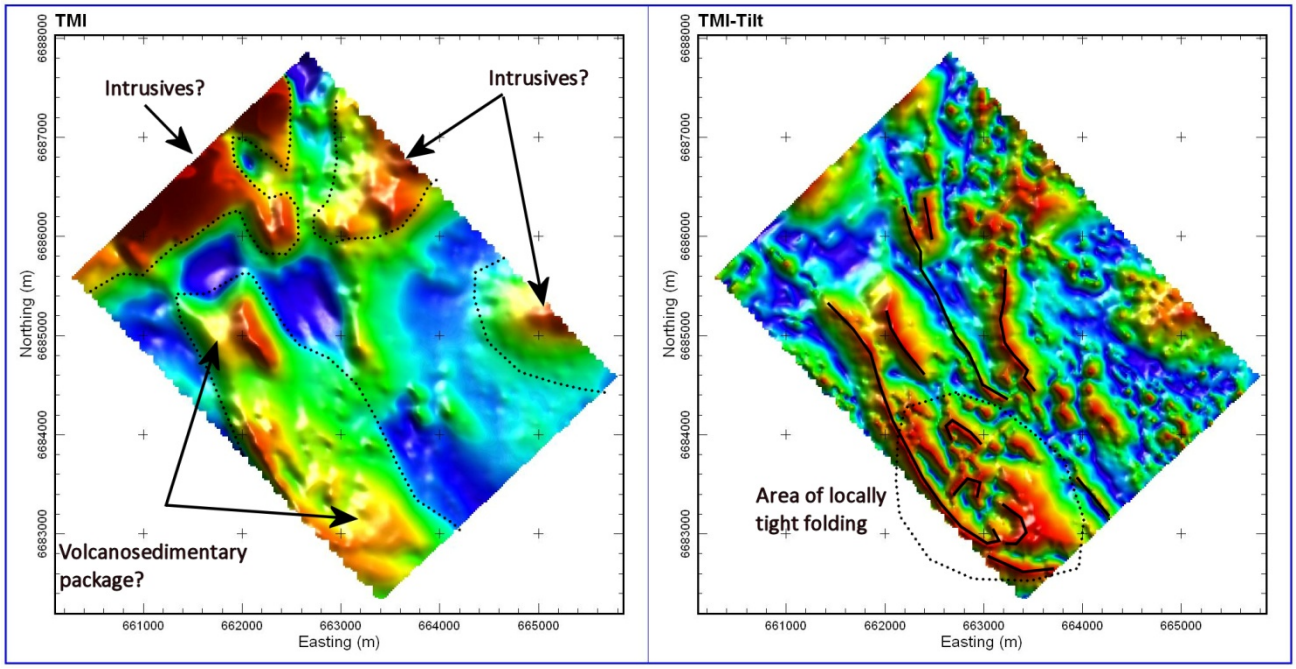



Figure 15: Caribou: TMI and TMI-Tilt with interpretation.

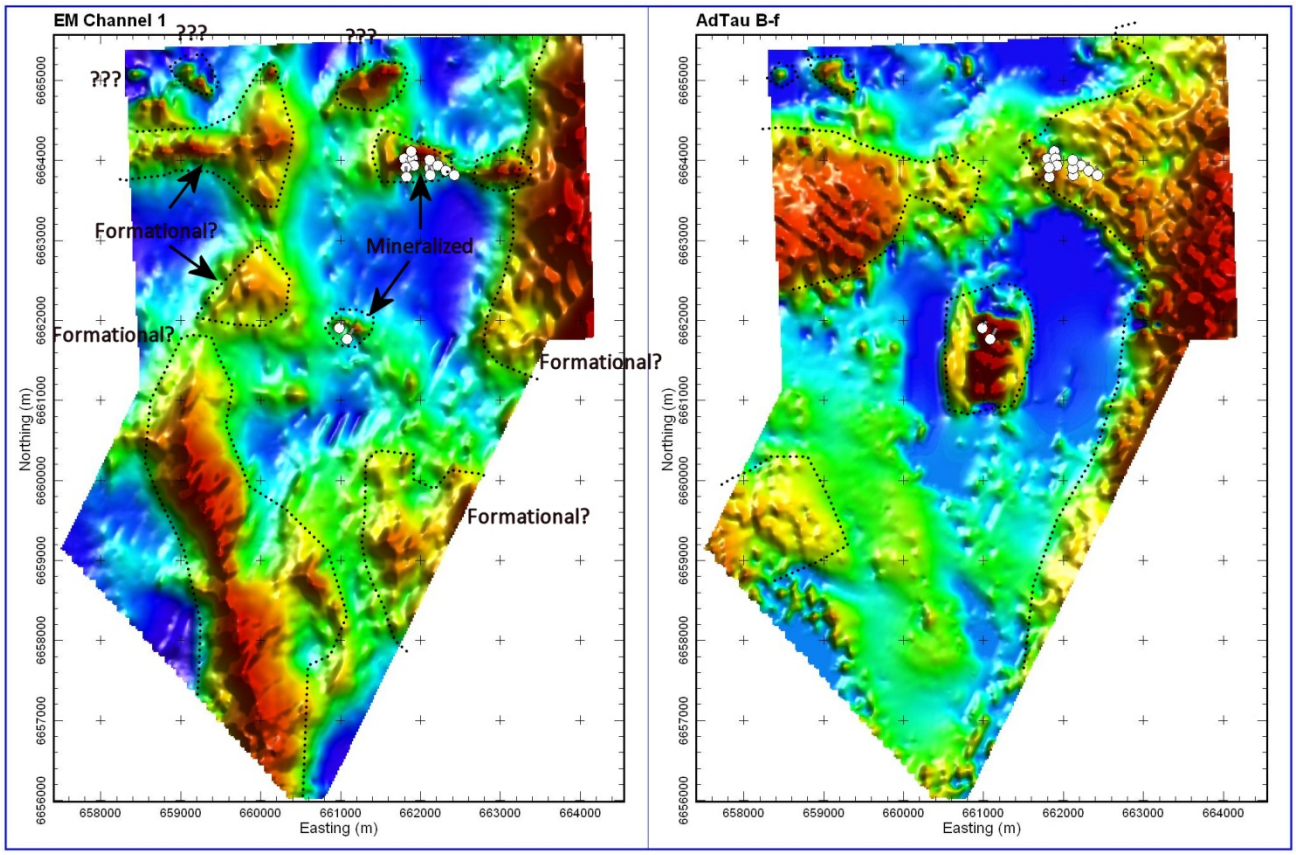



Figure 16: Mor/Mor Extension: EM Channel 1 and AdTau (B-f) with interpretation and drilling (white dots).

Figure 17 shows the same images as in Figure 16 but with the EM picks and Target Zones defined. Tarsis had an earlier assessment performed on the survey by Geotech Ltd. (Bournas 2007) and the labels applied to the zones defined by Bournas were used by Condor where they overlapped. No formal reconciliation between Geotech's and Condor's assessment of the responses has been undertaken.

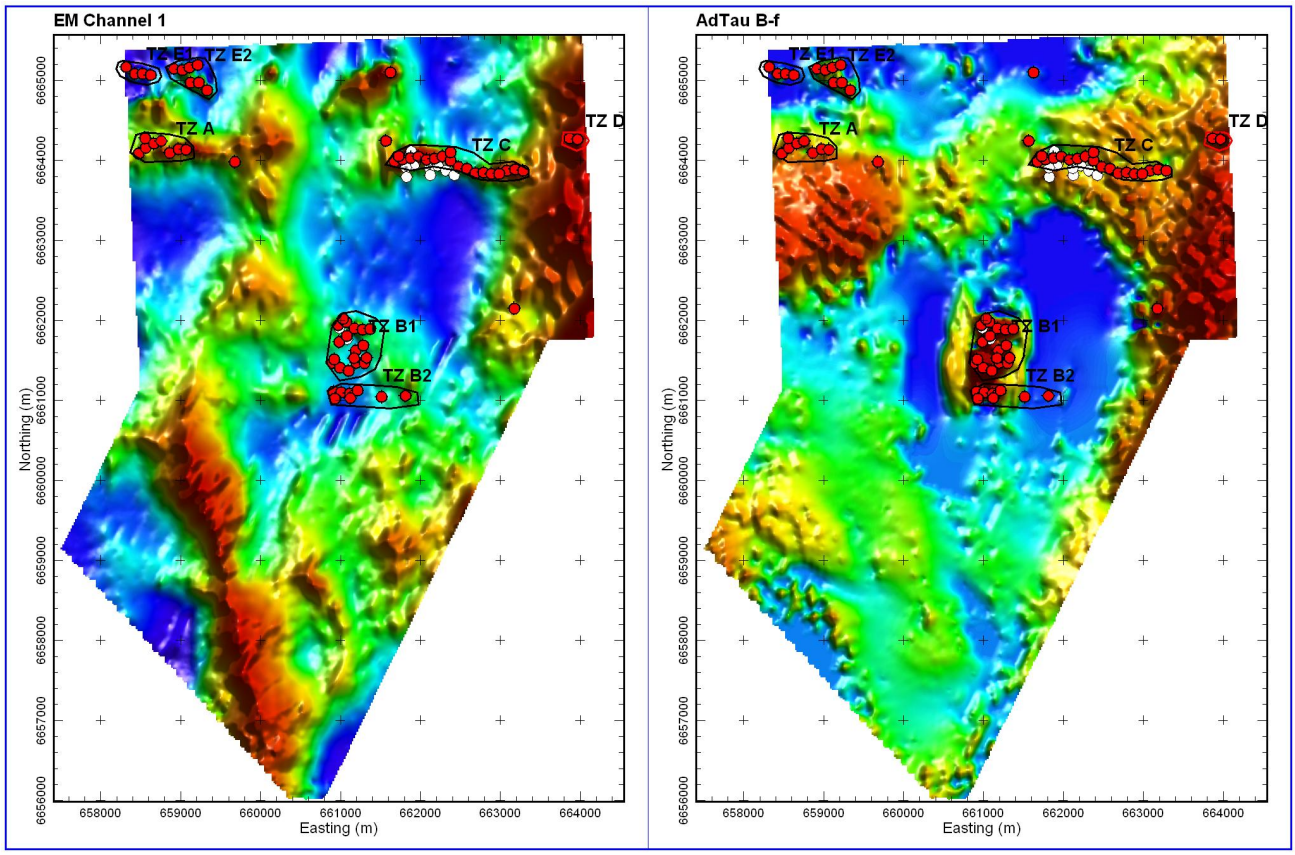



Figure 17: Mor/Mor Extension: EM Channel 1 and AdTau with EM picks (red dots), Target Zones and drilling (white dots).

**EM3D**

A 3D model of the EM response was created from the 1D inversions along the flight lines; an image of this is shown in Figure 18 and several AVIs and DXFs are provided as well (see Table 3-1). This image suggests there are several different styles of conductivity structure on the property. On the western side of the block, TZ A appears to be at the upper edge of a conductive sheet dipping to the south. TZ B1 and B2 are associated with a discrete "island" of high conductivity that appears disconnected from the other conductivity distributions on the property. TZ C appears as the western extension of a formational type response that extends along the eastern side of the property. TZ D lies over this formational zone. TZ E1 and E2 are isolated features in the far NW corner of the survey block.

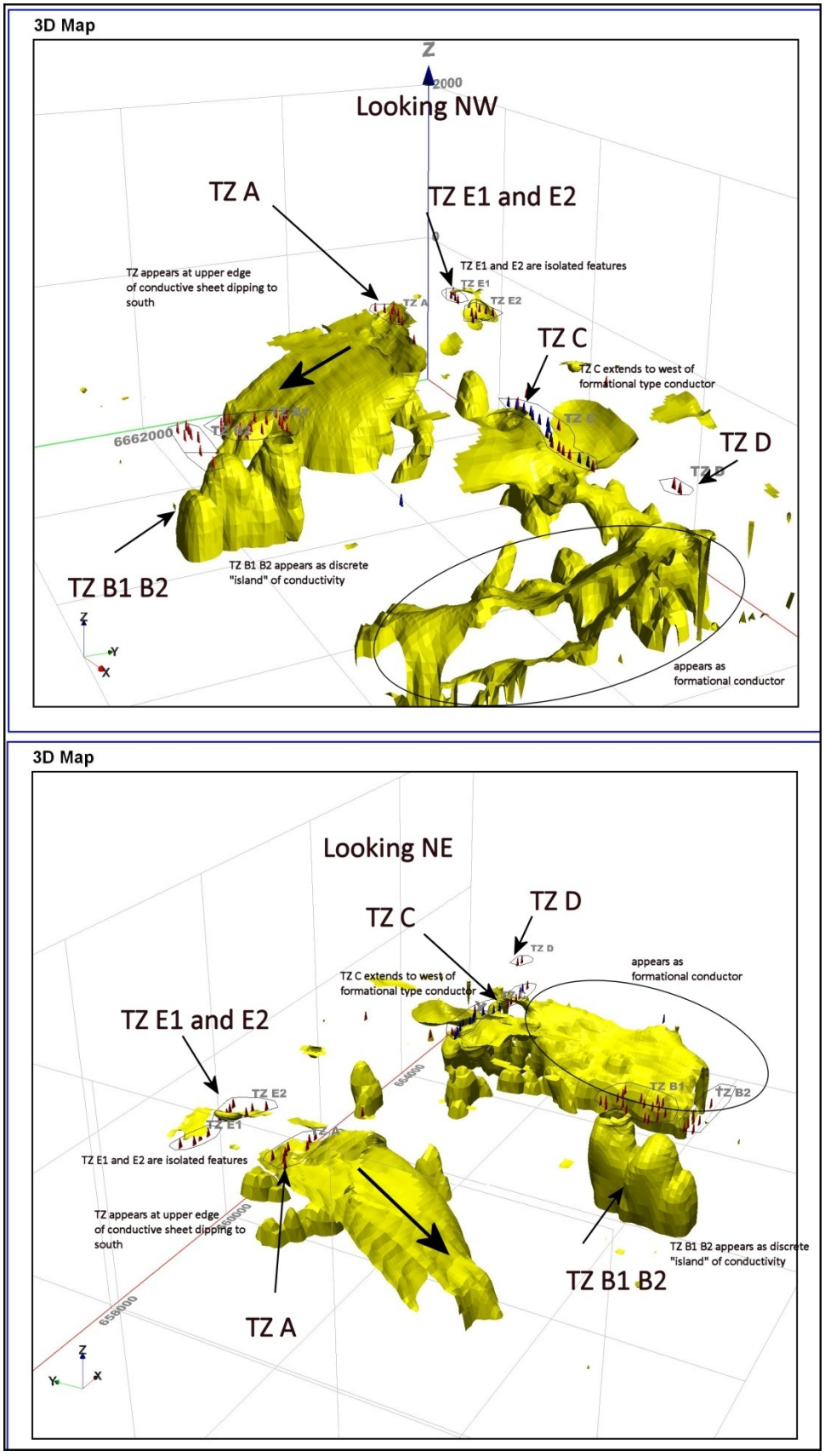



Figure 18: Mor: Views of 3D EM voxel model for Mor showing EM picks and TZs.

**TZ**

The various TZ are discussed in more detail. For the figures provided, both the Mag3D and EM3D voxel models are displayed.

**TZ A:** Figure 19: Located in the NW corner of the survey, this is a limited strike length string of discrete EM picks; appears to trend off the survey block to the west. The EM conductivity model shows the TZ to be lying at the upper edge of a southward dipping conductive sheet. The EM Channel 1 response (Figure 17) appears to highlight this upper edge whereas the AdTau appears to be responding more to the depth extent of the horizon. The voxel model and AdTau both suggest this unit is limited spatially to the western side of the survey block. The magnetic results show there are several steeply dipping magnetic highs associated with the overall EM feature. The stronger magnetic response does not appear to correlate directly with the discrete EM picks.

**TZ B1 & TZ B2**: Figure 20: The EM response appears as a discrete feature that has three distinct sections and these get progressively deeper moving from north to south. There seems to be a shallow magnetic body at the north end of feature with a rod-like protrusion that plunges to the south. A large magnetic source lies just to the west but does not shown any EM response.

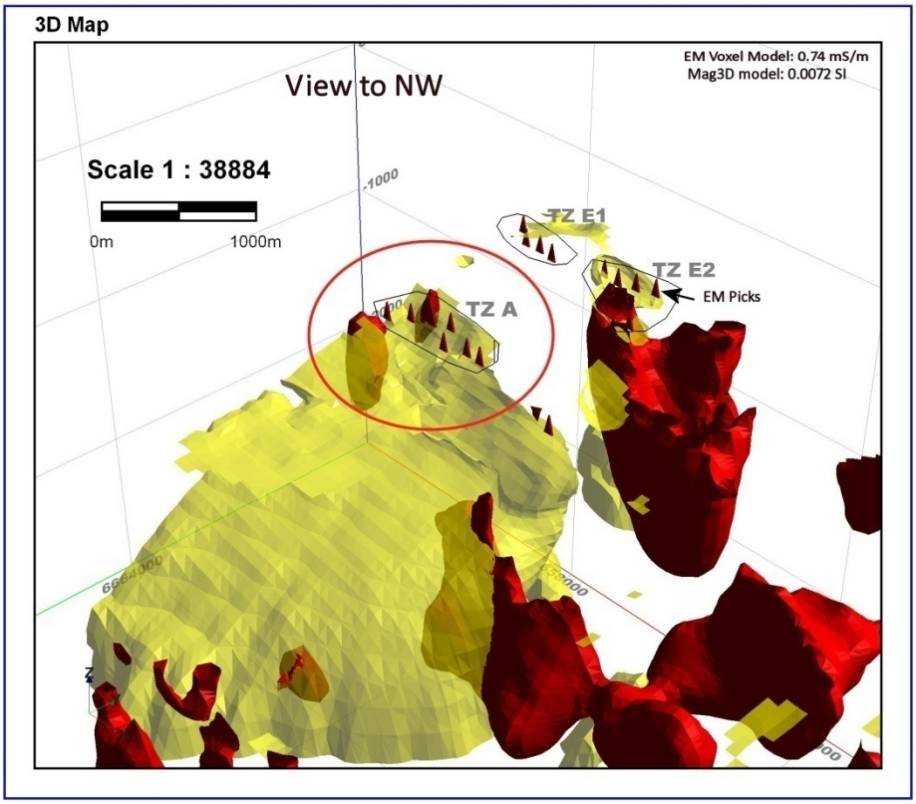



Figure 19: Mor/Mor Extension: TZ A: EM (yellow) and susceptibility (red) models.

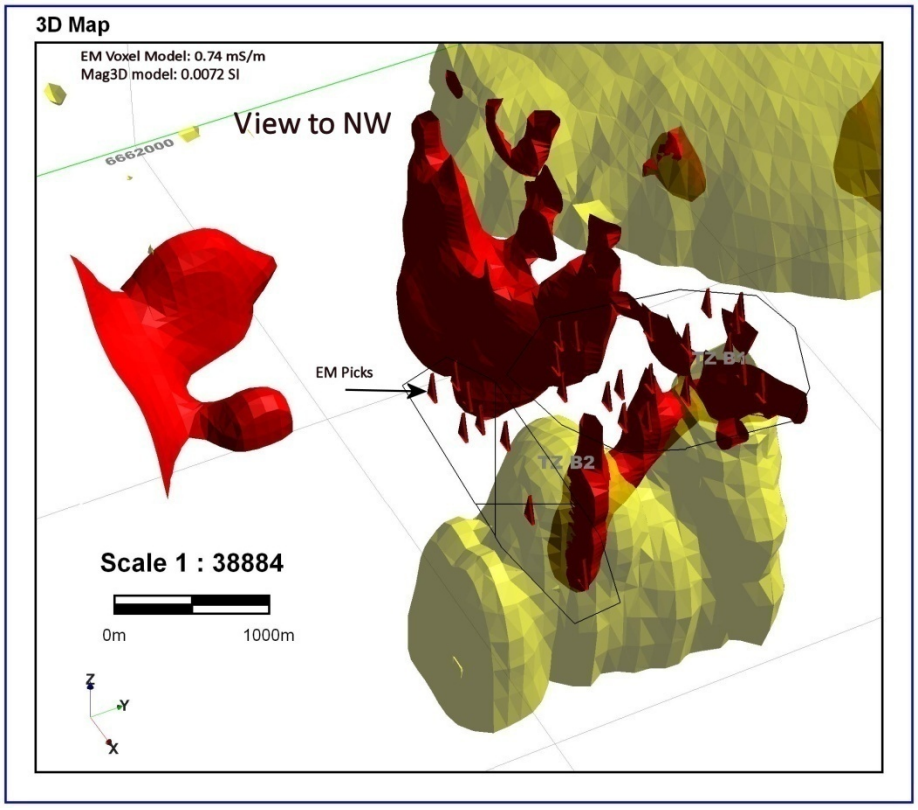



Figure 20: Mor/Mor Extension: TZs B1 and B2; EM (yellow) and susceptibility (red) models.

**TZ C:** Figures 21 and 22: The EM and magnetic responses in this area are quite complex. The area of known mineralization appears as discrete EM picks but does not image very well in the 3D model. There seems to be a flat-lying EM basement that is dipping off to the east towards the noted formational conductor along the eastern side of the survey block. The magnetic model shows an N-S body that stops at the western end of the TZ and extends to the south. There is another magnetic source at the eastern end of the TZ but at depth; this feature and the other appear to join up to the south and form a larger body. Conductivity appears to infill an embayment made by the magnetic model. Figure 22 provides a view of the models from the north and shows there is a zone of deeper conductivity to the NE of the Discovery Zone.

**TZ D:** Figure 22: This is a strike limited target with what appears to be coincident EM and magnetic responses.

**TZ E1 and E2:** Figure 23: There appears to be a modest conductivity zone connecting the two TZ. There also appears to be a significant magnetic body associated with TZ E1.

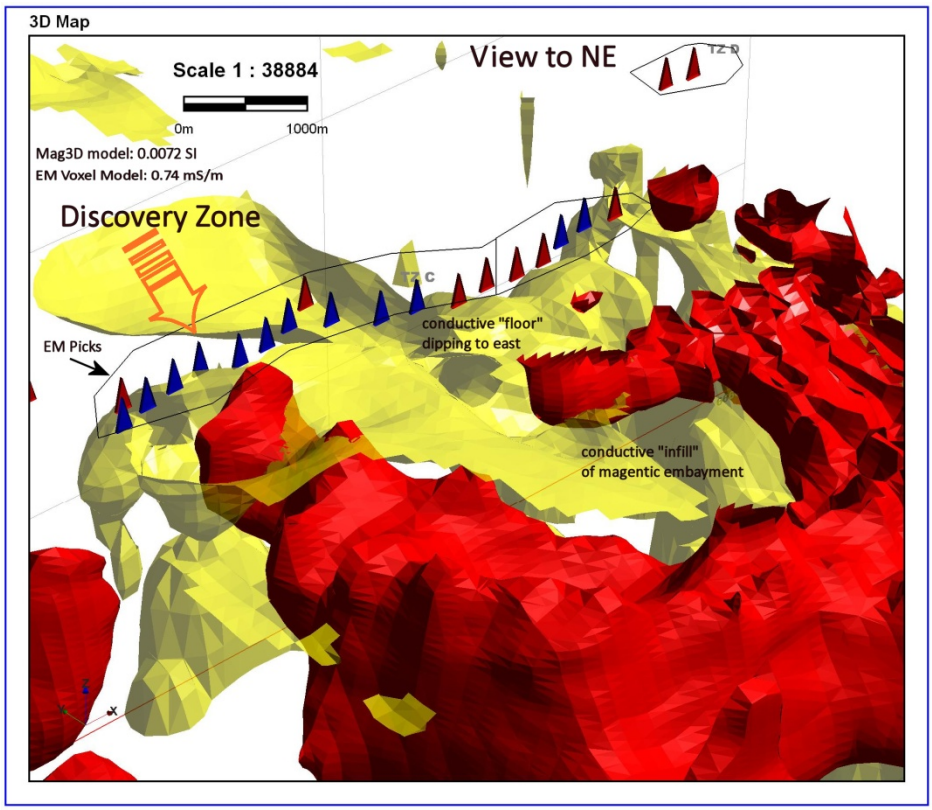



Figure 21: Mor/Mor Extension: TZs C and D; EM (yellow) and susceptibility (red) models.

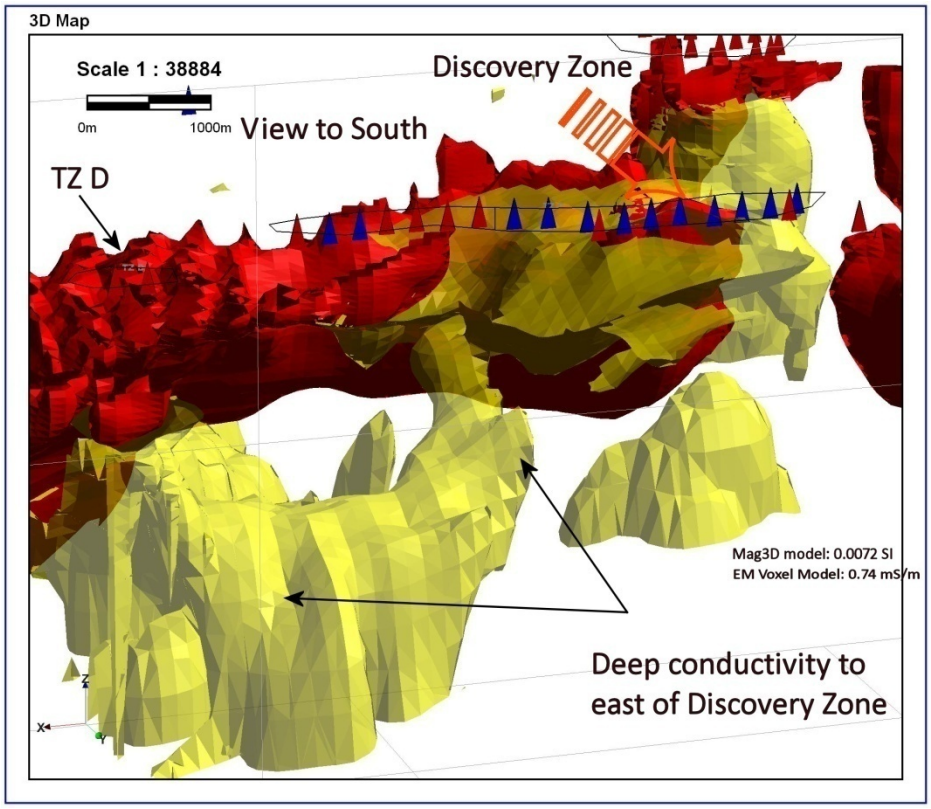



Figure 22: Mor/Mor Extension: TZs C and D; EM (yellow) and susceptibility (red) models.

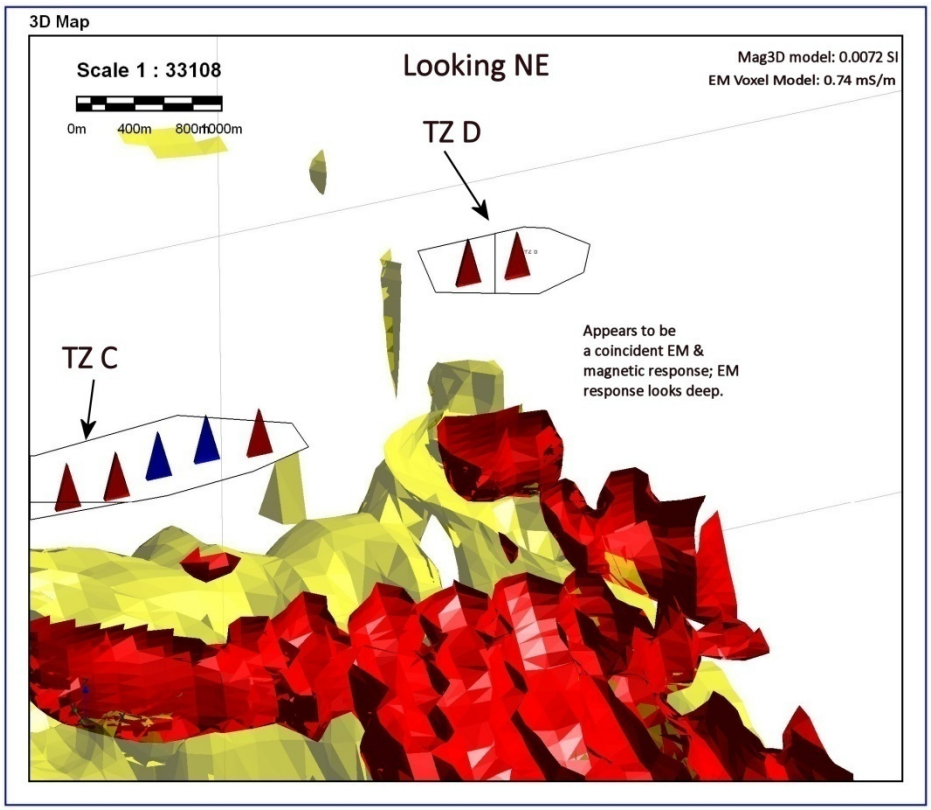



Figure 23: Mor/Mor Extension: TZ D: EM (yellow) and susceptibility (red) models.

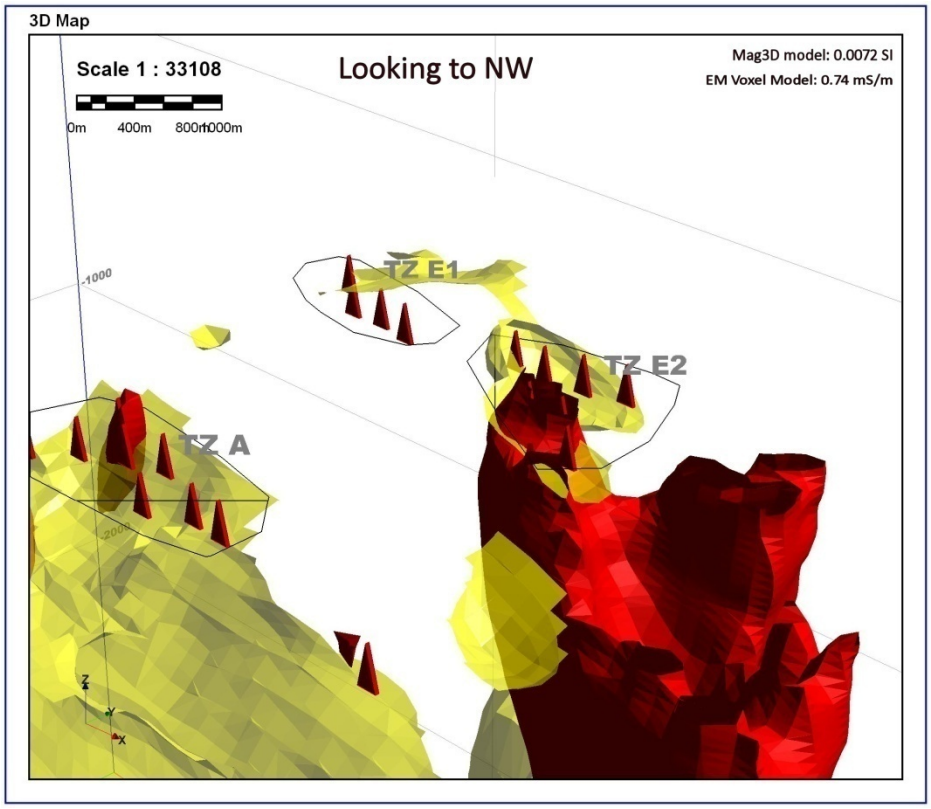



Figure 24: Mor/Mor Extension: TZs E1 and E2; EM (yellow) and susceptibility (red) models.

## Cabin Lake

Figure 25 shows the EM Channel 1 and AdTau B-f response with the picking for survey block. Wide Zones were the dormant style of EM response in the survey. A number of discrete picks were selected as well, but these all appeared to represent the edges of Wide Zones rather than discrete bedrock features.

An EM voxel model was created for the survey and Figure 26 shows perspective views of three thresholds with the TZs. There appears to be a complex zone of conductivity at the northern end of the survey block that extends along the eastern margin of the block to the south. The southward extension appears to be mapping out a conductive unit that is steeply dipping along the eastern edge of the block but then dips westward and flattens out at depth. Four TZs have been selected and are discussed below.

**TZ 1:** Figures 26, 27 and 28: This is a limited strike length feature that lies on the western side of the formational style conductor that extends the full length of the survey in an N-S direction. In Figure 26,

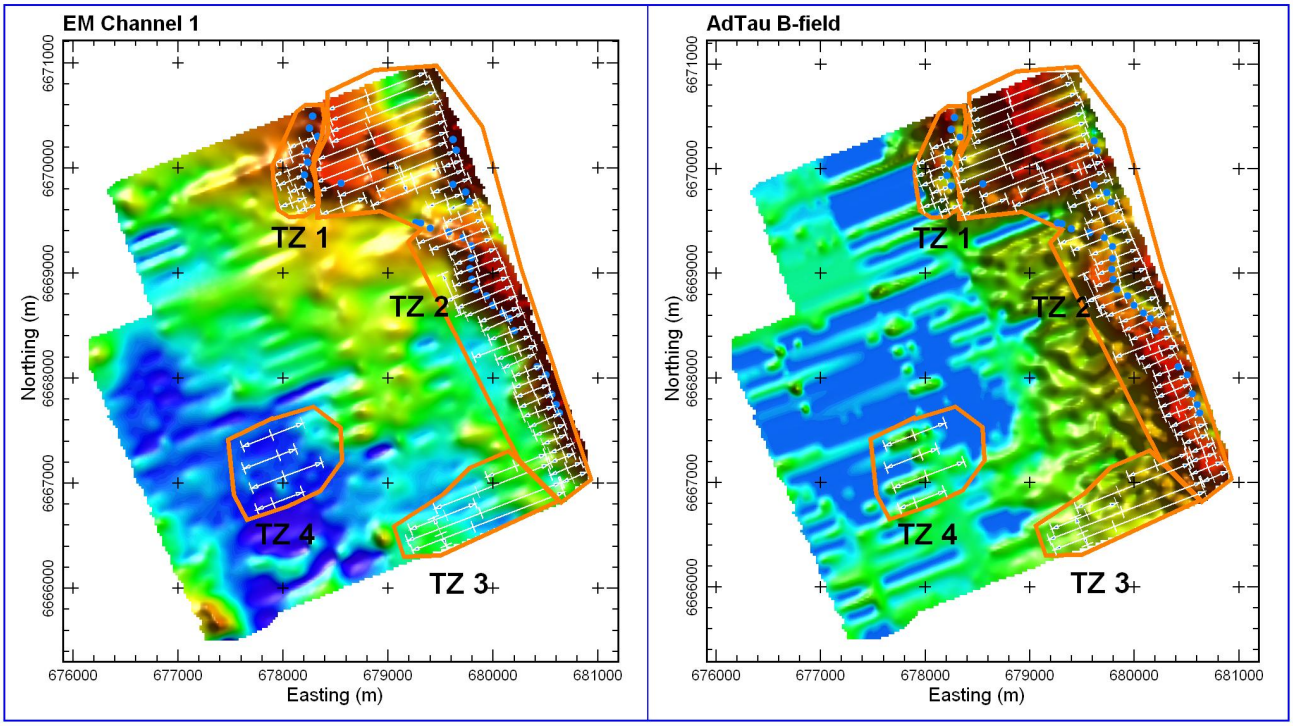



Figure 25: Cabin Lake: EM Channel 1 and AdTau (B-f) with TZs and EM picks.

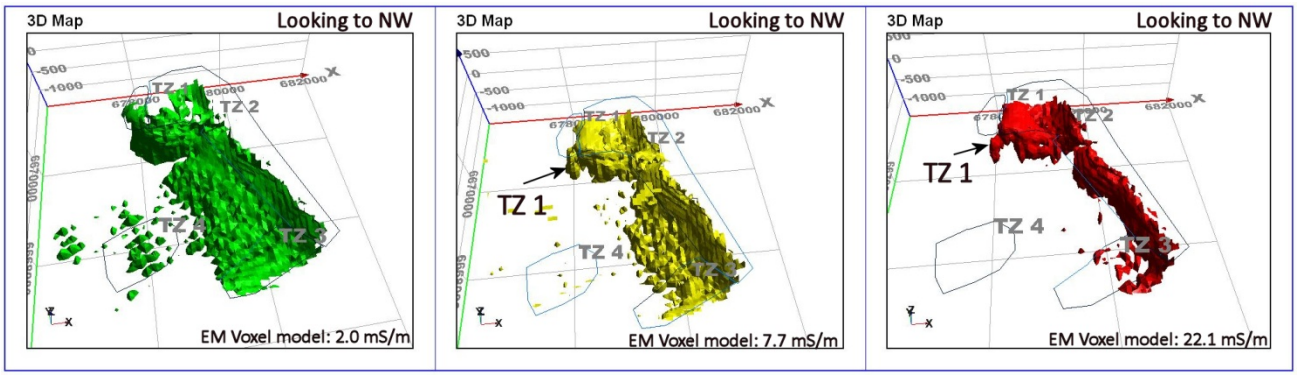



Figure 26: Cabin Lake EM voxel model with three thresholds; 2, 7.7 and 22.1 mS/m with TZ.

its location is highlighted in the central and right hand panels. Figure 27 shows the feature in more detail in the EM voxel model. L8040 passes over the top of this TZ and the geophysical outcomes along this line are shown in Figure 28. Target modeling of this feature is warranted prior to drilling but the depth appears to be the order of several hundred meters.

**TZ 2:** Figure 29: This zone of conductivity is deemed to be most likely formational and hence not a economic target. However, understanding how it relates to the overall geology of the survey block is deemed important. In Figure 29, two of the conductivity isosurfaces are highlighted in order to better define the Zone's overall character.

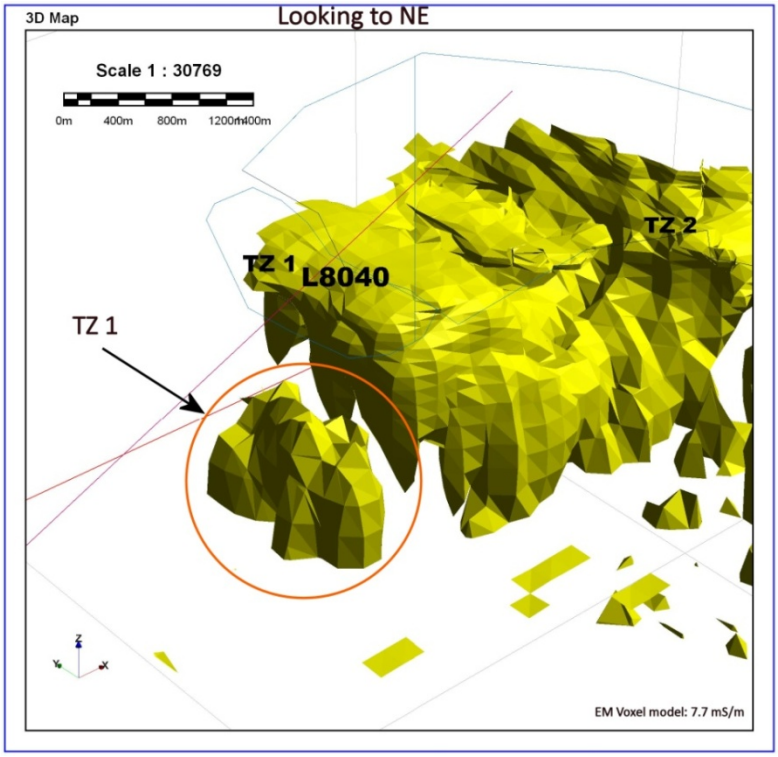



Figure 27: Cabin Lake: EM voxel model showing TZ 1.

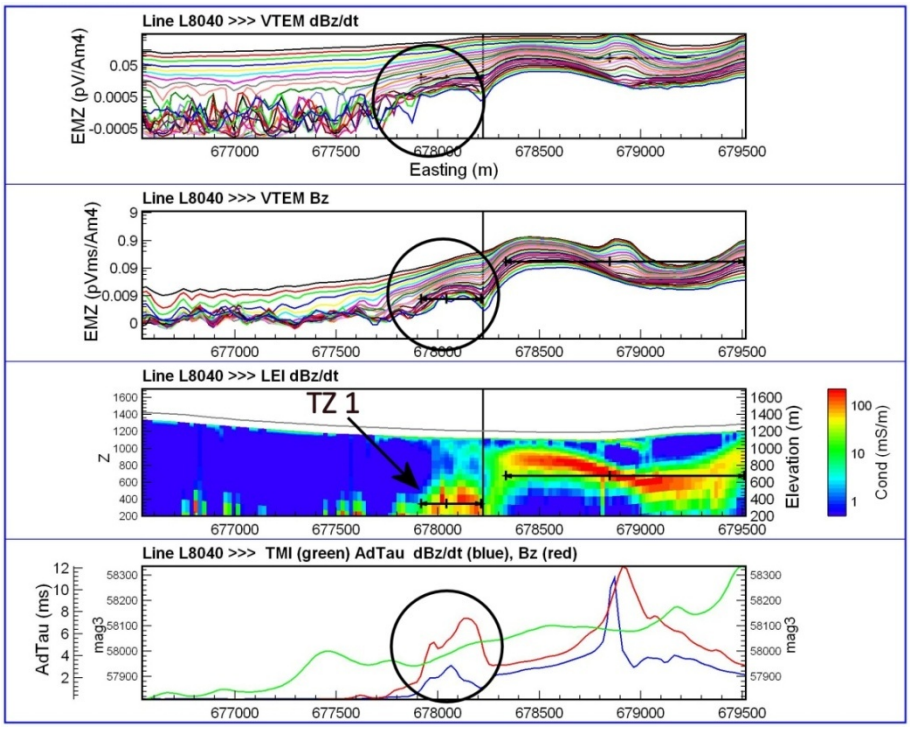



Figure 28: Cabin Lake: MultiPlot for L8040 over TZ 1.

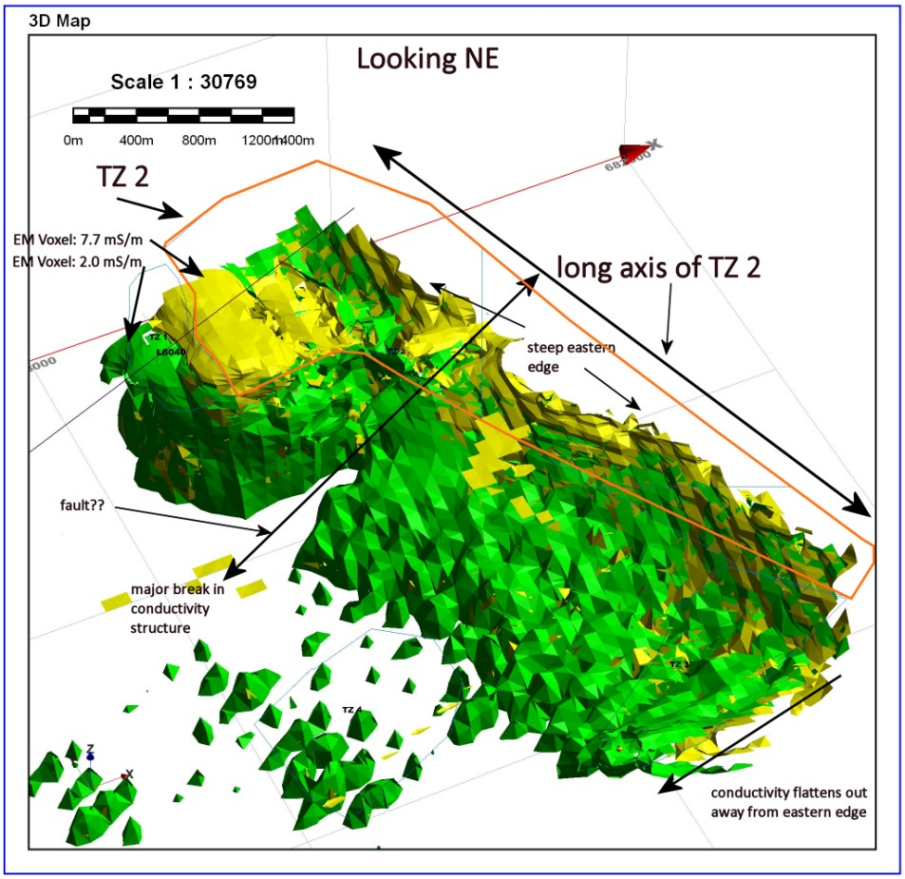



Figure 29: Cabin Lake EM voxel model for TZ 2.

**TZ 3:** Figure 30: Like TZ 2, this TZ appears to be a formational but represents a major change in the character of the sub-surface conductivity and hence is deemed worthy of taking note of. This TZ is not deemed to be of economic interest based on current information.

**TZ 4:** Figures 12, 25 and 26: This TZ is a weak change in the EM character that could represent some effect of an intrusive event located in the SW corner of the property as best expressed in Figure 12. The EM character is deemed marginal at best and follow-up using the IP technique is recommended if this TZ were to be further investigated.

## Caribou

The EM Channel 1 and AdTau response is shown in Figure 31. Indicated as well is the one EM pick indentified on this block. Figure 32 shows the MultiPlot over this feature. An EM voxel model was created for this block but showed no character of either a discrete target or geological mapping interest. The single pick (contained within TZ 1) is deemed to be a reliable target and given its location on the northern edge of the survey block, could extend off the grid.

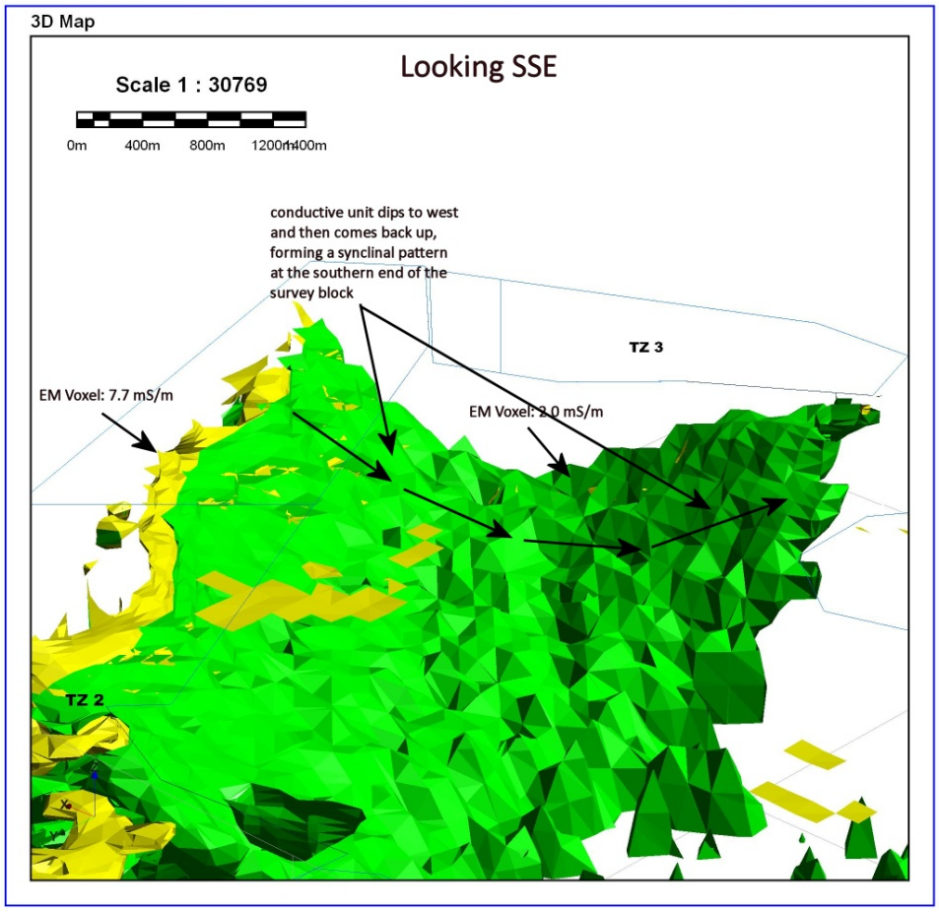



Figure 30: Cabin Lake EM voxel model for TZ 3.

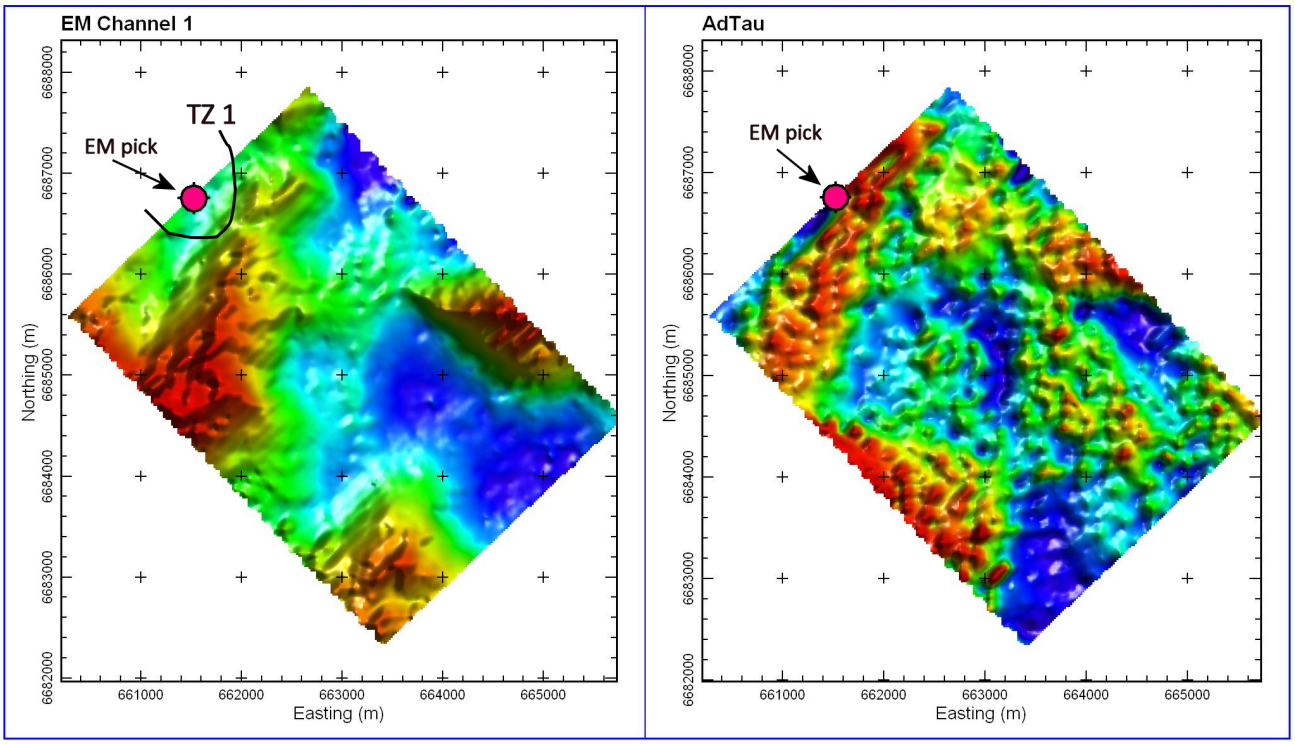



Figure 31: Caribou EM Channel 1 and AdTau showing EM pick.

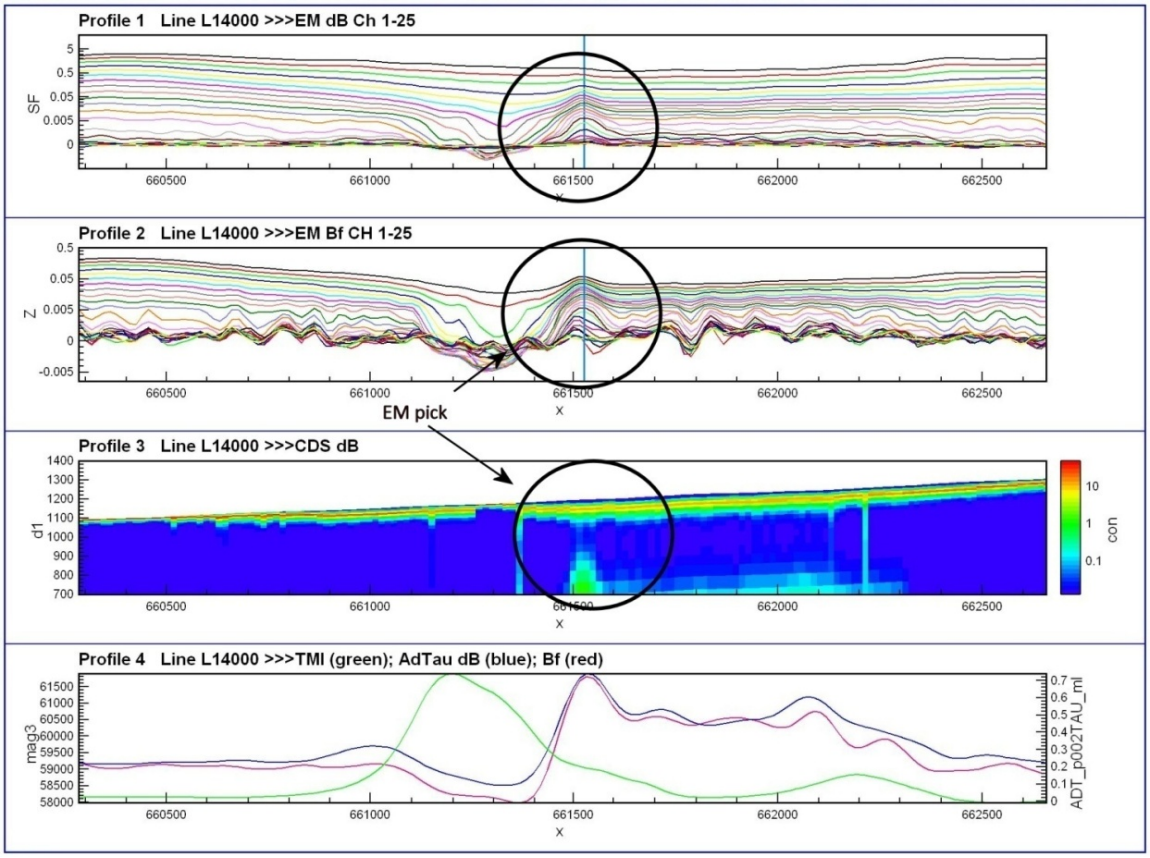



Figure 32: Caribou; MultiPlot L14000 showing EM pick

# Discussion

## Mor

The Mor assessment shows several untested targets of interest as well as potential extensions to the two known zones of mineralization. These outcomes are summarized below.

TZ A: Appears to be the upper edge of a formation conductor dipping to the south. Minor magnetic response. Low priority

TZ B1 and B2: Corresponds to what is termed the MSB Zone of mineralization. Geophysical modeling suggests extensions of this zone to depth to the south of the known mineralization. High priority

TZ C: Corresponds to the Discovery Zone. Geophysical modeling suggests there could be extensions to this zone both to the east and NE at depth. High priority

TZ D: Strike limited zone in interesting area. Medium priority

TZ E1 and E2: Shows interesting EM and magnetic character especially on the eastern side of the TZ. Medium-high priority.

## Cabin Lake

TZ 1: This feature is deemed worthy of further assessment. High priority

TZ 2: Formational conductor. Low priority

TZ 3: Formational conductor. Low priority

TZ 4: Possible alteration halo to intrusive. Low-medium priority

## Caribou

One conductor indentified. Medium priority (additional geophysical or geochemical work recommended to investigate area. Staking to extend claim coverage is also recommended.

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# 5. CONCLUSIONS & RECOMMENDATIONS

This report provides an assessment of a VTEM EM and magnetics survey over three properties in the southern Yukon held by Tarsis Capital Corp. The primary economic focus was on VMS style targets.

The Mor property appears to hold the greatest potential for further discovery given the presence of significant mineralization in several locations on the property, both of which show strong geophysical responses and appear to offer potential for extensions to know mineralization. Several other zones of interest were recognized as well.

The Cabin Lake property has one target of interest; however, this target is apparently several hundred meters depth below surface and this could preclude early stage testing unless the target can be upgraded with mapping or possibly geochemical surveying.

The Caribou property survey produced one reasonable bedrock EM response on the edge of the flight block. Follow-up mapping and geochemical work is recommended, with consideration to extend the claim block to the north to cover possible extensions to the conductive zone.

Respectfully submitted



Condor Consulting, Inc.

February 4, 2009

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Tarsis Web site: www.tarsis.ca

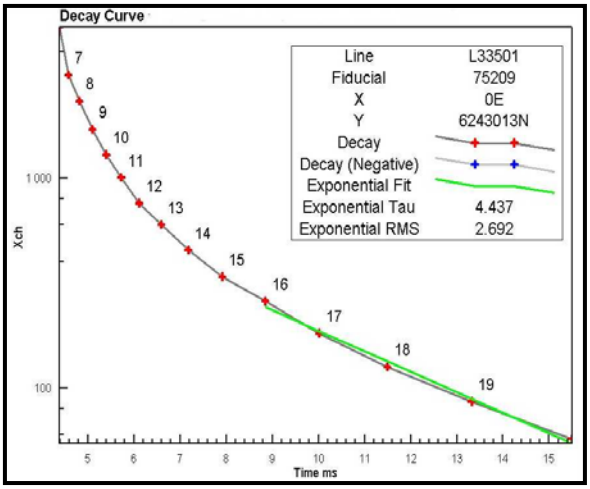
# 7. APPENDICES

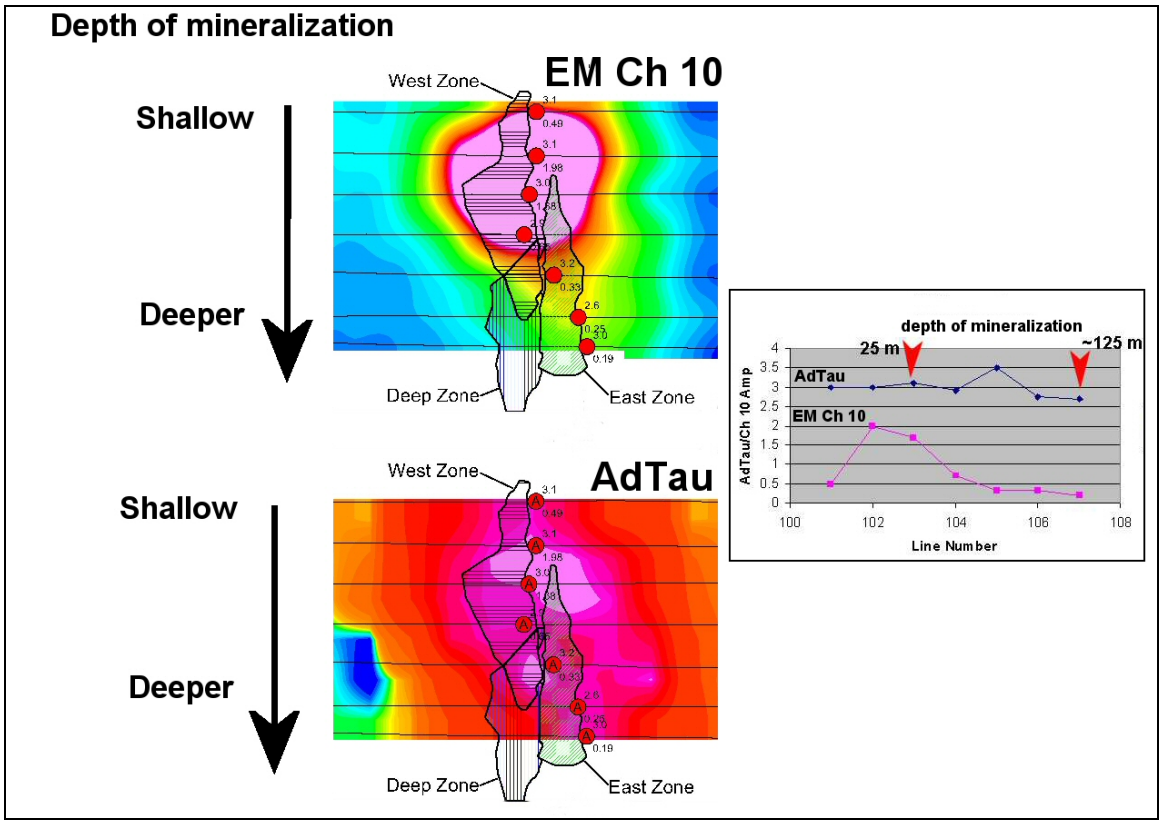
# APPENDIX A: BACKGROUND ON EM PROCESSING

# *Time Constant Analysis*
# *AdTau*

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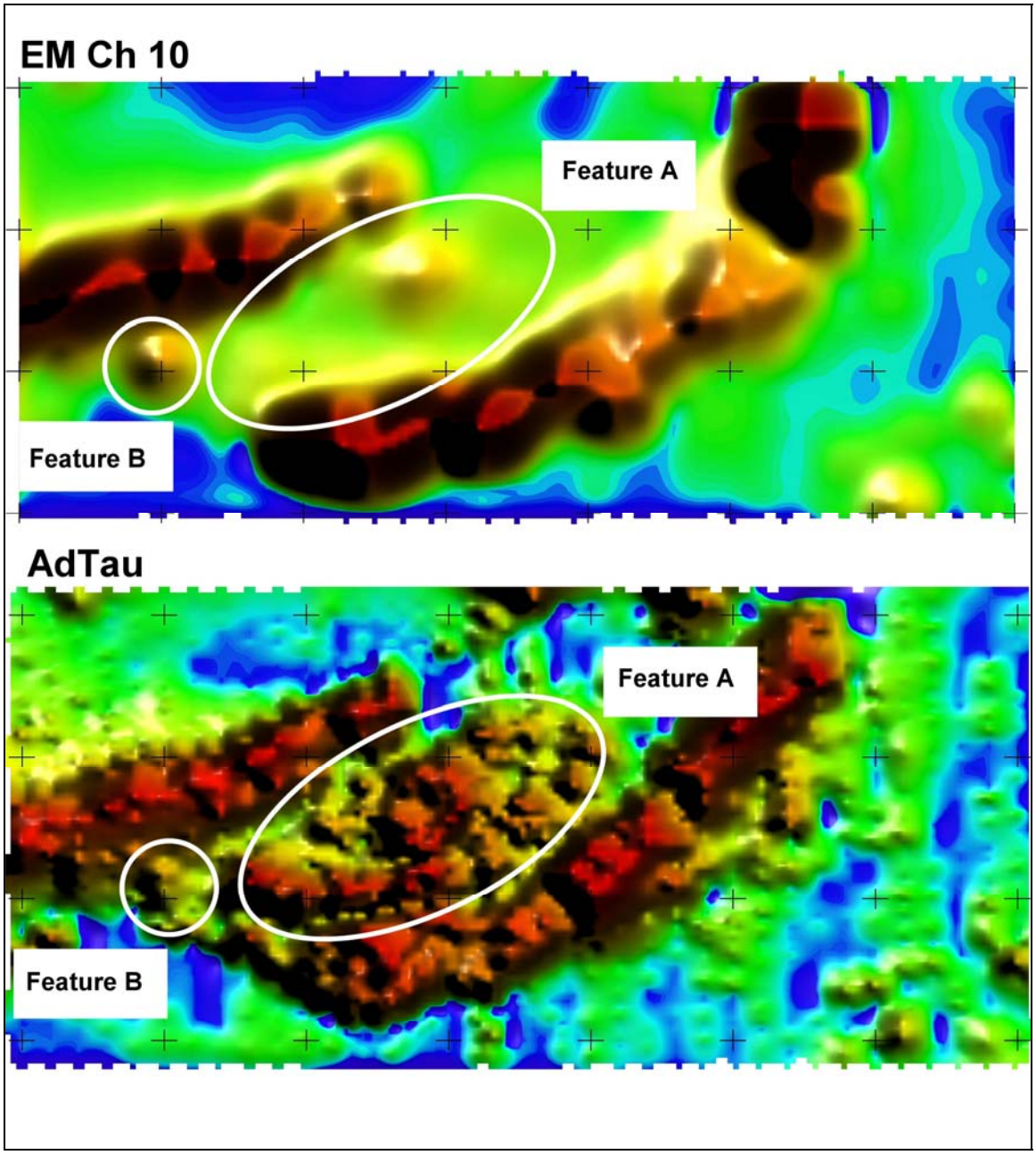
The AdTau program calculates the time constant (tau) from time domain decay data. The program is termed ***AdT***au since rather than using a fixed suite of channels as commonly done, the user sets a noise level and depending on the local characteristics of the data, the program will then select the set of last five channels that are above this noise level. In resistive areas, the earlier channels will tend to be used (i.e. little late time response), whereas in conductive terrains the latest channels available can generally be used. A typical decay fit is shown on the right; the fitted late-time response is shown as the green line.




In the figure above, the upper image shows the EM amplitude plot over the Montcalm Cu-Ni Deposit and the corresponding AdTau image is underneath. From extensive drilling it is known that the deposit is shallow at the northern end (top of image) and deeper at the south. The profiles in the insert box on the right show the responses along the axis of the deposit, highlighting that the EM amplitude response is strongly affected by the depth of mineralization whereas the AdTau response is much less sensitive to depth.

The image below from the Ferguson Lake deposit (East Zone) shows another example of the benefits of examining time constant over simple EM amplitudes. The upper image is that of early time EM data; two zones are highlighted. Feature A is a large area of response with a few modest isolated highs that are bracketed by two strong linear trends. Feature B is a discrete source with what appears to be a moderately high response The AdTau image shows Feature A to be strongly conductive and made up of a number of discrete sources. Feature B on the other hand is not particularly conductive compared to other sources in the area.

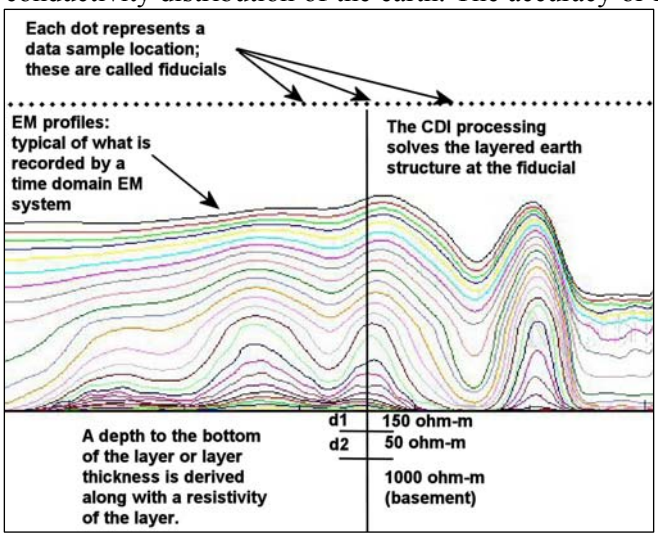



The assessment of airborne EM data requires both the proper tools and prerequisite understanding of how the tools respond in a variety of situations. For additional information the EM character of a range of deposit styles, contact Condor Consulting at www.condorconsult.com.

# Conductivity Depth Imaging
## *Introduction*

Condor Consulting, Inc.

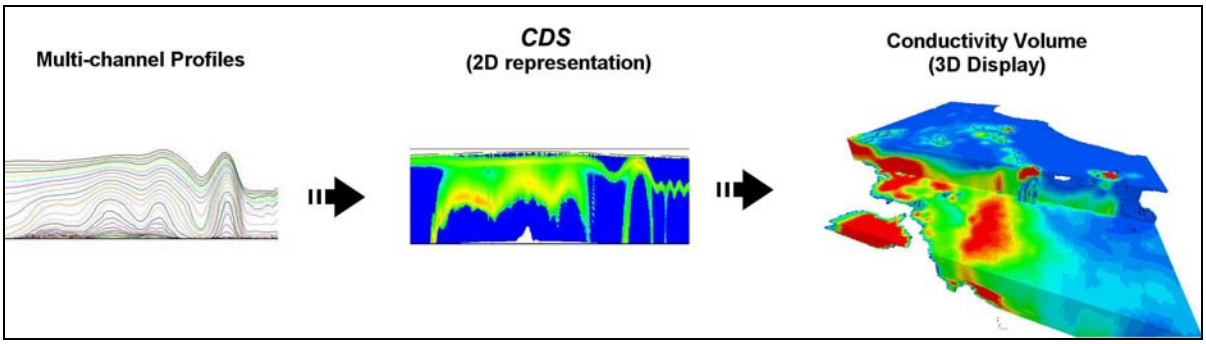
Conductivity Depth Imaging or CDI of airborne EM (AEM) data is the term applied to the mathematical transformation of the EM response recorded in the measuring instrument of the survey aircraft that is the transformed into a conductivity distribution of the earth. The accuracy or resolution of the outcomes of CDI is dependent on a number of factors including the type of EM system employed, the quality of the data the system produces, the terrain covered by the system and methodology of the CDI approach. Basically all CDI approaches in commercial use involve what is termed a 1D approximation of the earth. This means that the mathematical model being fit to the data can only capture changes in conductivity vertically in the earth. Displays of CDI outcomes in 2D (sections along lines) and 3D (gridding between lines) all rely on outcomes that are derived from initial 1D processing.




**Imaging vs. Inversion:** CDI processing can in turn be broken down into two major approaches in the mathematical process involved in solving the sub-surface conductivity structure; this being what is termed either imaging or inversion methodology. Both approaches are in use by survey contractor and consultants and each technique has advantages and draw backs depending on two primary factors; the EM system which acquired the data and the geological problem. Condor uses both approaches but prefers the inversion approach in most applications.

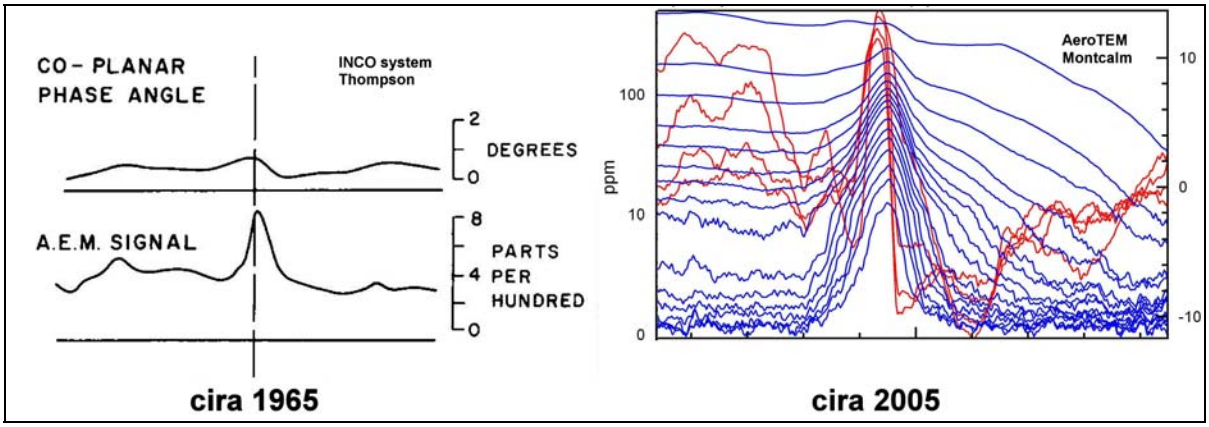
**Off-time vs. Bfield:** A derived Bfield outcome is now commonly delivered by the major contractors along with the traditional pure off-time data. Condor will routinely process both data streams and then assess which provides the superior outcome for subsequent use specific project assessment. Condor has found this dual processing approach is required as it is very difficult before hand to assess what data stream will provide the best outcome.

In the next several pages, examples of CDI processing will be presented which illustrate the role it can play in modern AEM interpretation. The color section showing a CDI is termed a Conductivity Depth Section or CDS.

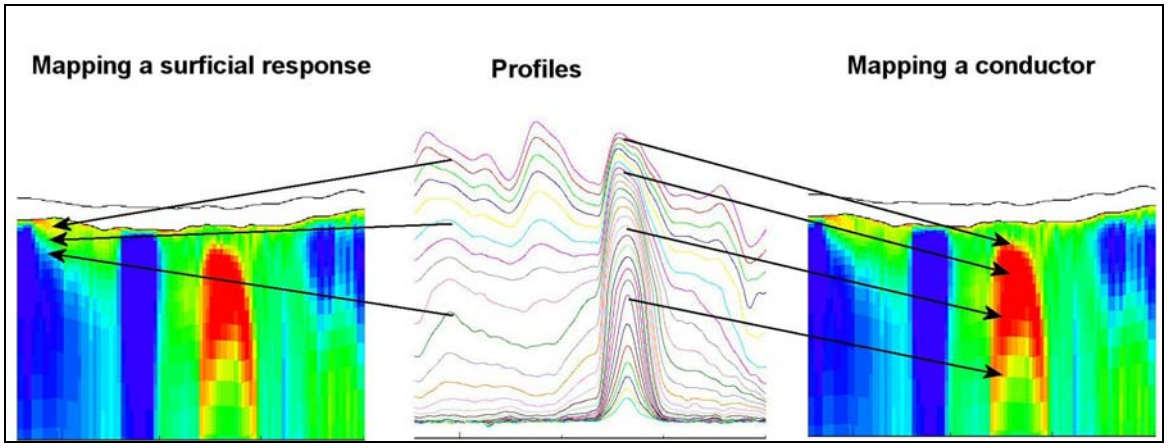


Historically, AEM was used primarily for fairly simple detect of discrete high conductance features which could represent deposits of massive sulfides such as VMS or Ni-Cu. There was little interest in extracting more information other than the X, Y location of the feature and some basic idea of the quality of the conductor. Ground follow-up for location validation and drill hole spotting was always done.

In modern exploration however, there is a far greater range of targets being sought after and in a much wider variety of settings. Even in traditional areas where AEM has been used are now deemed 'mature' explorers are expecting that more sophisticated acquisition and processing techniques will be required to make new discoveries.

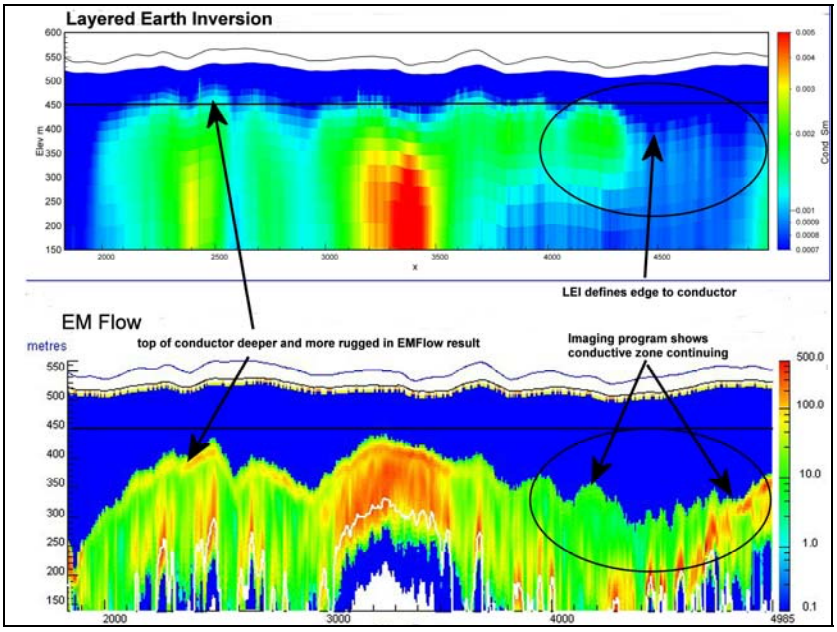



In the CDI process (this applies to either imaging or inversion approaches), those elements of the geology that are dominantly horizontal in nature can be modeled quite well whereas narrow steeply dipping features most often appear with a 'comet-like' shape the depth of which does not necessarily correspond all that well to the actual depth within earth. While this may seem like a major draw back to using these outcomes, a combination of experience, local calibration and access to alternate means to model the data allow the seasoned interpreter to define the subsurface geology quite well. The CDI processing at its best is a very useful means to provide a 3D conductivity "context" of the subsurface which can be extremely valuable in helping to recognize and define zones of interest.



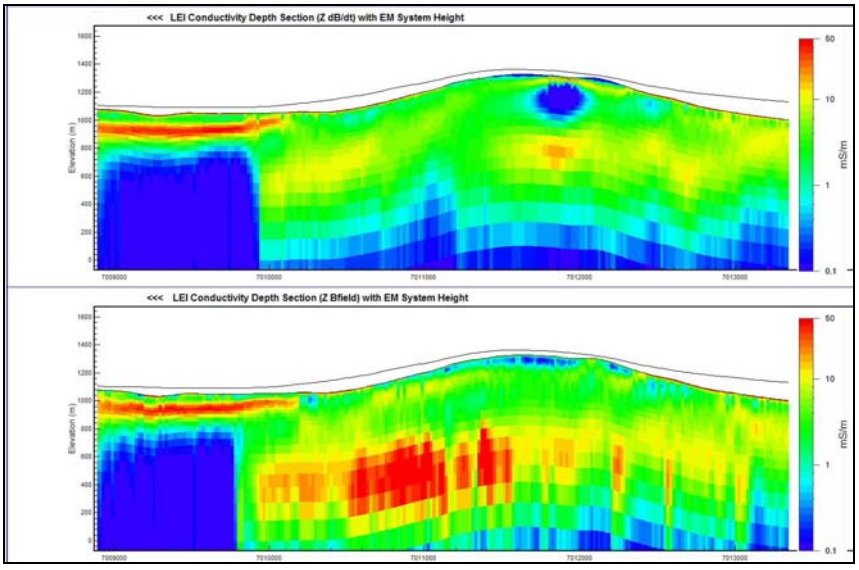
**Differences between Imaging and Inversion**

The image below shows the outcomes of an inversion program (termed Layered Earth Inversion or LEI) and a imaging program, in this case EMFlow. Three major differences are noted in this example (VTEM survey in the Athabasca Basin); first the depth to the major conductive zone appears deeper in the EMFlow outcome, second the topology of the basement conductor appears to be more rugged in the EMFlow outcome and third, the conductive horizon appears to end in the LEI outcome on the right hand side whereas the EMFlow result shows the zone continuing off the right and side of the image.




**Differences between dB/dT and Bfield**

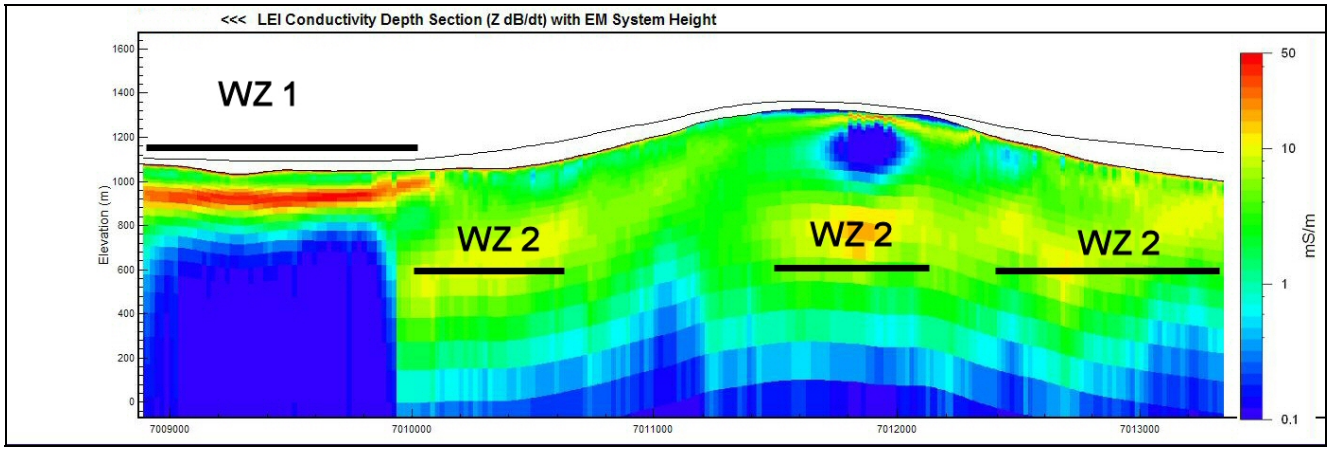
The figure below shows the outcomes of LEI processing to the dB/dT and Bfield outcomes from a VTEM survey undertaken as part of a Ni-Cu search. These results are considered typical in that while the Bfield result shows a nominal greater sensitivity to higher conductance, the results are also somewhat nosier and appear to have slightly less high frequency content than the dB/dT results.

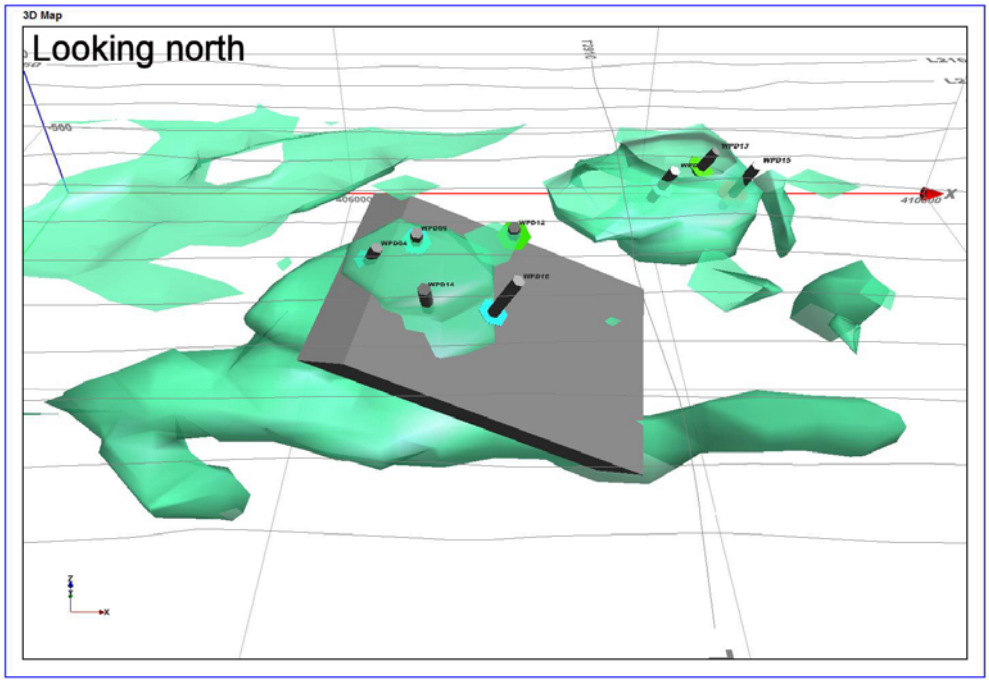


**How CDI Helps Interpretation?**

A major benefit of having a CDI outcome to interpret is that it coveys a far more geological "feel" to the EM data than profiles along. This is sometimes termed "mapping" with target detection and discrimination a sub-set of this larger interpretive activity.

Using the previous image as an example, the dB/dT CDS has been annotated with what Condor terms Wide Zones. These are zones of broad conductivity in the CDS which are felt to characterize different parts of the geological section. In this case WZ-1 is a thin shallow near surface that could represent lake sediments or a in a weathered terrain, part of a distinctive weather profile over a mafic rock. The WZ-2 features are "in the earth" sources that represent zones of increased conductivity which could represent different rock units or alteration of a specific unit.




Another benefit of the CDI processing is that it in turn allows for the creation of 3D voxel models of the EM outcomes. This is often an excellent means to capture in a holistic sense the sub-surface conductivity distribution either as a stand-alone model or as part of the integrated geoscience model (referred to as a Common Earth Model). An example of such a conductivity model combined with parametric models of specific anomalies (produced using Maxwell) and drill holes is shown in the figure to the left.

| | A | B |
|---|---|---|
| 1 | Depth (M) | Layer |
| 2 | 5 | 1 |
| 3 | 11 | 2 |
| 4 | 17 | 3 |
| 5 | 25 | 4 |
| 6 | 34 | 5 |
| 7 | 44 | 6 |
| 8 | 55 | 7 |
| 9 | 68 | 8 |
| 10 | 83 | 9 |
| 11 | 101 | 10 |
| 12 | 120 | 11 |
| 13 | 143 | 12 |
| 14 | 169 | 13 |
| 15 | 199 | 14 |
| 16 | 234 | 15 |
| 17 | 273 | 16 |
| 18 | 319 | 17 |
| 19 | 371 | 18 |
| 20 | 431 | 19 |
| 21 | 500 | 20 |
| 22 | 580 | 21 |
| 23 | 673 | 22 |
| 24 | 783 | 23 |
| 25 | 909 | 24 |
| 26 | 1056 | 25 |
| 27 | 1228 | 26 |
| 28 | 1426 | 27 |
| 29 | 1658 | 28 |

# APPENDIX B: ANOMALY LISTING

## MOR

| X | Y | Line Number | FID | Line | Type | CID | ADT_BFp01TAU_lp | ADT_SFp01TAU_lp |
|---|---|---|---|---|---|---|---|---|
| 661327 | 6661533 | T5945 | 36827 | 5945 | SPR | C | 0.0 | 0.1 |
| 658624 | 6665066 | L4830 | 9275 | 4830 | SPR | A | 0.0 | 0.0 |
| 658319 | 6665166 | L4800 | 53102 | 4800 | SPR | A | 0.0 | 0.1 |
| 661515 | 6661043 | L5100 | 9751 | 5100 | SPR | A | 0.0 | 0.1 |
| 661812 | 6661058 | T5950 | 21378 | 5950 | SPR | C | 0.0 | 0.0 |
| 658915 | 6665144 | L4860 | 18004 | 4860 | SPR | B | 0.0 | 0.1 |
| 661626 | 6665100 | L5130 | 59780 | 5130 | SPR | B | 0.0 | 0.1 |
| 661976 | 6664049 | L5160 | 50792 | 5160 | DPR | A | 0.1 | 0.1 |
| 663286 | 6663873 | L5290 | 6489 | 5290 | SPR | A | 0.1 | 0.1 |
| 662076 | 6664010 | L5170 | 48489 | 5170 | DPR | A | 0.1 | 0.1 |
| 662479 | 6663916 | L5210 | 34762 | 5210 | DPR | A | 0.1 | 0.1 |
| 663186 | 6663889 | L5280 | 66843 | 5280 | DPR | A | 0.1 | 0.1 |
| 662176 | 6664021 | L5180 | 45066 | 5180 | DPR | A | 0.1 | 0.1 |
| 661122 | 6661028 | T5950 | 21084 | 5950 | SPR | B | 0.1 | 0.1 |
| 661878 | 6664032 | L5150 | 54096 | 5150 | DPR | A | 0.1 | 0.2 |
| 662274 | 6664050 | L5190 | 42833 | 5190 | DPR | A | 0.1 | 0.1 |
| 663082 | 6663870 | L5270 | 65016 | 5270 | DPR | A | 0.1 | 0.1 |
| 660929 | 6661023 | T5950 | 21014 | 5950 | SPR | A | 0.1 | 0.1 |
| 662375 | 6664102 | L5200 | 36953 | 5200 | SPR | A | 0.1 | 0.1 |
| 662377 | 6663998 | L5200 | 36995 | 5200 | DPR | B | 0.1 | 0.1 |
| 658522 | 6665085 | L4820 | 8358 | 4820 | SPR | C | 0.1 | 0.2 |
| 662584 | 6663894 | L5220 | 32256 | 5220 | DPR | A | 0.1 | 0.2 |
| 658425 | 6665082 | L4810 | 53816 | 4810 | SPR | A | 0.2 | 0.2 |
| 661566 | 6664245 | L5120 | 61383 | 5120 | SPR | A | 0.2 | 0.2 |
| 662985 | 6663834 | L5260 | 63021 | 5260 | SPR | A | 0.2 | 0.3 |
| 658973 | 6664143 | L4860 | 17514 | 4860 | SPR | A | 0.2 | 0.3 |
| 658554 | 6664279 | L4820 | 8001 | 4820 | SPR | B | 0.2 | 0.3 |
| 661776 | 6664015 | L5140 | 56182 | 5140 | DPR | A | 0.2 | 0.4 |
| 658863 | 6664096 | L4850 | 14322 | 4850 | SPR | A | 0.2 | 0.3 |
| 661676 | 6663985 | L5130 | 59423 | 5130 | DPR | A | 0.2 | 0.3 |
| 658664 | 6664210 | L4830 | 9548 | 4830 | SPR | B | 0.2 | 0.3 |
| 662887 | 6663832 | L5250 | 61047 | 5250 | SPR | A | 0.2 | 0.3 |
| 659066 | 6664136 | L4870 | 22610 | 4870 | SPR | B | 0.3 | 0.3 |
| 661299 | 6661468 | L5080 | 14490 | 5080 | SPR | C | 0.3 | 0.2 |
| 659678 | 6663979 | L4930 | 36687 | 4930 | SPR | A | 0.3 | 0.3 |
| 661728 | 6664055 | T5920 | 27510 | 5920 | SPR | A | 0.4 | 0.4 |
| 659020 | 6665131 | L4870 | 22274 | 4870 | SPR | A | 0.4 | 0.4 |
| 658563 | 6664159 | L4820 | 7945 | 4820 | SPR | A | 0.4 | 0.5 |
| 658473 | 6664087 | L4810 | 54152 | 4810 | SPR | B | 0.4 | 0.5 |
| 662791 | 6663848 | L5240 | 58856 | 5240 | SPR | A | 0.5 | 0.5 |
| 662685 | 6663841 | L5230 | 16023 | 5230 | SPR | A | 0.5 | 0.5 |
| 663867 | 6664276 | L5350 | 21553 | 5350 | SPR | A | 0.6 | 0.8 |
| 661282 | 6661688 | L5080 | 14406 | 5080 | SPR | B | 0.7 | 0.3 |
| 663964 | 6664263 | L5360 | 23177 | 5360 | SPR | A | 0.8 | 0.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 661211 | 6661123 | L5070 | 18361 | 5070 | SPR | A | 0.8 | 0.4 |
| 658757 | 6664241 | L4840 | 12719 | 4840 | SPR | A | 0.8 | 0.3 |
| 661372 | 6661895 | L5090 | 11018 | 5090 | SPR | A | 1.0 | 0.6 |
| 661009 | 6661101 | L5050 | 23625 | 5050 | SPR | A | 1.6 | 0.2 |
| 660972 | 6661938 | L5050 | 23926 | 5050 | SPR | D | 1.6 | 0.9 |
| 661197 | 6661470 | L5070 | 18480 | 5070 | SPR | B | 1.6 | 0.9 |
| 661169 | 6661527 | T5945 | 36778 | 5945 | SPR | B | 2.0 | 0.7 |
| 661071 | 6661981 | L5060 | 22211 | 5060 | SPR | A | 2.0 | 0.8 |
| 661032 | 6662020 | T5940 | 23632 | 5940 | SPR | A | 2.1 | 1.3 |
| 660983 | 6661731 | L5050 | 23849 | 5050 | SPR | C | 2.2 | 0.9 |
| 661186 | 6661621 | L5070 | 18543 | 5070 | SPR | C | 2.2 | 0.5 |
| 661115 | 6661087 | L5060 | 22568 | 5060 | SPR | D | 2.7 | 0.3 |
| 661278 | 6661884 | L5080 | 14336 | 5080 | SPR | A | 2.8 | 1.3 |
| 661081 | 6661805 | L5060 | 22281 | 5060 | SPR | B | 3.2 | 1.5 |
| 660913 | 6661109 | L5040 | 27944 | 5040 | SPR | B | 4.0 | 0.4 |
| 660993 | 6661409 | L5050 | 23737 | 5050 | SPR | B | 4.0 | 1.2 |
| 661175 | 6661898 | L5070 | 18648 | 5070 | SPR | D | 4.8 | 3.2 |
| 660921 | 6661513 | T5945 | 36687 | 5945 | SPR | A | 5.2 | 1.4 |
| 660899 | 6661468 | L5040 | 27783 | 5040 | SPR | A | 5.3 | 1.4 |
| 661102 | 6661371 | L5060 | 22456 | 5060 | SPR | C | 5.4 | 2.6 |

## CABIN LAKE

| X | Y | Line Number | FID | Type | Line |
|---|---|---|---|---|---|
| 679715.9 | 6669339 | L8160 | 1442 | SPR | 8160 |
| 679793.7 | 6669259 | L8170 | 77 | SPR | 8170 |
| 679791.8 | 6669144 | L8180 | 1442 | SPR | 8180 |
| 679784.4 | 6669040 | L8190 | 112 | SPR | 8190 |
| 679800.2 | 6668939 | L8200 | 1400 | SPR | 8200 |
| 679836.4 | 6668845 | L8210 | 105 | SPR | 8210 |
| 679939.6 | 6668784 | L8220 | 1512 | SPR | 8220 |
| 679997.9 | 6668693 | L8230 | 77 | SPR | 8230 |
| 680091.9 | 6668619 | L8240 | 1575 | SPR | 8240 |
| 680155.8 | 6668565 | L8250 | 49 | SPR | 8250 |
| 680202.8 | 6668452 | L8260 | 1645 | SPR | 8260 |
| 680420.3 | 6668107 | L8300 | 1575 | SPR | 8300 |
| 680505.1 | 6668031 | L8310 | 7 | SPR | 8310 |
| 680555.3 | 6667845 | L8330 | 14 | SPR | 8330 |
| 680601 | 6667745 | L8340 | 1610 | SPR | 8340 |
| 680629.1 | 6667667 | L8350 | 14 | SPR | 8350 |
| 679309.1 | 6669474 | T8530 | 1029 | SPR | 8530 |
| 679574.9 | 6669391 | L8150 | 189 | DPR | 8150 |
| 679401.2 | 6669428 | L8140 | 1344 | DPR | 8140 |
| 679263.6 | 6669480 | L8130 | 287 | DPR | 8130 |
| 679778.3 | 6669682 | L8130 | 42 | DPR | 8130 |
| 679740.3 | 6669770 | L8120 | 1225 | DPR | 8120 |
| 679616.9 | 6669842 | L8110 | 84 | DPR | 8110 |
| 679647.5 | 6670168 | L8080 | 1050 | DPR | 8080 |
| 679616.5 | 6670269 | L8070 | 14 | DPR | 8070 |
| 678554.6 | 6669853 | L8070 | 462 | DPR | 8070 |
| 678248 | 6669838 | L8060 | 532 | DPR | 8060 |
| 678207.6 | 6669935 | L8050 | 623 | DPR | 8050 |
| 678233.6 | 6670051 | L8040 | 560 | DPR | 8040 |
| 678227.9 | 6670161 | L8030 | 518 | DPR | 8030 |
| 678332.1 | 6670302 | L8020 | 637 | DPR | 8020 |
| 678250.1 | 6670379 | L8010 | 539 | DPR | 8010 |
| 678281.1 | 6670493 | L8000 | 721 | DPR | 8000 |

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| X | Y | Fid | Type | Line Number |
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| 661525.8 | 6686755 | 553 | SPR | L14000 |

# APPENDIX C: NOTES ON MAGNETIC PROCESSING & EM3D MODELS

GEOPHYSICS, VOL. 61, NO. 2 (MARCH-APRIL 1996); P. 394-408, 18 FIGS.

# 3-D inversion of magnetic data

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## ABSTRACT

We present a method for inverting surface magnetic data to recover 3-D susceptibility models. To allow the maximum flexibility for the model to represent geologically realistic structures, we discretize the 3-D model region into a set of rectangular cells, each having a constant susceptibility. The number of cells is generally far greater than the number of the data available, and thus we solve an underdetermined problem. Solutions are obtained by minimizing a global objective function composed of the model objective function and data misfit. The algorithm can incorporate a priori information into the model objective function by using one or more appropriate weighting functions. The model for inversion can be either susceptibility or its logarithm. If susceptibility is chosen, a positivity constraint is imposed to reduce the nonuniqueness and to maintain physical realizability. Our algorithm assumes that there is no remanent magnetization and that the magnetic data are produced by induced magnetization only. All minimizations are carried out with a subspace approach where only a small number of search vectors is used at each iteration. This obviates the need to solve a large system of equations directly, and hence earth models with many cells can be solved on a deskside workstation. The algorithm is tested on synthetic examples and on a field data set.


## INTRODUCTION

Magnetic surveying has been used widely over the years, resulting in a great amount of data with enormous area1 coverage. Magnetic data have been used for mapping geological structures, especially in the reconnaissance stage of exploration, but when used in detailed prospecting, robust and efficient inversion algorithms must be used. However, a principal difficulty with the inversion of the potential data is the inherent nonuniqueness. By Gauss' theorem, if the field distribution is known only on a bounding surface, there are infinitely many equivalent source distributions inside the boundary that can produce the known field. Any magnetic field measured on the surface of the earth can be reproduced by an infinitesimally thin zone of magnetic dipoles beneath the surface. From a mathematical perspective, this means there is no depth resolution inherent in magnetic field data. A second source for nonuniqueness is the fact that magnetic observations are finite in number and are inaccurate. If there exists one model that reproduces the data, there are other models that will reproduce the data to the same degree of accuracy. The severity of the nonuniqueness problem for magnetic data is illustrated in Figures l-3. (The gray scale in all figures indicates susceptibility in SI units for model sections and magnetic data in nT for data plots.) A 3-D dipping prism of uniform susceptibility in Figure 1 produces the surface magnetic field shown in Figure 2, which consists of 441 data. Slices of a 3-D susceptibility model that adequately reproduces the 441 data are shown in Figure 3. That result, however, bears little resemblance to the true model. Susceptibility is concentrated near the surface and displays zones of negative values. This mathematical model solution provides little information about the true structure that is useful.

Faced with this extreme nonuniqueness, previous authors have mainly taken two approaches in the inversion of magnetic data. The first is parametric inversion, where the parameters of a few geometrically simple bodies are sought in a nonlinear inversion and values are found by solving an overdetermined problem. This methodology is suited for anomalies known to be generated by simple causative bodies, but it requires a great deal of a priori knowledge about the source expressed in the form of an initial parameterization, an initial guess for parameter values, and limits on the susceptibility allowed (e.g., Bhattacharyya, 1980; Zeyen and Pous, 1991). Nonuniqueness is not generally an issue because only a small subset of possible models is considered due to the restrictive nature of the inversion algorithm. A related, but unique, approach in Wang and Hansen (1990) assumes polyhedronal causative bodies and

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inverts for the position of the vertices of these bodies using the spectrum of the magnetic data. The method is general in principle but has difficulties both in constructing the causative bodies from the recovered vertices and in obtaining the susceptibility distribution.

In the second approach to inverting magnetic data, the earth is divided into a large number of cells of fixed size but of unknown susceptibility. Nonuniqueness of solution is recognized and the algorithm produces a single model by minimizing an objective function of the model subject to fitting the data. Green (1975) minimizes a weighted model norm with respect to a reference model, and this allows the interpreter to guide the inversion by varying the weighting according to the available information. Last and Kubik (1983) choose to minimize the total volume of the causative body so that the final model is compact and structurally simple. Guillen and Menichetti (1984) minimize the moment of inertia of the causative body with respect to the center of gravity or an axis passing through it. Their inversion result is guided by the estimate of the central depth and dip of the causative body. These approaches have merit but they are not flexible enough to handle problems we are concerned with. This is especially true of methods that attempt to collapse the anomalous susceptibility into a single body; such a solution is rarely an adequate representation of geologic structure.

In our inversion approach, we first make a decision about the variable in which the interpretation is to be made, that is, whether susceptibility, log susceptibility, or some function of susceptibility is sought. Next, we form a multicomponent objective function that has the flexibility to generate different types of models. The form of this objective function is such that it can correct for the undesirable aspects of the mathematically acceptable model in Figure 3, namely-the concentration of susceptibility near the surface, the excessive structure, and the existence of negative susceptibilities. Our objective function incorporates an optional reference model so that the constructed model is close to that. It penalizes roughness in three spatial directions, and it has a depth weighting designed to distribute the susceptibility with depth. Additional 3-D weighting functions in the objective function can be used to incorporate further information about the model. Such information might be available from other geophysical surveys, geological data, or the interpreter's qualitative or quantitative understanding of the geologic structure and its relation to the magnetic susceptibility. These 3-D weighting functions can also be used to answer questions about the existence of susceptibility features found from previous inversions. Negative susceptibilities are prevented by making a transformation of

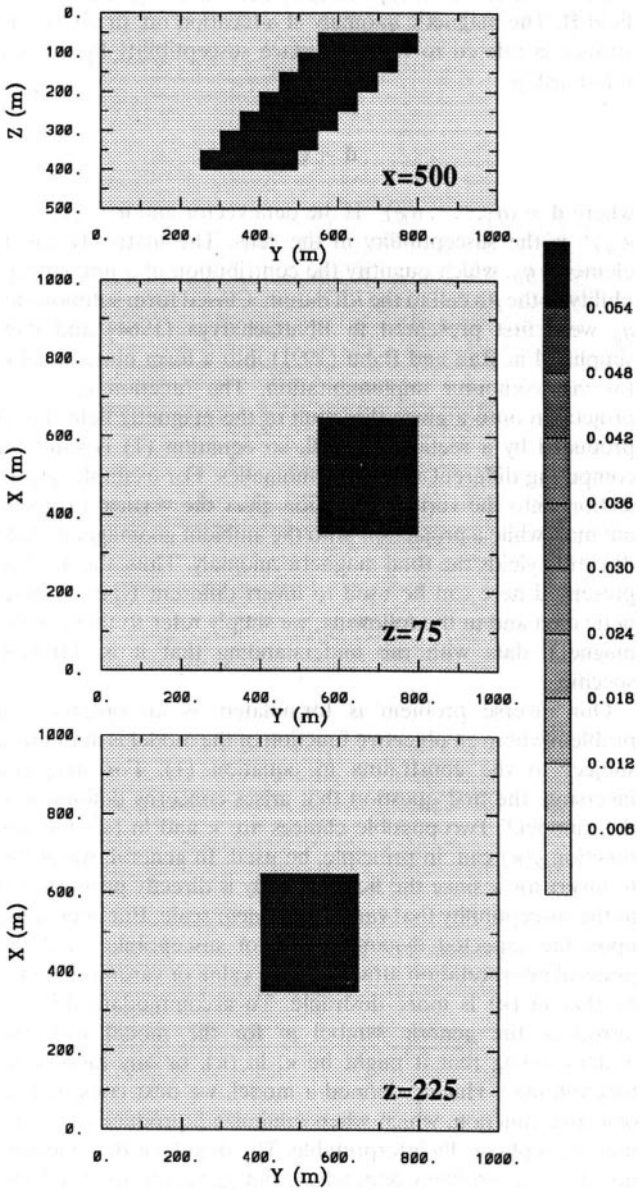



FIG. 1. Slices through a 3-D magnetic susceptibility model composed of a dipping slab in a nonsusceptible half-space. The slab is buried at a depth of 50 m and extends to 400-m depth at a dip angle of 45° . The gray scale indicates the value of magnetic susceptibility in SI units.

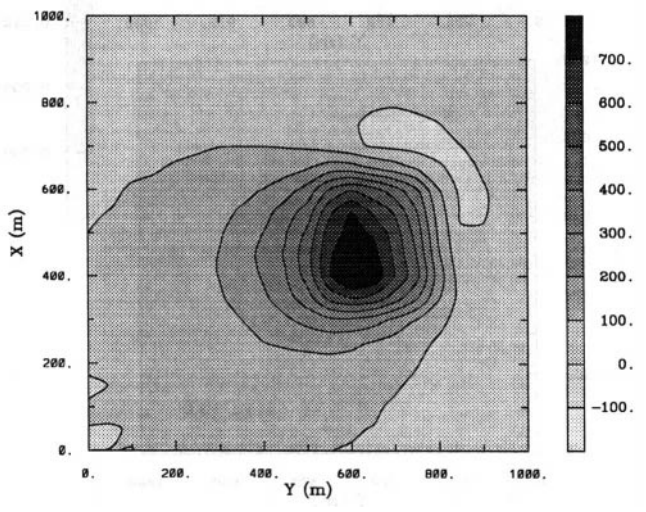



FIG. 2. The total field anomaly produced by the slab model in Figure 1. The inducing field has direction $I = 75°$ and $D = 25°$ and a strength of 50 000 nT. Uncorrelated Gaussian noise, with a standard deviation of 2% of the datum magnitude plus 1 nT, is added to the data. The gray scale indicates the magnetic anomaly in nT.

variables and solving a nonlinear inverse problem. The numerical solution for the inversion is accomplished by dividing the earth into a large number of cells so that relatively complex geologic bodies can be constructed. The computational difficulties often encountered in solving large matrix systems are avoided by working explicitly with a generalized subspace algorithm.

The paper begins by outlining our inversion methodology and empirically estimating parameters for the depth weighting based upon synthetic inversion of single 3-D prisms. Data from two synthetic models are then inverted. The paper concludes by inverting a field data set over a copper-gold porphyry deposit and a subsequent discussion.

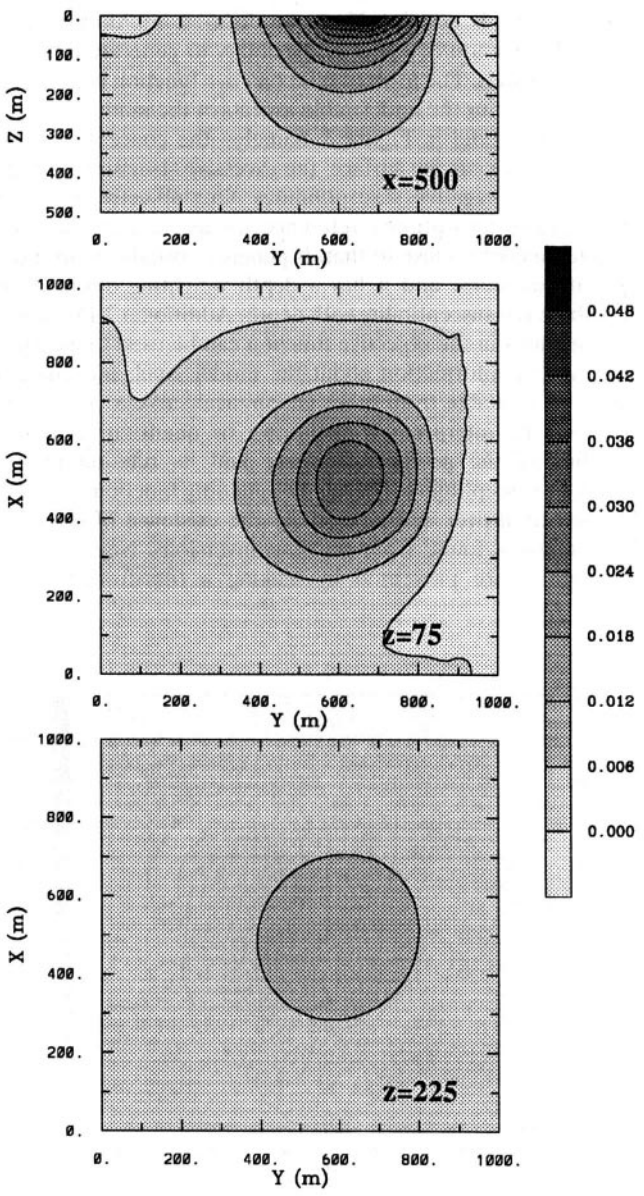



FIG. 3. The susceptibility model constructed by minimizing $\|\kappa\|^2$ subject to fitting the data in Figure 2. As a mathematical solution, this model provides little, if any, information about the subsurface susceptibility distribution. It effectively illustrates the nonuniqueness inherent to the inversion of static magnetic field data.

## INVERSION METHODOLOGY

Each magnetic anomaly datum observed above the surface can be evaluated by calculating the projection of the anomalous magnetic field onto a given direction. Let the source region be divided into a set of rectangular cells by an orthogonal 3-D mesh and assume a constant magnetic susceptibility value $\kappa$ within each cell. Further we assume that there is no remanent magnetization and that the demagnetization effect is negligible. Thus only the induced magnetization is considered. This magnetization is uniform within each cell and is given by the product of the susceptibility and the inducing geomagnetic field $\underline{\mathbf{H}}$. The magnetic anomaly at a location on, or above, the surface is related to the subsurface susceptibility by a linear relationship

$$\mathbf{d} = \underline{\mathbf{G}}\boldsymbol{\kappa}, \tag{1}$$

where $\mathbf{d} = (d_1, \ldots, d_N)^T$ is the data vector and $\boldsymbol{\kappa} = (\kappa_1, \ldots, \kappa_M)^T$ is the susceptibility in the cells. The matrix $\underline{\mathbf{G}}$ has as elements $g_{ij}$, which quantify the contribution of a unit susceptibility in thejth cell to the ith datum. Closed form solutions for $g_{ij}$ were first presented in Bhattacharyya (1964) and later simplified in Rao and Babu (1991) into a form more suitable for fast computer implementation. The function $g_{ij}$ is the projection onto a given direction of the magnetic field that is produced by a rectangular cell, so equation (1) is valid for computing different magnetic anomalies. For example, a projection onto the vertical direction gives the vertical magnetic anomaly while a projection onto the ambient geomagnetic field direction yields the total magnetic anomaly. Thus, the method presented here can be used to invert different types of magnetic data and in the following, we simply refer to them as the magnetic data with the understanding that it is direction specific.

Our inverse problem is formulated as an optimization problem where an objective function of the model is minimized subject to the constraints in equation (1). For magnetic inversion, the first question that arises concerns definition of the "model." Two possible choices are $\kappa$ and $\ln(\kappa)$, but any function $g(\kappa)$ can, in principle, be used. In general, we prefer to invert for $\kappa$ since the field anomaly is directly proportional to the susceptibility that varies on a linear scale. But depending upon the expected dynamic range of susceptibility and the physical interpretation attached to its value or variation, it may be that $\ln(\kappa)$ is more desirable. To accommodate this, we introduce the generic symbol $m$ for the model with the understanding that it might be $\kappa$, $\ln(\kappa)$, or any monotonic function $g(\kappa)$. Having defined a model, we next construct an objective function, which when minimized, produces a model that is geophysically interpretable. The details of the objective function are problem dependent, but generally we need the flexibility to be close to a reference model $m_0$ and also require that the model be relatively smooth in three spatial directions. Here we adopt a right-handed Cartesian coordinate system with $x$ positive north and $z$ positive down. Let the model objective function be

$$\phi_m(m) = \alpha_s \int_V w_s\{w(z)[m(\mathbf{r}) - m_0]\}^2\, dv + \alpha_x \int_V w_x\left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial x}\right\}^2 dv + \alpha_y \int_V w_y\left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial y}\right\}^2 dv + \alpha_z \int_V w_z\left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial z}\right\}^2 dv, \quad (2)$$

where functions $w_s$, $w_x$, $w_y$, and $w_z$ are spatially dependent weighting functions while $\alpha_s$, $\alpha_x$, $\alpha_y$, and $\alpha_z$ are coefficients that affect the relative importance of different components in the objective function. Here, $w(z)$ is a depth weighting function. It is convenient to write equation (2) as $\phi_m(m) = \phi_{ms} + \phi_{mv}$, where $\phi_{ms}$ refers to the first term in equation (2) and $\phi_{mv}$ refers collectively to the remaining three terms that involve variation of the model in three spatial directions.

The objective function in equation (2) has the flexibility of constructing many different models. The reference model $m_0$ may be a general background model that is estimated from previous investigations, or it could be the zero model. The reference model would generally be included in $\phi_{ms}$ but can be removed if desired from any of the remaining terms. Often we are more confident in specifying the value of the model at a particular point than in supplying an estimate of the gradient. The relative closeness of the final model to the reference model at any location is controlled by the function w,. For example, if the interpreter has high confidence in the reference model at a particular region, he or she can specify $w_s$ to have increased amplitude there compared to other regions of the model. The weighting functions $w_x$, $w_y$, and $w_z$ can be designed to enhance or attenuate structures in various regions in the model domain. If geology suggests a rapid transition zone in the model, then a decreased penalty for variation can be put there, and the constructed model will exhibit higher gradients provided that this feature does not contradict the data. Therefore, the reference model and four 3-D weighting functions allow for the incorporation into the inversion of additional information other than the magnetic data. The additional information can be from previous knowledge about the susceptibility, from other geophysical surveys, or from the interpreter's qualitative or quantitative understanding about the geologic structure and its relation to susceptibility. When this extra information is incorporated, the inversion derives a model that not only fits the data, but more importantly, also has a likelihood of representing the earth. From the viewpoint of magnetic inversion, such an approach allows one to construct a most-likely earth model that uses all available information, and it can also be used to explore the nonuniqueness. These two aspects form the foundation of a responsible interpretation.

The kernels (values of $g_{ij}$) for the surface magnetic data decay with depth. It is for this reason that an inversion that minimizes $\|m - m_0\|^2 = \int (m - m_0)^2\, dv$ subject to fitting the data will generate a susceptibility that is concentrated near the surface. To counteract the geometric decay of the kernels and to distribute susceptibility with depth, we introduce a weighting of the form $w(z) = (z + z_0)^{-\beta/2}$ into $\phi_{ms}$, and optionally include it in $\phi_{mv}$. The values of $\beta$ and $z_0$ are investigated in the following section, but their choice essentially allows equal chance for cells at different depths to be nonzero.

The next step in setting up the inversion is to define a misfit measure. Here we use the 2-norm measure

$$\phi_d = \|\underline{\mathbf{W}}_d(\mathbf{d} - \mathbf{d}^{obs})\|_2^2, \quad (3)$$

and we assume that the contaminating noise on the data is independent and Gaussian with zero mean. Specifying $\underline{\mathbf{W}}_d$ to be a diagonal matrix whose ith element is $1/\sigma_i$ where $\sigma_i$ is the standard deviation of the ith datum, makes $\phi_d$ a chi-squared variable distributed with $N$ degrees of freedom. Accordingly $E[\chi^2] = N$ provides a target misfit for the inversion.

The inverse problem is solved by finding a model $m$ that minimizes $\phi_m$ and misfits the data by a predetermined amount. This is accomplished by minimizing $\phi(m) = \phi_m + \lambda^{-1}(\phi_d - \phi_d^*)$, where $\phi_d^*$ is our target misfit and $\lambda$ is a Lagrangian multiplier. To perform a numerical solution, we first discretize the objective function in equation (2) using a finite-difference approximation according to the mesh defining the susceptibility model. This yields

$$\phi_m(\mathbf{m}) = \phi_{ms} + \phi_{mv} = (\mathbf{m} - \mathbf{m}_0)^T\underline{\mathbf{W}}_s^T\underline{\mathbf{W}}_s(\mathbf{m} - \mathbf{m}_0) + (\mathbf{m} - \mathbf{m}_0)^T(\underline{\mathbf{W}}_x^T\underline{\mathbf{W}}_x + \underline{\mathbf{W}}_y^T\underline{\mathbf{W}}_y + \underline{\mathbf{W}}_z^T\underline{\mathbf{W}}_z)(\mathbf{m} - \mathbf{m}_0)$$
$$\equiv (\mathbf{m} - \mathbf{m}_0)^T\underline{\mathbf{W}}_m^T\underline{\mathbf{W}}_m(\mathbf{m} - \mathbf{m}_0) = \|\underline{\mathbf{W}}_m(\mathbf{m} - \mathbf{m}_0)\|^2, \quad (4)$$

where $\mathbf{m}$ and $\mathbf{m_0}$ are $M$- length vectors. The individual matrices $\underline{\mathbf{W}}_s$, $\underline{\mathbf{W}}_x$, $\underline{\mathbf{W}}_y$, $\underline{\mathbf{W}}_z$ are calculated straightforwardly once the model mesh and the weighting functions $w_s$, $w_x$, $w_y$, $w_z$, and $w(z)$ are defined (see Appendix). The cumulative matrix $\underline{\mathbf{W}}_m^T\underline{\mathbf{W}}_m$ is then formed. For our formulation, the matrix $\underline{\mathbf{W}}_m$ is never computed explicitly but we shall use it to derive our final equations.

The inverse problem is solved by minimizing $\phi(\mathbf{m})$ with an appropriate minimization technique. To reduce computation and to invoke positivity, we use a subspace methodology. In its general form, the subspace technique allows the model parameter to be both positive and negative, and thus to ensure positive susceptibility, we may need to invoke a transformation

of variables. Whether or not the transformation is required depends upon the relationship between $m_i$ and $\kappa_i$. If $m_i = \ln(\kappa_i)$, so that interpretations are carried out in the logarithmic domain, then no further transformation is necessary since $\kappa_i$ will be positive irrespective of the sign of $m_i$. However, if $m_i = \kappa_i$, or $m_i = g(\kappa_i)$, and $g(\kappa)$ is a positive function, then a transformation is required. All possibilities can be handled by introducing a new parameter $p$, such that $m_i = f(p_i)$, where $f(p)$ is a monotonic function whose inverse and first-order derivative exist. This mapping is then incorporated directly into the subspace minimization process.

Let $\mathbf{p}^{(n)}$ denote the parameter vector at the nth iteration and $\delta p$ denote the sought perturbation. Performing a Taylor expansion of the perturbed model objective function about the point $\mathbf{p}^{(n)}$ yields

$$\phi_m(\mathbf{p}^{(n)} + \delta p) = \|\underline{\mathbf{W}}_m \underline{\mathbf{F}} \delta p + \underline{\mathbf{W}}_m(\mathbf{m}^{(n)} - \mathbf{m}_0)\|^2, \tag{5}$$

where $\underline{\mathbf{F}}$ is a diagonal matrix with elements

$$F_{ii} = \left.\frac{\partial f_i}{\partial p_i}\right|_{p_i^{(n)}} = \left.\frac{\partial m_i}{\partial p_i}\right|_{p_i^{(n)}}. \tag{6}$$

A similar Taylor expansion applied to the misfit objective functional $\phi_d(\mathbf{p}^{(n)} + \delta p)$ yields

$$\phi_d = \|\underline{\mathbf{W}}_d \underline{\mathbf{G}} \underline{\mathbf{F}} \delta p + \underline{\mathbf{W}}_d(\mathbf{d}(\mathbf{p}^{(n)}) - \mathbf{d}^{obs})\|^2. \tag{7}$$

At each iteration we desire a perturbation that minimizes equation (4) subject to generating a data misfit of $\phi_d = \phi_d^{*(n)}$, where $\phi_d^{*(n)}$ is the target misfit at the nth iteration. In the subspace technique we represent the perturbation as

$$\delta p = \sum_{i=1}^{q} \alpha_i \mathbf{v}_i \equiv \underline{\mathbf{V}} \boldsymbol{\alpha}, \tag{8}$$

where the M-length vectors $\mathbf{v}_i$ ($i = 1, q$) are as yet arbitrary. Writing the objective function to be minimized in terms of the coefficients $\boldsymbol{\alpha}$ yields

$$\phi(\boldsymbol{\alpha}) = \|\underline{\mathbf{W}}_m \underline{\mathbf{F}} \underline{\mathbf{V}} \boldsymbol{\alpha} + \underline{\mathbf{W}}_m(\mathbf{m}^{(n)} - \mathbf{m}_0)\|^2 + \lambda^{-1}(\|\underline{\mathbf{W}}_d \underline{\mathbf{G}} \underline{\mathbf{F}} \underline{\mathbf{V}} \boldsymbol{\alpha} + \underline{\mathbf{W}}_d(\mathbf{d}(\mathbf{p}^{(n)}) - \mathbf{d}^{obs})\|^2 - \phi_d^*). \tag{9}$$

Differentiating with respect to the coefficients a yields the final equations

$$\underline{\mathbf{B}} \boldsymbol{\alpha} = \mathbf{b},$$

$$\underline{\mathbf{B}} = \underline{\mathbf{V}}^T \underline{\mathbf{F}}^T (\underline{\mathbf{G}}^T \underline{\mathbf{W}}_d^T \underline{\mathbf{W}}_d \underline{\mathbf{G}} + \lambda \underline{\mathbf{W}}_m^T \underline{\mathbf{W}}_m) \underline{\mathbf{F}} \underline{\mathbf{V}},$$

$$\mathbf{b} = -\underline{\mathbf{V}}^T \underline{\mathbf{F}}^T \underline{\mathbf{G}}^T \underline{\mathbf{W}}_d^T \underline{\mathbf{W}}_d (\mathbf{d}^{(n)} - \mathbf{d}^{obs}) - \lambda \underline{\mathbf{V}}^T \underline{\mathbf{F}}^T \underline{\mathbf{W}}_m^T \underline{\mathbf{W}}_m (\mathbf{m}^{(n)} - \mathbf{m}_0). \tag{10}$$

We note that the matrix $\underline{\mathbf{B}}$ is $q$ x $q$ and therefore the system of equations is easily solved if $q$ is small. At each iteration, we search for a value of $\lambda$ that yields the target misfit for that iteration. If the target misfit cannot be reached, then the value of $\lambda$ that achieves the smallest misfit is taken. The search is usually accomplished by solving equation (10) a number of times using different $\lambda$ values. Once the optimum value of $\lambda$ is found, the system is solved again to obtain the coefficients $\boldsymbol{\alpha}$ and the model perturbation. This iterative process is continued until the final expected data misfit is achieved and the model objective function undergoes no significant decrease with successive iterations. Subspace vectors $\mathbf{v}_i$ are generated mainly from the gradients of the data and model objective functions. The data are grouped to form subobjective functions of misfit, and a steepest descent vector corresponding to each subobjective function is used as a subspace vector. Partitioning of the data can be formed by grouping data that are spatially close, or by grouping data such that each group has approximately the same contribution to the total data misfit. Both approaches have worked well. The model objective function is partitioned and the gradient vector associated with each of the four components in the model objective function provides additional subspace vectors. In addition, a constant vector is always included, and the selected subspace vectors are orthonormalized before being used in the search. More details on the implementation of the subspace method for the linear inverse problem can be found in Oldenburg and Li (1994).

The final item of practical importance is the specification of the mapping needed to ensure positivity of susceptibility. The positivity is required since we are dealing only with induced magnetization, and the presence of negative susceptibility is negligible in practical geophysical applications. Although our formalism permits the minimization of $m = g(\kappa)$, the two most common situations are $m = \ln(\kappa)$ and $m = \kappa$. When $m = \ln(\kappa)$, we set $p = m$ and hence the matrix $\underline{\mathbf{F}}$ in equation (10) is the identity matrix. If $m = \kappa$, we use the two-stage mapping proposed in Oldenburg and Li (1994). It is composed of an exponential segment and a straight line. The two segments are joined together such that the mapping and its first derivative are both continuous. The mapping is given by

$$\kappa = \begin{cases} 0 & p < p_b \\ e^p - \kappa_b & p_b \le p \le p_1 \\ (p - p_1 + 1)e^{p_1} - \kappa_b & p > p_1 \end{cases}, \tag{11}$$

where $p = p_1$ is the transition point between exponential and linear segments, and $\kappa_b$ is selected to be small enough such that susceptibilities smaller than $\kappa_b$ are not significantly different from zero when the final interpretation is carried out. Here, $\kappa_1$ and hence $p_1$ are chosen so that the ratio $(\kappa_1 + \kappa_b)/\kappa_b$ does not exceed about two orders of magnitude. This prevents the elements $F_{ii}$ from becoming too disparate. We note that the ith row of $\underline{\mathbf{V}}$ is multiplied by $F_{ii}$, and if this value is too small, the ith row of $\underline{\mathbf{V}}$ is essentially annihilated and there will be no possibility of adjusting the value of the ith cell. However, if the ratio is too small, the flexibility in the mapping will be restricted and this affects the convergence rate of the algorithm. In the limit that $\kappa_b \to \kappa_1$, the nonlinear mapping degenerates into a linear truncation and the inversion will not converge. However, between the above two extremes, there is a wide range of values for the ratio that can yield a good mapping. Based upon numerical experiments (Oldenburg and Li, 1994), we have chosen a value of 50.0 for this ratio for the examples throughout this paper.

## DEPTH WEIGHTING

It is well known that static magnetic data have no inherent depth resolution. For instance, when minimizing $\|m\|_2^2 = \int m^2\, dv$, structures tend to concentrate near the surface regardless of the true depth of the causative bodies. In terms of model construction, this is a direct manifestation of the nature of the kernels whose amplitudes rapidly diminish with depth. The tendency to put structure at the surface can be overcome by introducing a depth weighting to counteract this natural decay. Intuitively, a weighting that approximately compensates for the decay gives cells at different depths equal probability to enter into the solution with a nonzero susceptibility. Before proceeding with the details of the weighting function for magnetic inversion, we illustrate the necessity, and effectiveness, of such a weighting function using a simple 1-D problem.

Consider a set of data $\mathbf{d} = (d_1, , \ldots, d_N)^T$ generated from the equation

$$d_i = \int_0^1 g_i(z) m(z)\, dz, \qquad i = 0, \ldots, N, \tag{12}$$

where the kernels are

$$g_i(z) = e^{-az} \cos(2\pi i z).$$

The decay factor $e^{-az}$ causes the constructed model m,(z) to have structure concentrating toward the region of small $z$ in the classic model construction that minimizes $\|m\|^2$, since the model will be a linear combination of the kernels, i.e.,

$$m_c(z) = \sum_{i=0}^{N} \alpha_i e^{-az} \cos(2\pi i z). \tag{13}$$

This is shown in Figure 4a and 4b for two different models. These models are constructed from five data ( $i$ = 0,4) to which noise has been added. It is apparent that the constructed model is shifted toward small $z$ where the amplitude of kernels is relatively large. One way to counteract the bias is to seek a solution in model space that is spanned by the nondecaying portion of the kernels, in this case just the cosine functions. The desired model would have the form

$$m_c(z) = \sum_{i=0}^{N} \tilde{\alpha}_i \cos(2\pi i z), \tag{14}$$

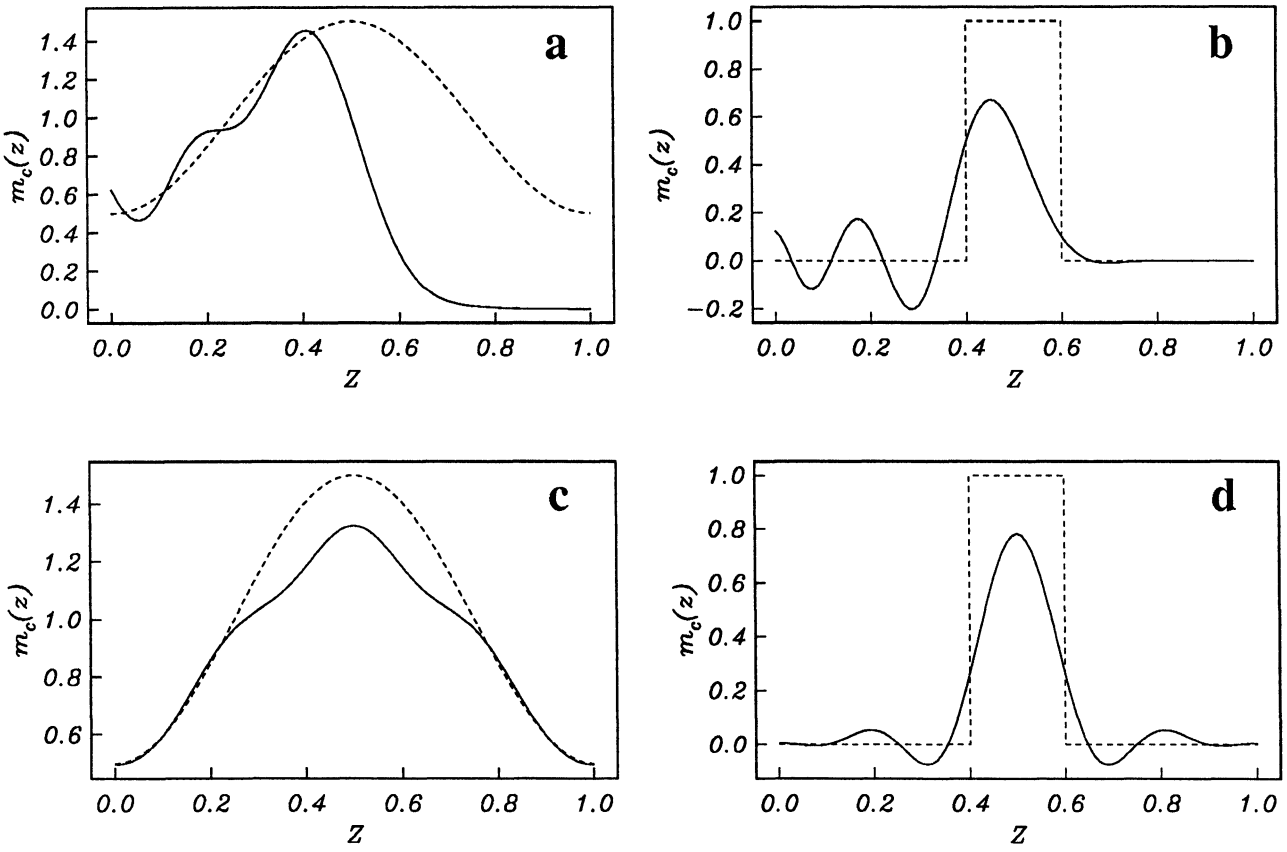



FIG. 4. A 1-D example showing the use of a weighting function in the inversion procedures to counteract the natural decay in the kernel function. In all panels the dashed line shows the true model. Panels (a) and (b) show, for the two different true models, respectively, the model constructed using the original kernel functions with the decaying factor $e^{-az}$. Notice the shift of the recovered model towards the small $z$ region. Panels (c) and (d) show the weighted models recovered by applying a weighting function $w(z) = e^{-az/2}$. They are better representations of the true model.

where $\tilde{\alpha}_i$ are coefficients. Free from the influence from the decay factor, a model constructed from this set of basic functions should have a better chance of having significantly high values at depth.

We accomplish this by finding an appropriate weighting function $w(z)$. We first rewrite the data equation as

$$d_i = \int_0^1 \frac{g_i(z)}{w(z)} * w(z)m(z)\,dv \equiv \int_0^1 g_i^w(z)m^w(z)\,dv, \quad (15)$$

where $g_i^w(z)$ are the weighted kernels and $m^w(z)$ is the weighted model. Then the inverse problem is solved by minimizing $\|m^w(z)\|^2$ and the solution is given by

$$m_c^w(z) = \sum_{i=0}^{N} \tilde{\alpha}_i g_i^w(z). \quad (16)$$

Dividing $m_c^w(z)$ by the weighting function and substituting in $g_i^w(z)$ yields

$$m_c(z) = \sum_{i=0}^{N} \tilde{\alpha}_i \frac{g_i(z)}{w^2(z)} = \sum_{i=0}^{N} \tilde{\alpha}_i \frac{e^{-az}\cos(2\pi iz)}{w^2(z)}. \quad (17)$$

This equation can be made identical to equation (14) by choosing $w(z) = e^{-az/2}$. Carrying out the weighted inversion for the above two data sets produces models shown in Figures 4c and 4d. They are much better representations of true models.

This methodology is then applied to the inversion of surface magnetic data by finding the appropriate weighting function that counteracts the depth decay of the data kernels. There is no distinct separable factor defining the decay in the kernel, therefore we resort to an empirical estimate. Since the decay rate depends upon the observation height as well as the size and aspect ratios of the cells making up the 3-D model, such estimates are expected to be problem dependent. Numerical experiments indicate that the function of the form $(z + z_0)^{-3}$ closely approximates the kernel's decay directly under the observation point, given a correctly chosen value of $z_0$. This is consistent with the fact that, to first order, a cubic-shaped cell acts like a dipole source whose magnetic field decays by inverse distance cubed. The value of $z_0$ can be obtained by matching the function $(z + z_0)^{-3}$ with the kernel function beneath the observation point. Thus, a reasonable candidate for the depth weighting function is given by

$$w(z) = \frac{1}{(z + z_0)^{3/2}}. \quad (18)$$

The susceptibility model constructed by minimizing a model objective function consisting of only $\phi_{ms}$, i.e.,

$$\phi_m(m) = \int_V (w(z)m(x, y, z))^2\,dv, \quad (19)$$

subject to fitting the data should place the recovered anomaly at approximately the depth of the causative body. This hypothesis is tested by inverting surface data produced by a susceptible cubic body at three different, depths. The cube is 200 m on a side. Data are calculated over a 21 **X** 21 grid of 50-m spacing in both directions, and 2% Gaussian noise is then added. The observation is assumed to be 1 m above the surface and the inducing field has $I = 75°$, $D = 25°$. The region directly beneath the data grid is taken as the model domain and discretized into 4000 cells (20 cells in each horizontal direction and 10 along depth) of 50 m on a side.

Given the stated data parameters and model discretization, the estimated value of $z_0$ in the depth weighting function is 25 m. Figure 5 shows the comparison of the kernel beneath a datum point and the function $w^2(z)$. This weighting function is used to invert surface data caused by the susceptible prism, and the results of minimizing $\phi_{ms}$ are shown in Figure 6. Each panel in the figure is the cross-section through the center of the model obtained by inverting the data set produced by a cube at a different depth. They are rather good recoveries in terms of source depth, which is indicated by the superimposed outline of the true body in each section.

In the above analysis we have established a practical way for estimating an appropriate depth weighting function that distributes the susceptibility more uniformly with depth. The weighting is valid when the model objective function consists only of $\phi_{ms}$. In general, we like to include a penalty against roughness and thereby produce a model that is smooth. To incorporate the above weighting scheme in the spatial variations, we make the following argument. Since minimizing $\phi_{ms}$ tends to provide a reasonable depth distribution, we wish only to improve the model's smoothness while maintaining the depth characteristic. A conceptually consistent approach would be to apply the roughness measures to the weighted model. We form a generic model objective function

$$\phi_m(m) = \alpha_s \int_V w_s\{w(z)[m(\mathbf{r}) - m_0]\}^2\,dv + \alpha_x \int_V w_x\left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial x}\right\}^2 dv + \alpha_y \int_V w_y\left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial y}\right\}^2 dv$$

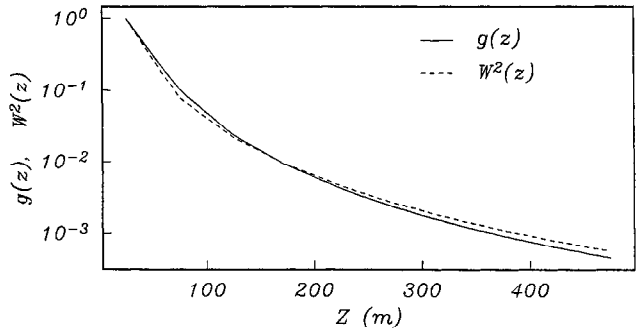



FIG. 5. Comparison of the kernel function (solid) directly beneath the observation point with the estimated curve (dashed) given by $w^2(z) = (z + z_0)^{-3}$ with $z_0 = 25$ m. The source cell is a cube of 50 m on a side. Here, $z$ denotes the depth to the center of the cell. Both curves are normalized for comparison.

$$+ \alpha_z \int_V w_z \left\{ \frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial z} \right\}^2 dv, \qquad (20)$$

where the depth weighting is applied inside the derivatives of the roughness components and the reference model $m_0$ can be removed from any term if desired. This type of depth weighting has proven to work satisfactorily on a number of synthetic examples and is the default choice in our algorithm. The examples to be presented in the following sections all use this depth weighting function.

Before proceeding further, we remark that the above weighting represents only one possibility. One could potentially design a different weighting by incorporating the depth weighting in the usual 3-D weighting functions $w_s$, $w_x$, $w_y$, $w_z$. Such an approach applies the depth weighting outside the derivative operators directly. However, the decay rate of the depth weighting for each component will be different, and it is difficult to establish a consistent rule for the choice of the different weightings. In addition, the extra set of parameters required by such a weighting scheme introduces more subjectivity into the inversion process. We have not explored this approach in detail; however, it is observed that straightforward inclusion of the depth weighting derived above into the 3-D weighting function in the form of $\int_V w_z w^2(z)\{\partial[m(\mathbf{r}) - m_0]/\partial z\}^2 dv$ can yield reasonable results.

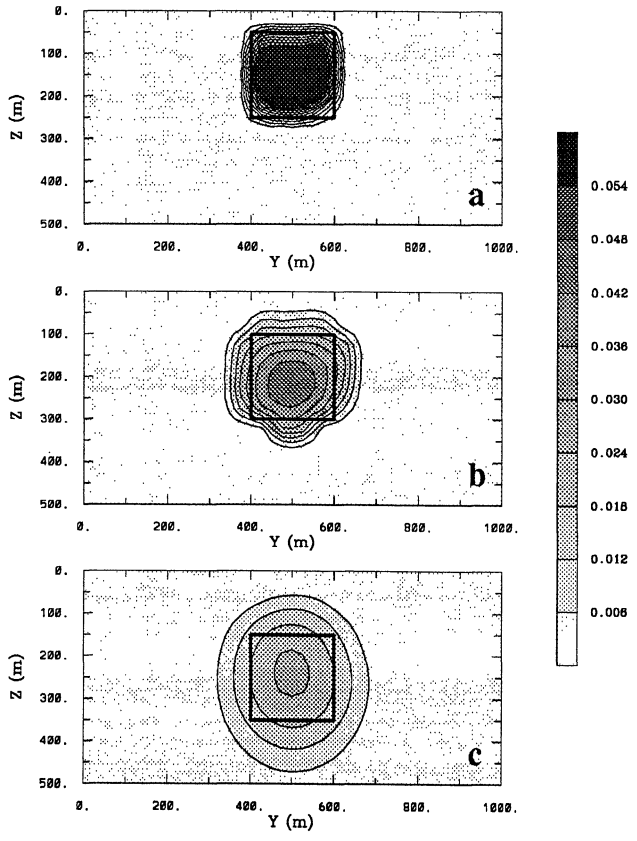



FIG. 6. Cross-sections through the center of the recovered model for a cube at a central depth of 150,200, and 250 m. The cube is 200 m on a side. The inversion uses the weighting function derived from the kernel decay estimated in Figure 5. The true position of the cube is outlined in each cross-section. As the true source depth increases and, as a result, the high-frequency content in the data decreases, the recovered model becomes increasingly smooth and attains a smaller amplitude. However, the depth of the recovered model is close to the true value.

## PRACTICAL ASPECTS OF DATA PREPARATION

The data used in the inversion are the residual data obtained by subtracting a regional field from the initial observation. The inversion algorithm has been developed under the assumptions that the surface magnetic anomaly is produced by the induced magnetization only and that there are no remanent magnetization or demagnetization effects present. Incorrect removal of regional field, or any deviation from the above assumptions, is expected to cause a deterioration in the inversion results. Furthermore, the susceptibility distribution is mathematically represented by a piece-wise constant function defined on a user-specified grid of cells. Magnetic sources, however, have a wide range of physical sizes. In some cases, source dimensions will be significantly smaller than the size of cells in the mathematical model. If measurements are taken close to such a source, the resulting anomaly will have a width that is significantly smaller than that produced by a single cell in the mathematical model and this may produce artifacts. We ameliorate this problem by inverting data that have been upward continued to a height approximately equal to the width of the surface cells in the model. We arrive at this conclusion from a numerical experiment. We first generate the magnetic field $H_\ell$ from a small localized surface source that is assumed to be a cube of width $\ell$. At each height $h$ above the surface, a one-parameter inverse problem is carried out to find a uniform susceptibility of a large surface cube that has a width of $L$ and shares a common horizontal center with the small cube. If $H_L$ is the field of the large cell that best reproduces $H_\ell$ then the misfit functional,

$$r(h) = \frac{\int_{\Delta S} (H_\ell - H_L)^2 \, ds}{\int_{\Delta S} H_\ell^2 \, ds}, \qquad (21)$$

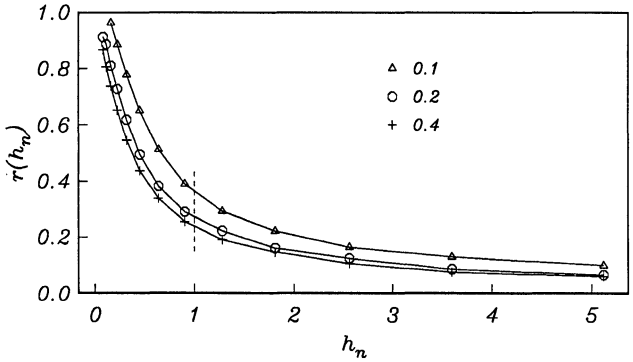



FIG. 7. The misfit between magnetic field as a result of a small cubic source and the field as a result of a larger cubic model cell having a best fitting susceptibility. The numbers indicate the ratio of the cell width. The misfit is plotted as a function of the observation height normalized by the width of the model cell. Note that the misfit decreases rapidly until the height is approximately equal to the width of the model cell, and that it changes slowly thereafter.

can be computed, where $\Delta S$ is the surface area of the data map. Figure 7 shows the misfit function $r(h)$ for trial values of $\ell/L$ = 0.1, 0.2, 0.4. We note that $r(h)$ decreases rapidly until $h \approx L$, and that it changes slowly thereafter. Since the above misfit analysis is a worst case scenario because the contaminating body is located at the surface, the suggestion of upward continuing the data to a height approximately equal to the width of surface cells may be somewhat conservative, and inversionists may want to vary this. However, in many field surveys, magnetically susceptible small bodies exist close to the surface and hence upward continuing the data prior to inversion is prudent.

## SYNTHETIC EXAMPLES

As the first example, we invert the total field anomaly data given in the Introduction. The model consists of a 3-D dipping slab buried in a nonsusceptible half-space (slab model). Figure 1 shows three slices through the slab model. The susceptibility of the slab is 0.06 (SI unit). Under an inducing field with a strength of 50 000 nT and a direction at $I$ = 75° and $D$ = 25°, the slab model produces the surface total magnetic anomaly shown in Figure 2, which consists of 441 data over a 21 **X** 21 grid of 50-m spacing. The data have independent Gaussian noise added whose standard deviation is equal to 2% of the accurate datum magnitude plus 1 nT. We invert these 441 noise-contaminated data to recover the susceptibility of an earth model parametrized by 4000 cells of 50 m on a side (20 cells in each horizontal direction and 10 in depth).

The data are partitioned into 49 groups to provide 49 search vectors for the subspace algorithm. In addition, each component in the model objective function provides one basis vector, and a constant vector is included. For the depth weighting, the value of $z_0$ is estimated as 25 m. The additional 3-D weightings in the objective function are all set to unity. The reference susceptibility model is set to zero. For the nonlinear mapping, we choose $\kappa_b$ = 0.0002 and $\kappa_1$ = 0.01.

First, we invert the data by minimizing an objective function composed only of the $\phi_{ms}$ and using $m = \kappa$ as the model parameter. A total of 51 subspace vectors are used at each iteration. The inversion reaches the expected misfit in 13 iterations but a few extra iterations are performed in an attempt to further reduce the value of the model objective function while keeping the misfit at the target value. By iteration 18, the objective function is decreasing by less than 1% per iteration, and the process is terminated. The constructed susceptibility model is shown in Figure 8 and can be compared with the true model in Figure 1. The tabular shape of the anomaly and its dipping structure are clear, and the depth extent is reasonably recovered. The amplitude of the recovered model is slightly higher than the true value, but the dip angle inferred from the recovered model is close to the true value. We point out that the model sections should be plotted using gray shading for each cell to reflect the piece-wise constant nature of the model. However, when the model has only a small number of cells in each spatial direction, the structural trends are more readily shown when contours are used. For this reason, we have contoured the model sections.

Next, the same data are inverted using a model objective function that includes penalty terms on spatial roughness, $\phi_{mv}$. The depth weighting is applied to all terms, as in equation (20). The inversion uses 54 subspace vectors and achieves the expected misfit in 13 iterations. The recovered model is shown in Figure 9. It is smoother, has a slightly lower amplitude than the model in Figure 8, and it recovers the essential features of the true model such as the depth and dip angle.

It is observed, in this example and in other synthetic and field test examples, that minimizing either the first term in the model objective function in equation (20), $\phi_{ms}$, or using all four terms, generates models that are reasonable representations of the true structure. In the absence of prior information, both models can provide useful information about the subsurface susceptibility distribution. However, the model minimizing $\phi_{ms}$ can be obtained at less computational cost. Further-

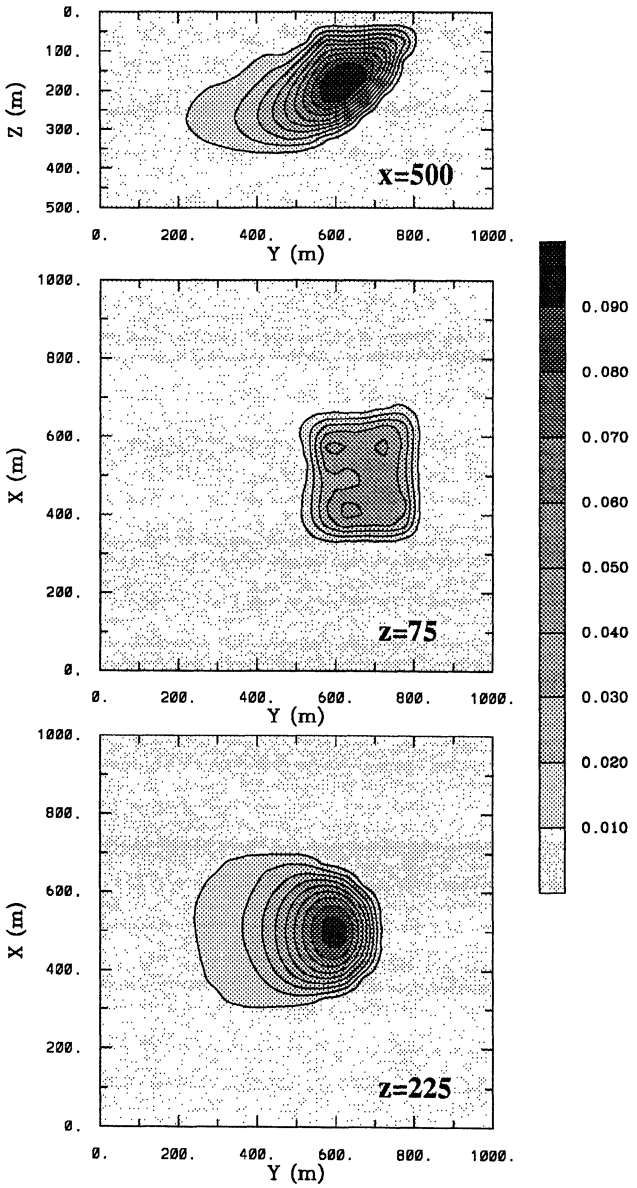



FIG. 8. Model obtained from inverting the data shown in Figure 2 by minimizing only $\phi_{ms}$, which has the depth weighting applied. This is to be compared with the true model in Figure 1. The major features in the true model, such as dip angle and depth exte nt, are evident in the recovered model.

more, the depth weighting in this case is rather well supported by mathematical analysis whereas it is an argued extension for the three roughness components. Therefore, a reasonable approach to inverting field data might be a two-step process. The data can be inverted first by minimizing $\phi_{ms}$, and the resultant model may be used in the interpretation as a preliminary result. If there are interesting features present and if one desires to refine the model by incorporating prior information to enhance or attenuate the structural complexity in different regions, a second inversion can be carried out using an objective function consisting of both $\phi_{ms}$ and $\phi_{mv}$. The model obtained by minimizing $\phi_{ms}$ can then be used in this inversion as an initial model. The available prior information can be incorporated into the second inversion by forming a reference model and 3-D weighting functions, $w_s$, $w_x$, $w_y$, $w_z$.

We now invert the same data by using $m = \ln(\kappa)$ as the model. It is not possible to incorporate a zero susceptibility as the reference model, so we minimize an objective function consisting of $\phi_{mv}$ with the reference model removed. The same depth weighting is applied to all terms of $\phi_{mv}$. Since $\kappa = e^m$, the positivity of the susceptibility is ensured without invoking the transformation of variables. The result is shown in Figure 10a. This is a cross-section at $x$ = 500 m and plotted on a logarithmic scale in accordance with the model used in the inversion. The inverted susceptibility shows the presence of the dipping anomaly as a broad region of high susceptibility. However, the interpretation based upon such a model can be complicated by the variations of susceptibility that are small and have little effect on the surface data. We have replotted the cross-section on a linear scale in Figure 10b and the anomalous region is now delineated more clearly. Its top portion indicates the tabular body and defines the depth to the

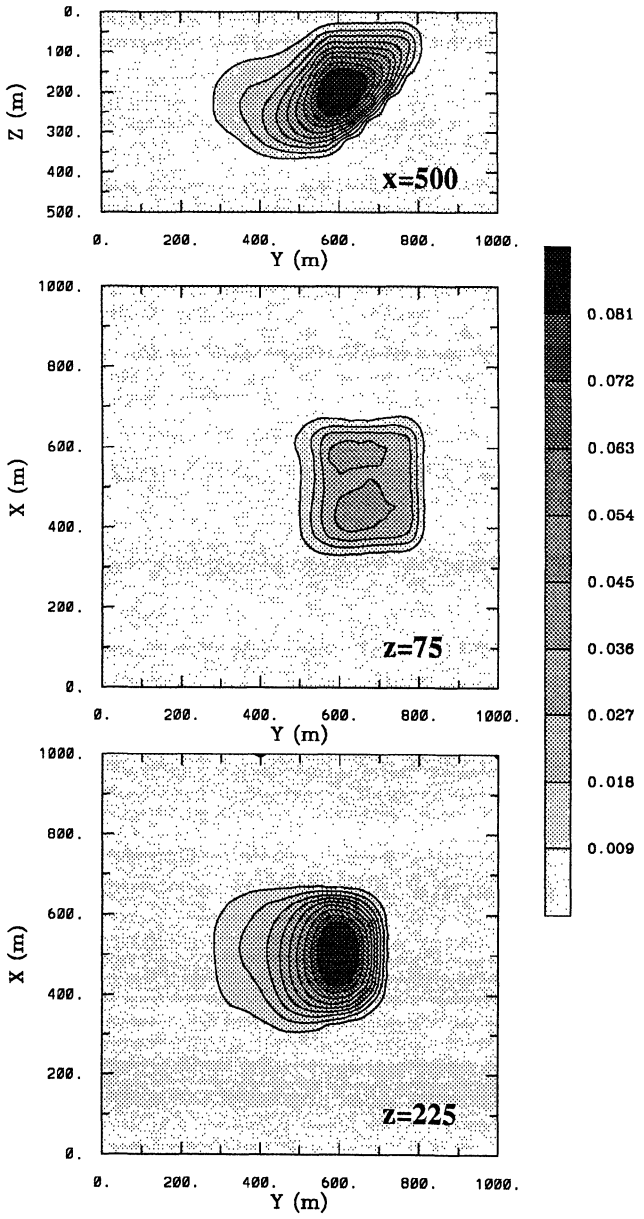



FIG. 9. The model derived from inverting the slab model data in Figure 2 by minimizing the model objective function having both $\phi_{ms}$ and $\phi_{mv}$. The same depth weighting is used. This model appears to be smoother and has a smaller amplitude than that in Figure 8.

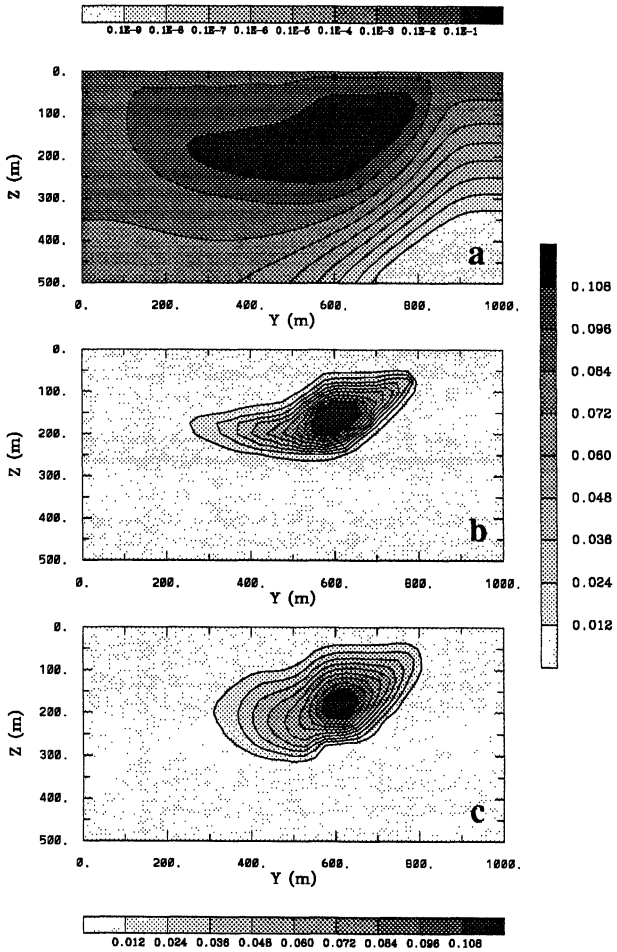



FIG. 10. The model obtained from inverting the data shown in Figure 2 by using $m = \ln(\kappa)$ as the model and minimizing $\phi_{mv}$ with the reference model removed. The inverted logarithmic susceptibility in cross-section at $x$ = 500 m is shown in (a) and it is replotted on a linear scale in (b). As a comparison, the result obtained by using $m = \kappa$, and the same objective function is shown in (c).

top and dipping angle. The anomaly terminates at a shallower depth than the true model and has a nearly horizontal extension to the left. As an exact comparison, Figure 10c is the susceptibility model obtained by minimizing $\phi_{mv}$ but using $m = \kappa$ as model and invoking the positivity. This is a smoother model and exhibits more gradual changes in the susceptibility. It has a slightly deeper extent than the model in Figure 10b. With the exception of details toward the bottom, however, both models provide almost the same information about the anomalous susceptibility region. It might be concluded that inversion using either linear or logarithmic susceptibility is viable for practical applications. However, we note that the presentation in Figure 10b is inconsistent with the model used in the inversion. Since the inverted susceptibility is easier to interpret on a linear scale as demonstrated here, and since the magnetic data are linearly related to the susceptibility, we generally prefer to work with the susceptibility $\kappa$ as the model in the inversion.

As the second example we invert the total field anomaly data produced by a slightly more complicated model and with two different inducing field directions. The true model is shown in Figure 11 in the same format as before. It is a dipping slab having its top and bottom portions offset to simulate the result of a normal faulting. The faulted slab strikes north. The data from this model, when the inducing field has a direction of $I$ = 45° and $D$ = 45°, are shown in Figure 12. Again Gaussian noise has been added to the data. The inversion minimizes an objective function consisting of $\phi_{ms}$ and $\phi_{mv}$ that have the same depth weighting and nonlinear mapping as used to produce the results in Figure 9. Figure 13 displays the recovered model in three slices. It shows two distinct anomalous regions of susceptibility that correspond to those in the true model. The dipping structure is evident from the top block. On plan view, the strike direction and the strike length of the anomaly are also well recovered.

When the inducing field direction is $I$ = 0° and $D$ = 45°, the surface anomaly with added Gaussian noise is that shown in Figure 14. Carrying out the inversion using an identical model objective function generates the model shown in Figure 15. It is similar to the model shown in Figure 13, which is recovered under an inducing field at 45° inclination. Again, the two separate blocks, the dipping direction, and the length and direction of the strike, are all reasonably recovered. This is a positive result in that, although the surface anomalies have very different expressions under different inducing field directions, the inversion algorithm is able to consistently recover the source structure. Moreover, the algorithm had no difficulty in inverting data generated from an inducing field having zero inclination; such data often pose problems in interpretations that include a reduction to pole.

We emphasize that positivity has played a pivotal role in all the inversions. Magnetic data generally have regions of nega-

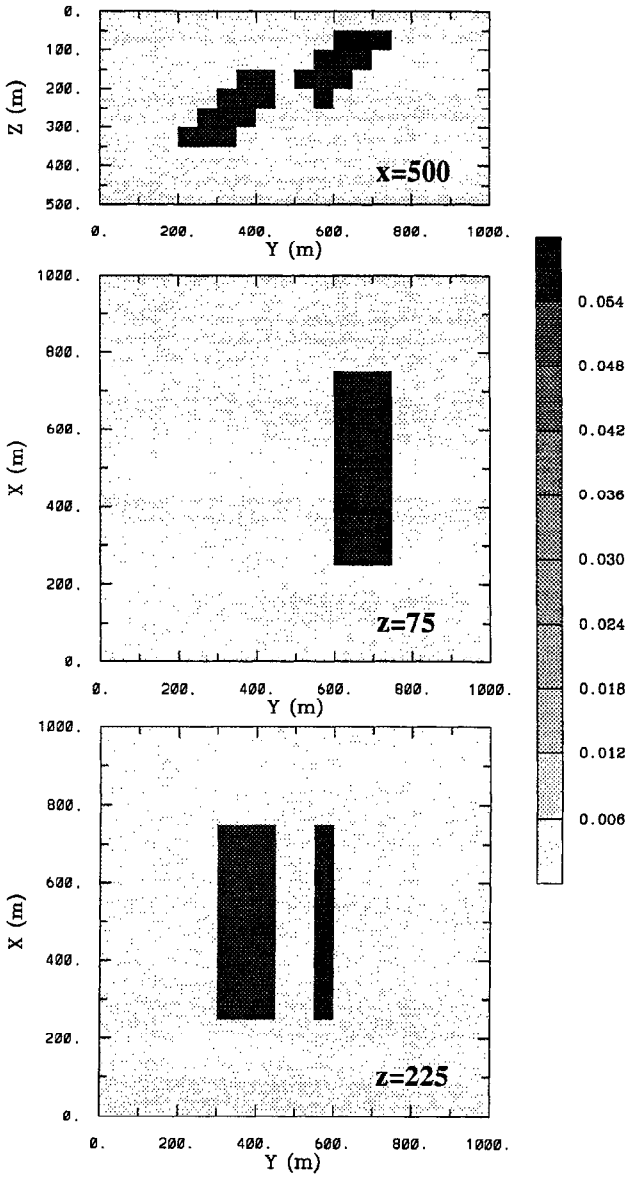



FIG. 11. The second synthetic test example. The top and bottom portions of the anomalous susceptibility are offset to simulate a norm fault structure. It also has a large strike length in the north direction.

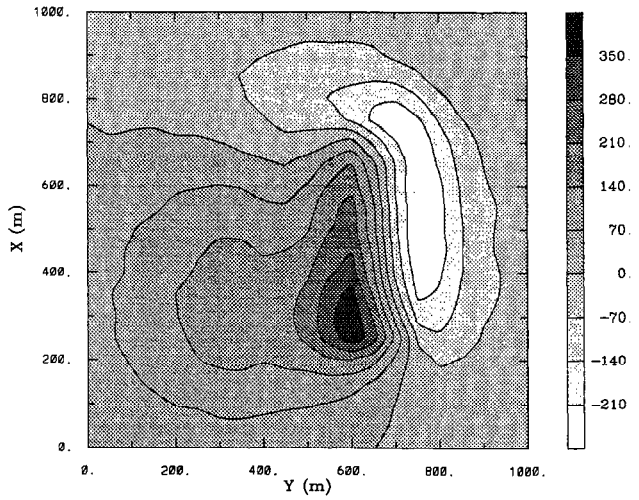



FIG. 12. The surface total field anomaly produced by the faulted slab in Figure 11, under an inducing field at $I$ = 45° and $D$ = 45°. Uncorrelated Gaussian noise is again added to the data.

tive values that result from dipping bodies or inclined inducing field, or both. Without positivity, the constructed susceptibility is often negative and the dipping bodies appear more vertical. Recovery of correct dip and, to some extent, depth to the top of the anomalous body, are often the result of invoking positivity. Once the positivity is imposed, it is no longer true that an equivalent stratum that reproduces the data exists at any depth. Therefore, cells of anomalous susceptibility cannot be placed arbitrarily close to the surface, and no equivalent source can be constructed with negative susceptibilities. This restricts the class of admissible models and, consequently, reduces the nonuniqueness.

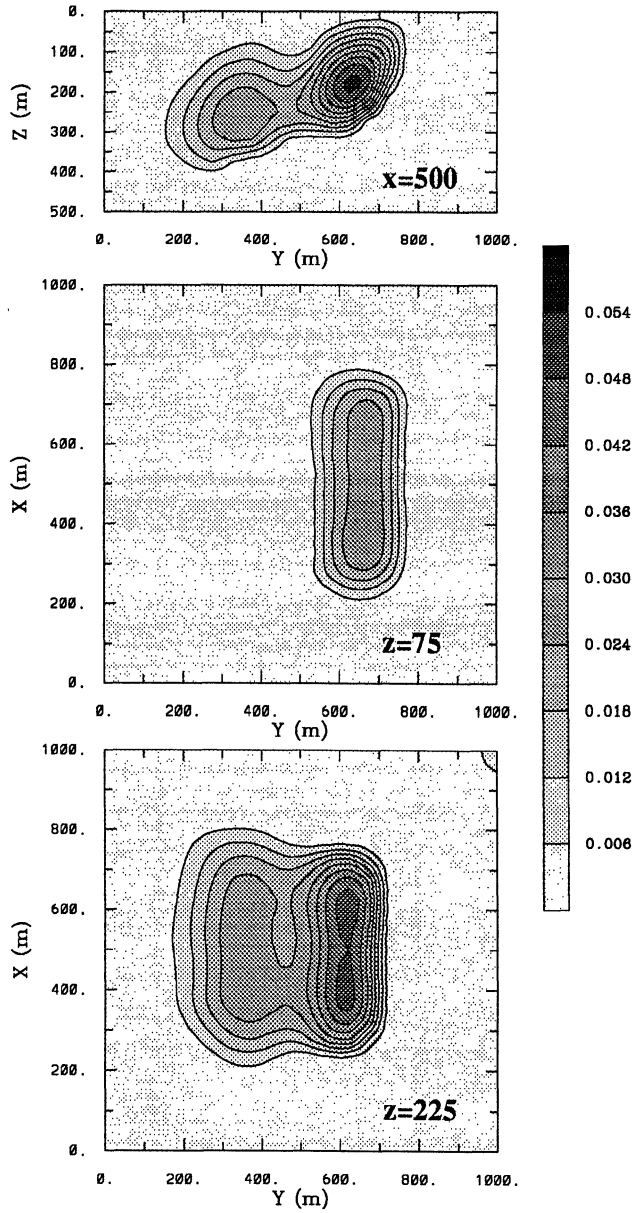



FIG. 13. The susceptibility model recovered from the data shown in Figure 12. It is seen that both the top and bottom block of the true model are recovered and the strike direction and length are well defined.

## FIELD EXAMPLE

As the final example, we invert field data taken over a copper-gold porphyry deposit at Mt. Milligan in central British Columbia. The host rocks for the deposit are early Mesozoic volcanic and sedimentary rocks and contain intrusive monzonitic rocks that have accessory magnetite. Porphyry-style alteration and copper-gold mineralization are contemporaneous with the intrusive events. The copper and gold are known to be concentrated in the potassic alteration assemblage, which is mainly around the contact of the monzonite intrusions and may extend outward and into fractured volcanic rocks. Among other minerals, magnetite is one of the strong indicators of the potassic alteration. Ground magnetic data are acquired in the region at 12.5-m spacing along lines in the east direction and spaced 50 m apart. Our study of the data set has focused on a 1.2 km x 1 km area, which covers a large monzonite body known as the MBX stock and contains a reasonably isolated set of magnetic anomalies. Fairly detailed information about the geology is available through a major drilling program, but no susceptibility logs were available.

Magnetic data from a larger area were first upward continued to 20 m. A regional field was then defined and removed from the upward continued data. The continuation operation suppresses the noise in the data and also facilitates the discretization of the topographic surface for the model so that all observation points remain above the discretized surface. Although the original data were collected at 12.5-m spacing, we use the data at 25-m spacing. This yields 1029 data points at varying elevations. Figure 16 shows the data contoured according to their horizontal locations. The direction of the inducing field is $I = 75°$ and $D = 25.73°$. Several major magnetic highs are observed in the map. However, the influence of anomalies adjacent to the map is also visible along the edges. We choose a model domain that is horizontally larger than the data area, coincides at the top with the highest point on the topographic surface, and extends to 450-m depth. The model is discretized horizontally at a 25-m interval beneath the area of data. In the

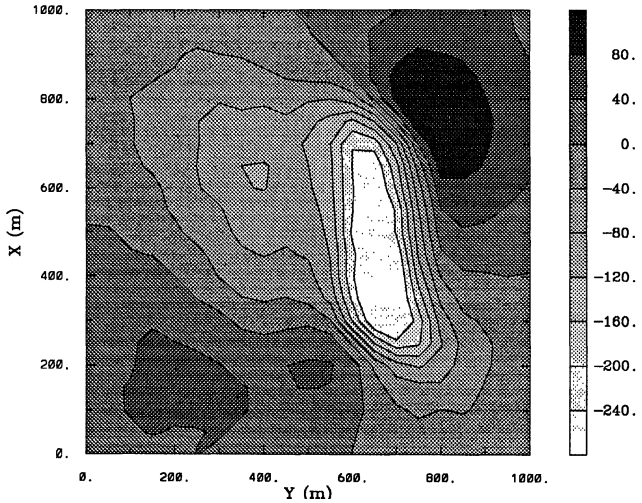



FIG. 14. The surface total field anomaly produced by the faulted slab in Figure 11 under an inducing field at $I = 0°$ and $D = 45°$. Uncorrelated Gaussian noise is added to the data.

vertical direction, the first 100 m is divided at a 12.5-m interval so that the surface can be adequately discretized onto the model mesh. Below the depth of 100 m, an interval of 25 m is used. This results in a mesh with 52 x 44 x 22 cells. Once the mesh is defined, the topography is discretized onto it. The 43 428 cells below this surface define the susceptibility model, and the inverse problem is therefore formalized by inverting 1029 data to recover the susceptibilities in those cells. The depth weighting is referenced to the top of the model domain. Each datum is assumed to have an error whose standard deviation is equal to 5% of its magnitude plus 10 nT. The error estimate includes not only the repeatability of the instrument reading but also the geological noise and errors introduced by the inaccurate recording position and by separating the anomalous field from the initial total field measurements. One hundred subspace vectors generated by dividing the data map into small subareas are used in the inversion. We use a nonlinear mapping with $\kappa_b = 0.0002$ and $\kappa_1 = 0.02$. The recovered model is shown in Figure 17 as one plan-section and three cross-sections. From the plan-section, two concentrated susceptibility highs are observed in the central region. Surrounding them are three linear anomalies trending northeast. In the cross-sections, the major anomalies are seen at moderate depths but there is considerable variation in the depth to the top. There are also smaller anomalies extending to the surface. In general, there are more detailed structures near the surface and the model becomes increasingly smooth at greater depths. As required by the objective function, there is no excessive structure associated with each unit of high susceptibility region. Comparison with drill logs indicates that the recovered magnetic susceptibility highs are mostly associated with the monzonite intrusions and with faults or fracture zones. Figure 18 compares the recovered susceptibility model with the geology (Cam DeLong, personal communication) in the cross-section at $x$ = 600 m. The large susceptibility high is spatially well-correlated with the MBX stock and reflects the initial magnetite content in the intrusion. Two smaller susceptibility highs are present east of the stock. The high at $y$ = 650 m coincides with the boundary of stock and porous trachytic units while the high at $y$ = 900 m coincides with the upper portion of the Rainbow dyke. These are locations of the most intensive potassic alterations and the susceptibility highs are indicative. of the magnetite produced by the alteration process. Over all, this is a rather encouraging result.

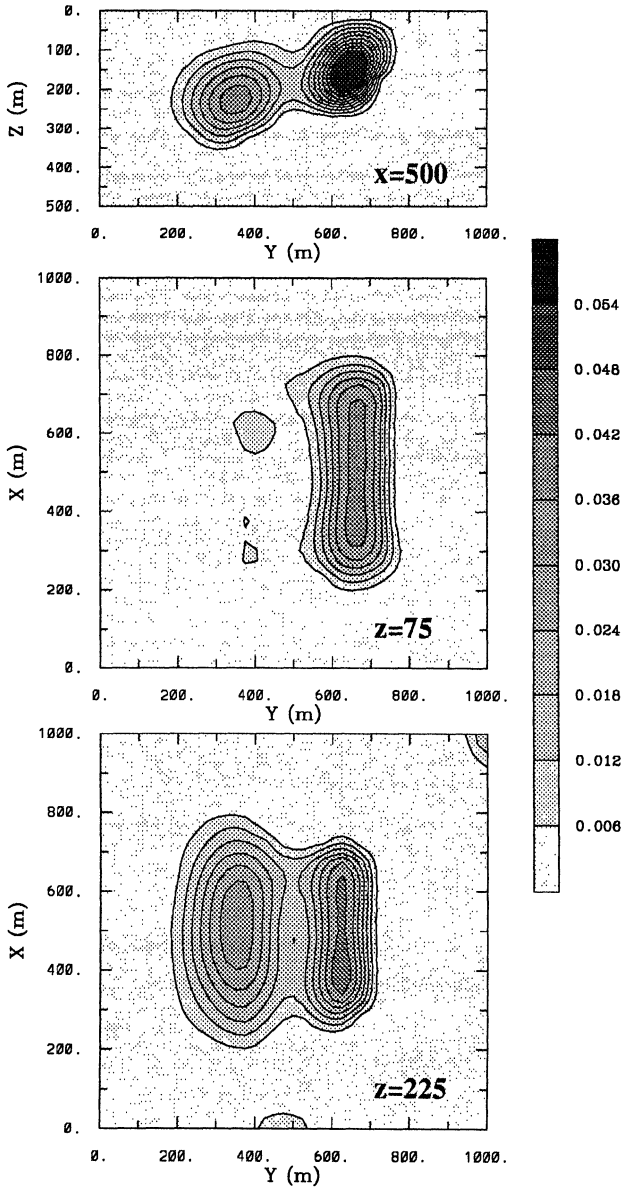



FIG. 15. The susceptibility model recovered from the data shown in Figure 14. This model is similar to that shown in Figure 13.

## CONCLUSION

We have developed an algorithm to invert surface magnetic data for general 3-D susceptibility distributions. Although we have illustrated the algorithm using examples on the scale pertinent to mining applications, the method is general and applicable to problems on different scales ranging from environmental to regional investigations. To overcome the inherent nonuniqueness, we obtain the solution by minimizing a

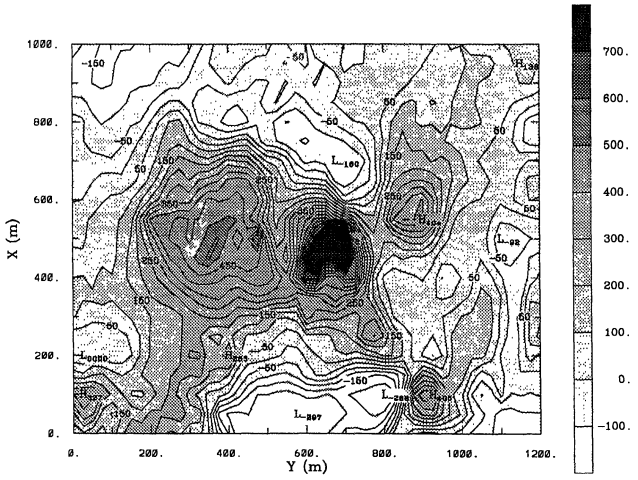



FIG. 16. The extracted total field anomaly from ground magnetic data at Mt. Milligan Copper-gold porphyry deposit. The data are contoured according to their horizontal locations in this map, although thev are at different elevations.

specific objective function of the model. Our model objective function has the ability to incorporate prior information into the inversion via a reference model and 3-D weighting functions. A crucial feature of the objective function is a depth weighting function that counteracts the natural decay of the kernel functions. The parameters of the depth weighting depend upon the discretization of the model but are easily calculated. The minimization is carried out using a subspace technique that reduces the computational effort and allows the positivity constraint of susceptibility to be incorporated. Both susceptibility and logarithmic susceptibility can potentially be used as the model in the inversion. Since the data are linearly related to susceptibility, and since usually absolute values of susceptibility are required for interpretation rather than relative values, especially in regions of very low susceptibility, we have generally chosen to work with susceptibility. To suppress the noise from small magnetic bodies near the surface, we recommend in general that the data be upward continued to a height comparable with the width of the surface cell before inversion.

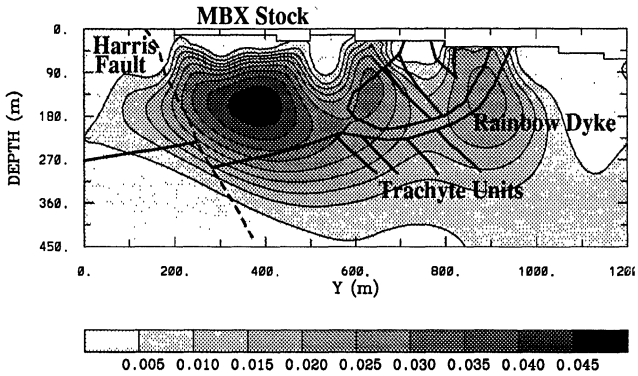



FIG. 18. Comparison of the recovered susceptibility model in a cross-section ( $x$ = 600) with the geology for the Mt. Milligan deposit. The susceptibility high within the MBX stock reflects the initial magnetite in the intrusive while the susceptibility highs near the Rainbow dyke are related to the magnetite produced by potassic alteration.

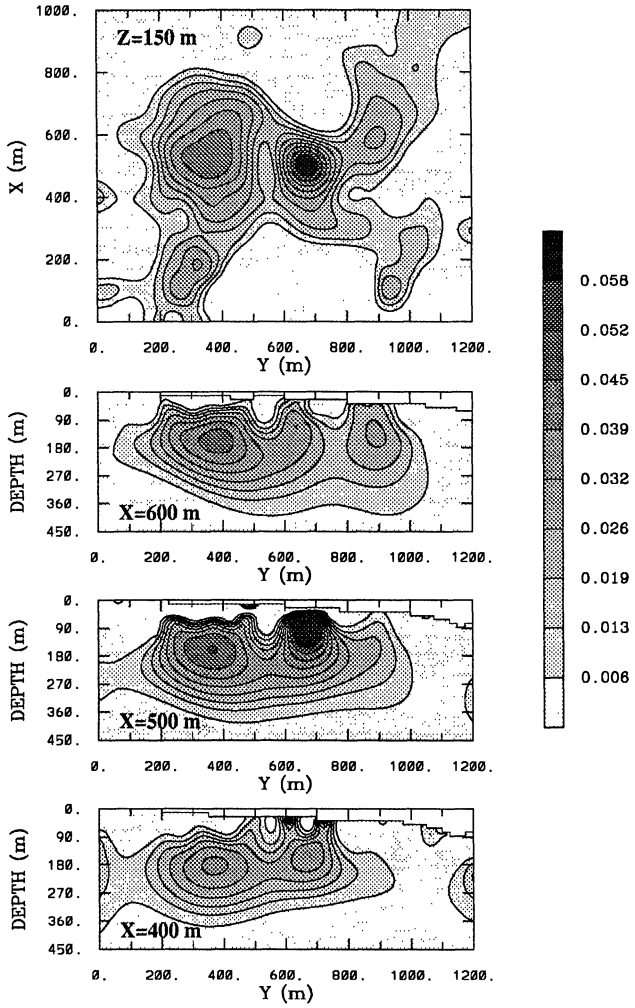



FIG. 17. The recovered susceptibility model shown in one plan-section and three cross-sections. The plan-section is at the depth of 150 m and the three cross-sections are at $x$ = 600,500, and 400 m, respectively.

Applications of our inversion to synthetic data sets have produced models representative of the true structures and demonstrated the ability of the algorithm to construct consistent models at different magnetic latitudes. Inversion of field data has produced a susceptibility model that is consistent with the known geology and mineralization information. These results represent an encouraging conclusion: although the inversion of magnetic data seems impossibly nonunique when one has a large number of cells, inversions using a properly designed model objective function can produce susceptibility distributions that yield meaningful geologic information.

## ACKNOWLEDGMENTS

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## APPENDIX

### MODEL OBJECTIVE FUNCTION

Our inversion method uses a model objective function of the form

$$\phi_m(m) = \alpha_s \int_V w_s\{w(z)[m(\mathbf{r}) - m_0]\}^2\, dv + \alpha_x \int_V w_x \left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial x}\right\}^2 dv + \alpha_y \int_V w_y \left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial y}\right\}^2 dv + \alpha_z \int_V w_z \left\{\frac{\partial w(z)[m(\mathbf{r}) - m_0]}{\partial z}\right\}^2 dv. \quad \text{(A-1)}$$

The numerical evaluation of this functional is carried out by introducing the model mesh and evaluating all terms using a finite-difference approximation. The discretized model objective function has the form

$$\phi_m(\mathbf{m}) = (\mathbf{m} - \mathbf{m}_0)^T(\mathbf{W}_s^T\mathbf{W}_s + \mathbf{W}_x^T\mathbf{W}_x + \mathbf{W}_y^T\mathbf{W}_y + \mathbf{W}_z^T\mathbf{W}_z)(\mathbf{m} - \mathbf{m}_0) \equiv (\mathbf{m} - \mathbf{m}_0)^T\mathbf{W}_m^T\mathbf{W}_m(\mathbf{m} - \mathbf{m}_0) \quad \text{(A-2)}$$

Each component matrix can be written as the product of three individual matrices and one oefficient. That is,

$$\mathbf{W}_i = \alpha_i \mathbf{S}_i \mathbf{D}_i \mathbf{Z}, \qquad i = s, x, y, z, \quad \text{(A-3)}$$

where $\mathbf{S}_i$ are diagonal matrices representing the spatially dependent 3-D weighting functions, $\mathbf{D}_i$ are the finite-difference operators for each component, and $\mathbf{Z}$ is a diagonal matrix representing the discretized form of depth weighting function $w(z)$.

The elements of $\mathbf{S}_i$ are given by $\sqrt{w_i}$. They are defined over each cell for $\mathbf{S}_s$, and over each interface between adjacent cells in the respective directions for $\mathbf{S}_x$, $\mathbf{S}_y$, and $\mathbf{S}_z$. $\mathbf{D}_s$ has elements $\sqrt{\Delta x \Delta y \Delta z}$ on its diagonal, where Ax, Ay, and $\Delta z$ are the cell width. The matrix $\mathbf{D}_x$ has two elements $\pm\sqrt{\Delta y \Delta z/\delta x}$ in each row, where $\delta x$ is the distance between the centers of cells adjacent in the $x$ - direction. Similarly, $\mathbf{D}_y$ and $\mathbf{D}_z$ have elements $\pm\sqrt{\Delta x \Delta z/\delta y}$ and $\pm\sqrt{\Delta x \Delta y/\delta z}$, respectively, where $\delta y$ and $\delta z$ are the distances between centers of adjacent cells in the $y$- and $z$ - directions. Once the mesh is defined and all weighting functions, $w_s$, $w_x$, $w_y$, $w_z$, and $w(z)$ are chosen, equation (A-3) is evaluated straightforwardly and $\mathbf{W}_m^T\mathbf{W}_m$ is formed.

# New enhancement filters for geological mapping

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## SUMMARY

Two types of filters have been developed for the purpose of enhancing weak magnetic anomalies from near-surface sources while simultaneously enhancing low-amplitude, long-wavelength magnetic anomalies from deep-seated or regional sources. The Edge filter group highlights edges surrounding both shallow and deeper magnetic sources. The results are used to infer the location of the boundaries of magnetised lithologies. The Block filter group has the effect of transforming the data into "zones" which, similar to image classification systems, segregate anomalous zones into apparent lithological categories. Both filter groups change the textural character of a dataset and thereby facilitate interpretation of geological structures.

The effect of each filter is demonstrated using theoretical model studies. The models include both shallow and deep sources with a range of magnetisations. Comparative studies are made with traditional filters using the same theoretical models. In order to simulate real conditions, Gaussian noise has been added to the model response. Techniques for noise reduction and geological signature enhancement are discussed in the paper.

The new approaches are applied to actual magnetic survey data covering part of the Goulburn 1:100 000 scale map sheet area, New South Wales. Some new geological inferences revealed by this process are discussed

**Key words**: Enhancement filters, magnetic sources, geological mapping.

## INTRODUCTION

High-resolution aeromagnetic survey data represent a rich source of detailed information for mapping surface geology as well as for mapping deep tectonic structure. Traditional enhancement techniques, such as first vertical and horizontal derivatives (1VD, 1HD), analytic signal (AS), and high-pass in-line or grid filters are used in enhancing magnetic anomalies from near-surface geology.

In recent years the potential field tilt filter has been introduced (Miller and Singh, 1994) and it has achieved recognition for its value in the analysis of potential field data for structural mapping and enhancement of both weak and strong magnetic anomalies (Verduzco *et al*, 2004). The total horizontal derivative of the TMI reduced to the pole is also widely used for detecting edges or boundaries of magnetic sources (Cordell and Grauch, 1985; Blakely and Simpson, 1986; Phillips, 1998).

Several disadvantages pertain to the use of these traditional filters. They often only diffusely identify source location and boundaries, particularly in colour image presentations. They usually emphasise short wavelength anomalies at the expense of signal from deeper magnetic sources and the range of amplitudes remaining in the filtered output may dominate the source boundary information being sought. In addition, some traditional filters emphasise noise with resultant impact on the interpretation of source boundaries.

This paper identifies new processes which have been developed to address these disadvantages and provide output which can improve map-based interpretations.

Unless otherwise stated, all filters have been operated on TMI data reduced to the pole (RTP).

## METHOD AND RESULTS

### Theoretical Model Testing

A theoretical 2D grid of total magnetic intensity (TMI) computed at the surface was created by forward 3D modelling of the TMI response from a set of theoretical magnetic sources having variable width, strike extent, depth, depth extent (DE), dip, magnetic susceptibility and strike azimuth. A list of these parameters is presented in Table 1. In two of the sources, remanence was simulated using negative magnetic susceptibility. The TMI of the theoretical models was computed at a geomagnetic inclination of -60 degrees using a notional east–west line spacing of 200 m and a grid cell size of 40 m. The TMI grid was then reduced to the pole (RTP) (Figure 1).

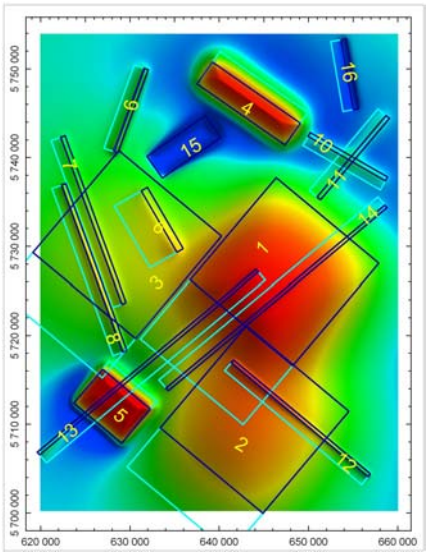



**Figure 1. RTP image derived from multiple theoretical 3D magnetic sources, shown as wire frame outlines**

A set of traditional filters was operated on the theoretical RTP grid. They include AS, 1VD, modulus of horizontal derivatives (MS) and Tilt and the results are presented in

Figure 2. The output grids variously show discontinuous trending (crossed sources in upper right of AS image), diffuse, weak edges (deep source in centre right of the MS image) and lack of precise source edge definition (1VD and Tilt).

| Model Label | Depth (m) | Width (m) | DE (m) | Dip (deg) | Magnetic Susceptibility (SI) | Strike Length (m) | Azimuth (deg) |
|---|---|---|---|---|---|---|---|
| 1 | 4000 | 15000 | 15000 | 120 | 0.010 | 15000 | -050 |
| 2 | 6000 | 15000 | 10000 | 120 | 0.010 | 15000 | -050 |
| 3 | 10000 | 15000 | 10000 | 120 | 0.010 | 15000 | -050 |
| 4 | 1000 | 3000 | 4000 | 70 | 0.010 | 12000 | -055 |
| 5 | 500 | 5000 | 2000 | 60 | 0.010 | 7000 | -050 |
| 6 | 1000 | 800 | 2000 | 150 | 0.005 | 8000 | -030 |
| 7 | 600 | 500 | 2000 | 120 | 0.001 | 20000 | -020 |
| 8 | 200 | 500 | 2000 | 120 | 0.001 | 20000 | -020 |
| 9 | 500 | 500 | 2000 | 120 | 0.003 | 10000 | 020 |
| 10 | 1000 | 500 | 2000 | 120 | 0.003 | 10000 | -060 |
| 11 | 1000 | 500 | 2000 | 120 | 0.003 | 12000 | 040 |
| 12 | 200 | 400 | 2000 | 120 | 0.001 | 20000 | -050 |
| 13 | 500 | 400 | 1000 | 40 | 0.002 | 32000 | 050 |
| 14 | 500 | 400 | 1000 | 140 | 0.001 | 32000 | 050 |
| 15 | 600 | 3000 | 4000 | 90 | -0.002 | 8000 | 055 |
| 16 | 400 | 600 | 2000 | 120 | -0.010 | 8000 | -010 |

**Table 1. List of parameters of theoretical magnetic sources**

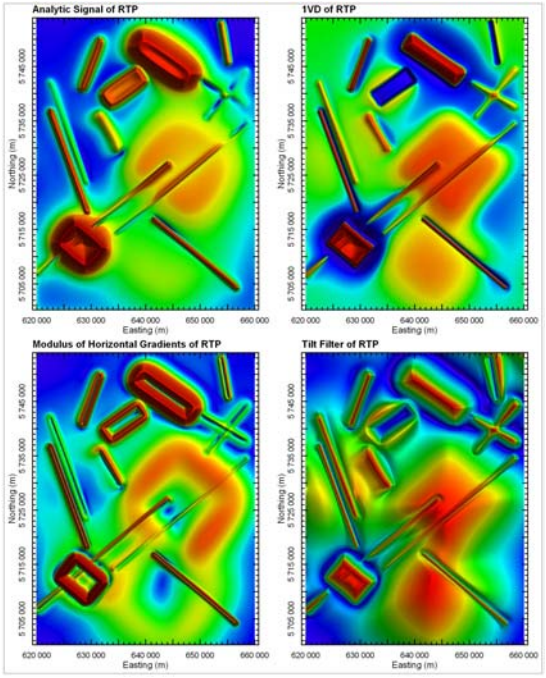



**Figure 2. Comparison of enhancement filters of RTP: AS, 1VD, MS and Tilt filter. The models used are those depicted in Figure 1.**

### Edge Filters

The first avenue of development was to increase the sharpness of the anomalies used to map the edge of the magnetic sources. The MS grid yields anomaly peaks over the source edge locations, whereas these edges coincide with gradients in the 1VD, Tilt and AS filtered outputs. None of these filters produces easily interpreted edges in image form when the sources are weakly magnetised or are deep.

A new linear, derivative-based filter termed the ZS-Edgezone filter has been developed to improve edge detection in these situations. Its effect is shown in Figure 3 using the same theoretical models discussed earlier. The advantages of the filter are greatly increased anomaly sharpness over source edges and compression of the amplitude range so that differences in the original TMI amplitudes do not persist to dominate the edge interpretation. This has the ancillary effect that the method can be modified to provide automated edge conversion to vectors for use in GIS systems.

Although this filter significantly improves the precision of edge determination, it is subject to normal potential field limitations which determine that source edges cannot be resolved where the source is narrow relative to its depth. The filter also can produce a "halo" type artefact due to superposition of the response of a limited depth extent shallow source (Figure 1, Model 6) on that of deeper sources. A similar "halo" effect can be seen around the edges of remanently magnetised Model 15, also in Figure 1.

The ZS-Edge filter (Figure 4) has also been developed to map source edges. This filter differs from the ZS-Edgezone filter in that a greater contribution of the TMI anomaly amplitude over the source is retained, thereby improving anomaly characterisation at the expense of edge sharpness.

Both these filters produce edges which migrate down-dip towards the deepest edge of the source. This effect produces anomaly asymmetry that can assist interpretation of dip, although this effect is more pronounced for the ZS-Edge filter than for the ZS-Edgezone filter. Down-dip source extensions are depicted in cyan in Figure 1.

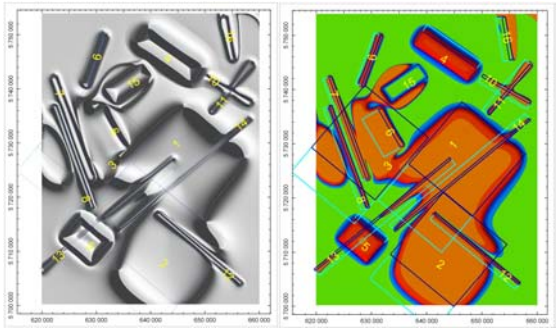


**Figure 3. Anomaly edge and block enhancements using the ZS-Edgezone (left) and ZS-Block filters (right). Model positions are shown using wire frames.**

### Block Filters

In attempting to improve edge detection filters, an obvious progression is to highlight the magnetic regions whose edges have been mapped. To do this, a set of filters called "block" filters has been developed.

The Block filter group has the effect of transforming the potential field data into "zones" which, similar to image classification systems, segregate anomalous zones into apparent lithological categories. These filters can be imported for use in image classification systems or displayed in RGB space with other grids for empirical classification purposes.

The block filters, like the edge filters, are linear, derivative-based filters which use a combination of derivative and amplitude compression techniques to render the magnetic data into regions whose edges are sharply defined and whose amplitudes have a reduced range in comparison to the original TMI.

The ZS-Block filter (Figure 3) and the ZS-Plateau filter (Figure 4) depict the magnetic data as a 2D plan of apparent magnetic source distribution. Artefacts may occur as discussed for the edge filters.

The choice of ZS-Block, ZS-Plateau or ZS-Area filters will depend on the data characteristics of each magnetic survey and on the end-use requirement. The ZS-Plateau filter, for example, yields less variation in amplitude "texture" over a magnetic unit that either the ZS-Block or ZS-Area filters.

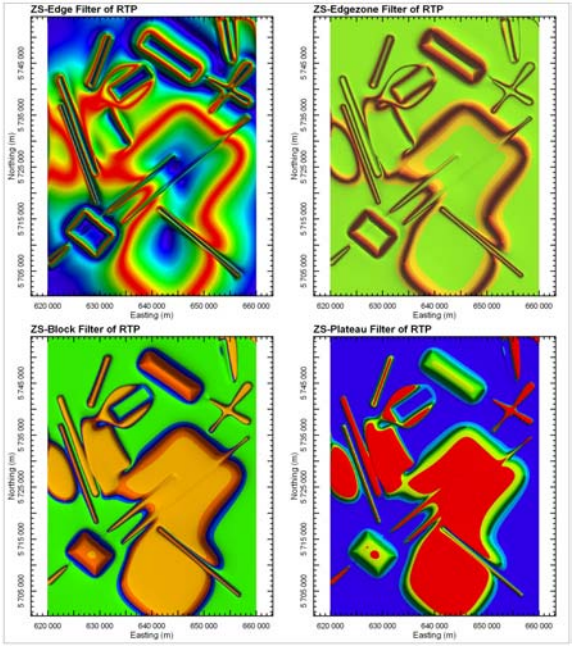



**Figure 4. Comparison of ZS-Edge, ZS-Edgezone, ZS-Block and ZS-Plateau filtered outputs of RTP data**

### Effects of Noise

The influence of noise on the operation of these enhanced grids was tested by adding a large component of noise to the theoretical TMI profile data. This noise had a Gaussian distribution with a standard deviation equal to ten percent of the TMI standard deviation. The noise-modified TMI profile data were then de-spiked using a non-linear technique. Both the noise-affected and the de-spiked TMI data were then gridded and converted to RTP. The RTP data were then processed both with the traditional and newly developed filters.

Figure 5 shows the effect of the noise on the computations. The image of the noise-affected 1VD RTP data (top right) shows that weak and deep sources have been severely masked by the noise. Significant improvement can be achieved by using de-spiked data (lower left) or by low-pass grid filtering — for example, using an upward continuation filter (lower right).

Figure 6 shows that if real data with significant noise is encountered, a standard de-spiking or low-pass smoothing procedure may be used to achieve successful application of both the traditional and newly developed filters.

Figure 6 also depicts the use of enhanced outputs in RGB space to provide examples of how the combination of amplitude information (red colour) with edge information (green and blue colours) can be used to highlight source boundaries and remanence in a single image.

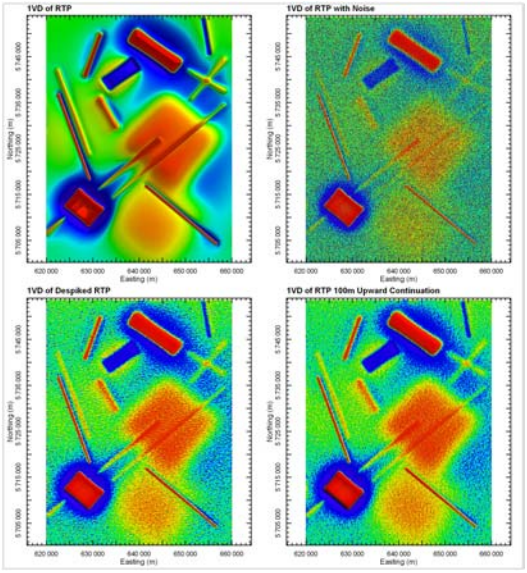



**Figure 5. Comparison of 1VD of original model RTP data (top left) with noise-affected RTP data (top right) and noise-reduced RTP data (lower images)**

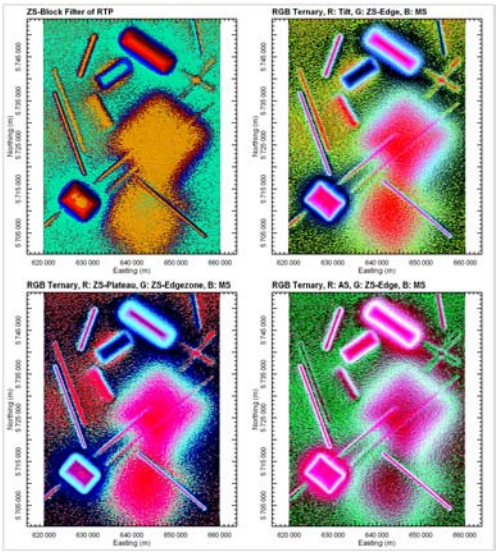



**Figure 6. ZS-Block filter using noise-reduced RTP data (top left) and examples of filter combinations in RGB space using noise-reduced RTP data**

### Application to Field Data, Goulburn 1:100 000 Scale Map Sheet Area, New South Wales

Both the traditional and new enhancement filters were applied to test their suitability for geological definition to airborne magnetic survey data over the Goulburn 1:100 000 scale map sheet area (Johnson *et al,* 2003). These data were acquired as part of a joint program between the NSW Department of Mineral Resources and Geoscience Australia, with 250 m–spaced east–west flightlines. The magnetometer sensor occupied a nominal terrain clearance of 80 m. This dataset was selected since new detailed geological mapping had been recently completed. All the enhancements have been computed using TMI data reduced to the pole.

Figure 7 shows a comparison of part of the Goulburn 1:100 000 map sheet area surface geology with the ZS-Area

filter output. In the area surrounding location C, the ZS-Area filter transforms the magnetic data into separate magnetic units, which comprise the Devonian Bindook Volcanic Complex. The magnetic regions correlate closely with mapped andesites (Dkqa–cream coloured unit in Figure 7) whilst the intervening less-magnetic units correlate with rhyolitic ignimbrites (Dkqy–red unit in Figure 7)

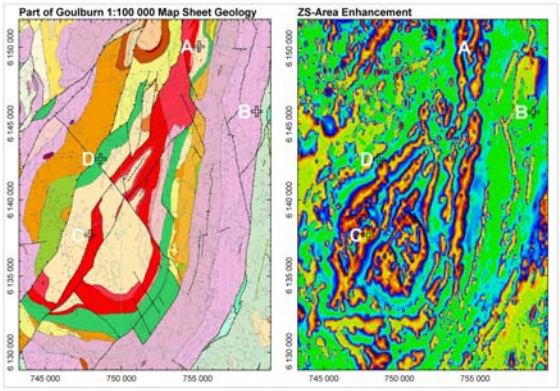



**Figure 7. Comparison of geology and ZS-Area enhancement over the Bindook Volcanic Complex**

Figure 8 displays some of the advantages of the edge detection filters. At location A, ambiguity concerning the continuity of Quialigo Formation units (cream and red units in Figure 7) is resolved by the ZS-Edgezone filter. At location B, a subtle lineament is confirmed, whilst at location D, the extent of the Bullamalita Conglomerate (green unit in Figure 7) is clearly mapped by the ZS-Edge filter. Structural breaks are often more easily interpreted using these transforms, for example, immediately southwest of location D.

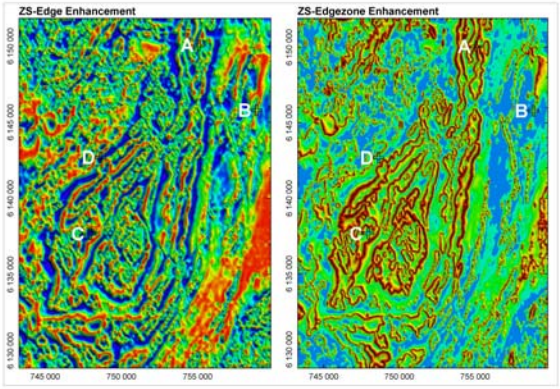



**Figure 8. Comparison of ZS-Edge and ZS-Edgezone enhancements over the Bindook Volcanic Complex**

Figure 9 shows standard RTP and Tilt transforms over the same area for reference.

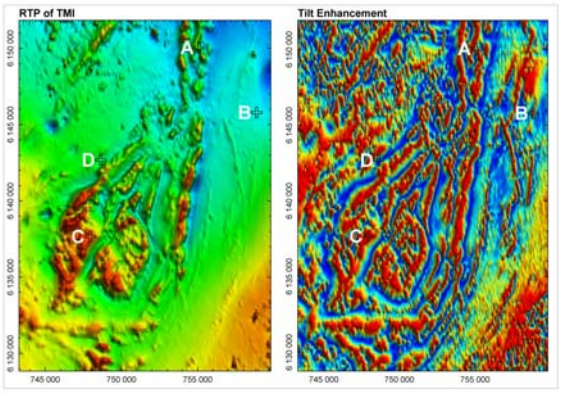



**Figure 9. Comparison of RTP and Tilt filters over the Bindook Volcanic Complex**

## CONCLUSIONS

Traditional filters used to enhance magnetic data, including the more recently developed potential field tilt filter, are currently used to assist in determination of the location and extent of magnetic units.

Newly developed derivative-based filters may be used to improve the precision of source edge detection and, by extension, the determination of the spatial extent of magnetic units. These filters are demonstrated to perform successfully on both strongly magnetised features as well as on weakly magnetised or deep magnetic features. Artefacts may result particularly where anomaly superposition occurs.

The impact of noise in real data may be accommodated by these new methods provided noise-reduction techniques are employed.

The new filter outputs may be used as part of regional or detailed geological mapping projects, including in classification systems or in RGB space, to improve lithological discrimination and mapping.

The speed of magnetic unit mapping can be considerably increased through reliance on edge detection filters. Further improvements in mapping speed can be envisaged through automated conversion of edge anomalies to vector files.

## ACKNOWLEDGMENTS

The authors would like to acknowledge the New South Wales Department of Mineral Resources for permission to use aeromagnetic and geological data from the Goulburn 1:100 000 map sheet area and helpful comments by David Robson during the project.

The authors wish to acknowledge Encom Technology for permission to publish the results of research into the proprietary filters used in this paper. The 3D modelling was carried out using Encom ModelVision Pro software, whilst processing and data visualisation were accomplished using Geosoft OASIS montaj and Encom Geoscape.

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# Tarsis - Mor – 3D Magnetic Inversion Specifications

The University of British Columbia 3D magnetic inversion program, version 4.0, was used for the inversions.

The area to invert was determined by the extents of the magnetic data: 658300E, 664200E, 6660600N, 6665625N.

The original TMI data came from a Geosoft grid: Mag1_lev.grd. The topography came from the grid Dem_ml.grd. The magnetic data was gridded at 50 m cells, the topography was gridded at 20 m cells. Both grids, although being leveled, were further decorrugated by Condor Consulting prior to the inversion.

Since the data was TMI, not RTP, the magnetic field information was provided to the inversion program. For both the inducing magnetic field and the induced magnetic field, an inclination of 76.6 degrees and a declination of 26.1 degrees were used. The Earth's field strength of 57765 nT was used.

A magnetic sensor height above topography of 70 m was used. The inversion results are not considered to be highly dependent on the survey height and 5m error would not be significant.

The finite element mesh for the inversion employed a cell size of 50 m by 50 m in the east and north dimensions, and the cell height varied wrt depth. There were 119 cells in the easting, 101 in the northing. In the vertical direction, there were 33 air cells, being 20 m thick and the ground cells started at 30 m thick and progressively increased in thickness through 40 vertical cells. Depth of mesh, excluding rim & air cells, was 1500m. In addition to the cells specified above, seven rim (buffer) cells required by the finite element algorithm were used on the sides of the mesh and five added to the bottom.

Over the spatial extents of the windowed data there was negligible regional trend and only a simple $0^{th}$ order shift of 57421 nT was performed on the data. No further preparation of the data was required.

The error estimate provided to the inversion program was .504 nT for all data, which was 0.0001 times the standard deviation of the data plus 0.5 nT.

Two inversions were run, the first with a starting and reference model of 0.0 nT. The model from the first inversion was sharpened then used as the reference for the second inversion. The final inversion finished with the final data misfit ranging from 0.000 nT to 9.36 nT and an average of 0.303 nT. The standard deviation of the misfits was 0.399 nT.

The final finite element voxel model was trimmed by 7 cells on the east and west, 7 cells on the north, and south, and 5 cells from the bottom to removed the finite element buffer cells. The voxel model was further cleaned by nulling the voxels where there was no data.

Scott Thomas, February 4, 2009

# APPENDIX D: ARCHIVE DVD

March 13, 2009

TO: Marc Blythe-Tarsis Capital Corp.
FROM: Ken Witherly-Condor Consulting, Inc.
SUBJECT: Yukon Gravity Surveys-2008

Marc:

This memo covers the three gravity surveys we processed for Tarsis in 2008. The areas modeled were Goz, Walt Ridge and Mor.

The primary data acquisition and reduction was performed by MWH Geo-surveys in July 2008. The primary data (Excel spread sheet) and notes on the survey are provided in Appendix A.

The data sets were modeled with the code Grav3D, a voxel style inversion code developed at the University of British Colombia.

Apart from the modeling, no other assessment of these results has been undertaken.

In terms of deliverables, the UBC files, DXFs and a basic AVI of the models are provided.

**Goz:**
The primary survey outcome is shown in Figure 1 and the voxel model in Figure 2.

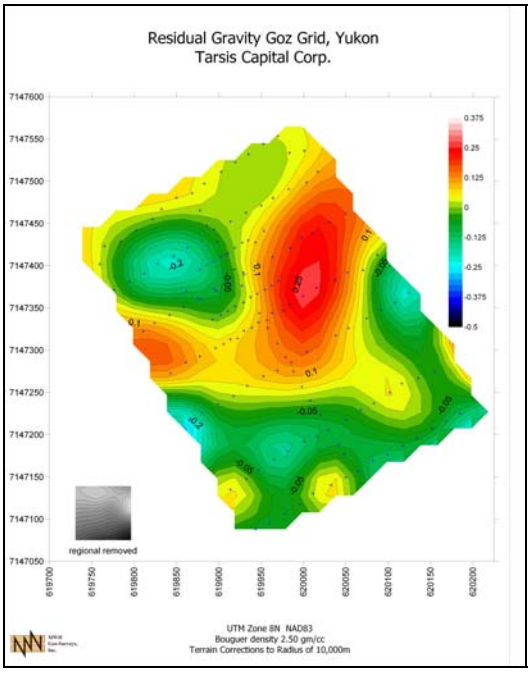



**Figure 1: Goz Bouguer results.**

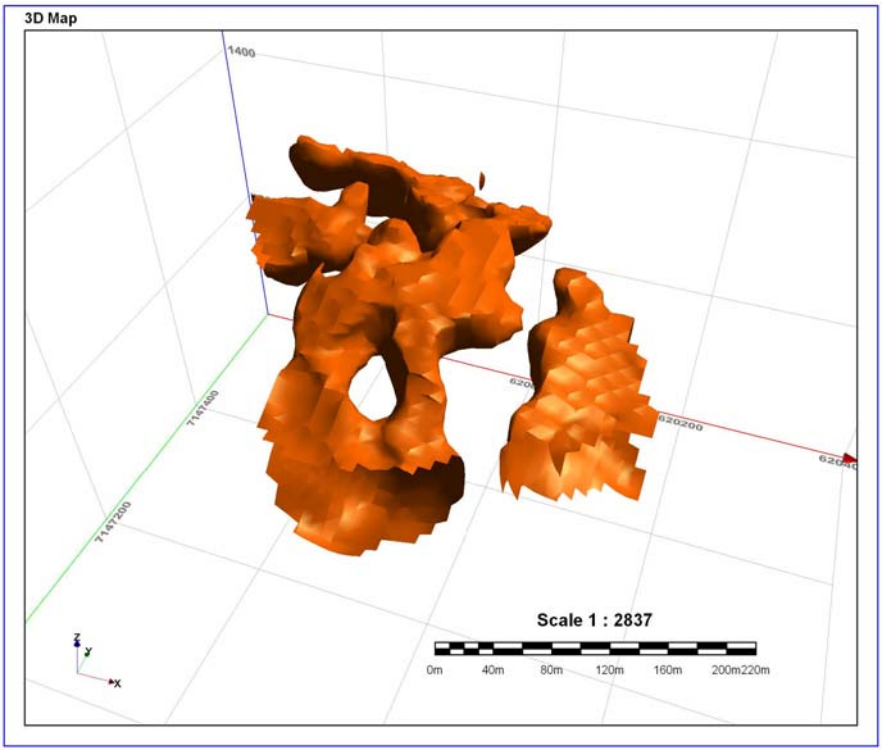



**Figure 2: Goz voxel model (0.25 g/cc)**

**Walt Ridge:**

The primary outcome is shown in Figure 3 with the voxel model in Figure 4.

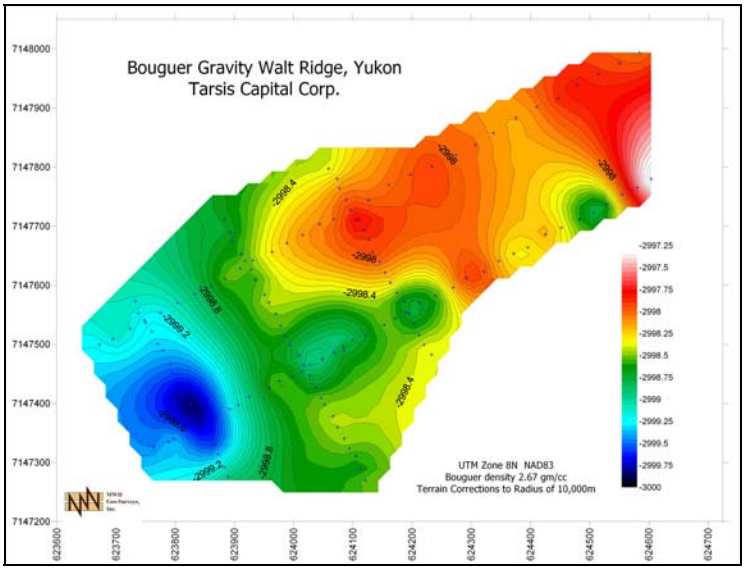



**Figure 3: Walt Ridge Bouguer results.**

## Mor:

At Mor, only four lines were surveyed (designated 1, 2, 3 and 5). The results are shown in Figures 5 and 6 with the voxel models in Figures 7 and 8.

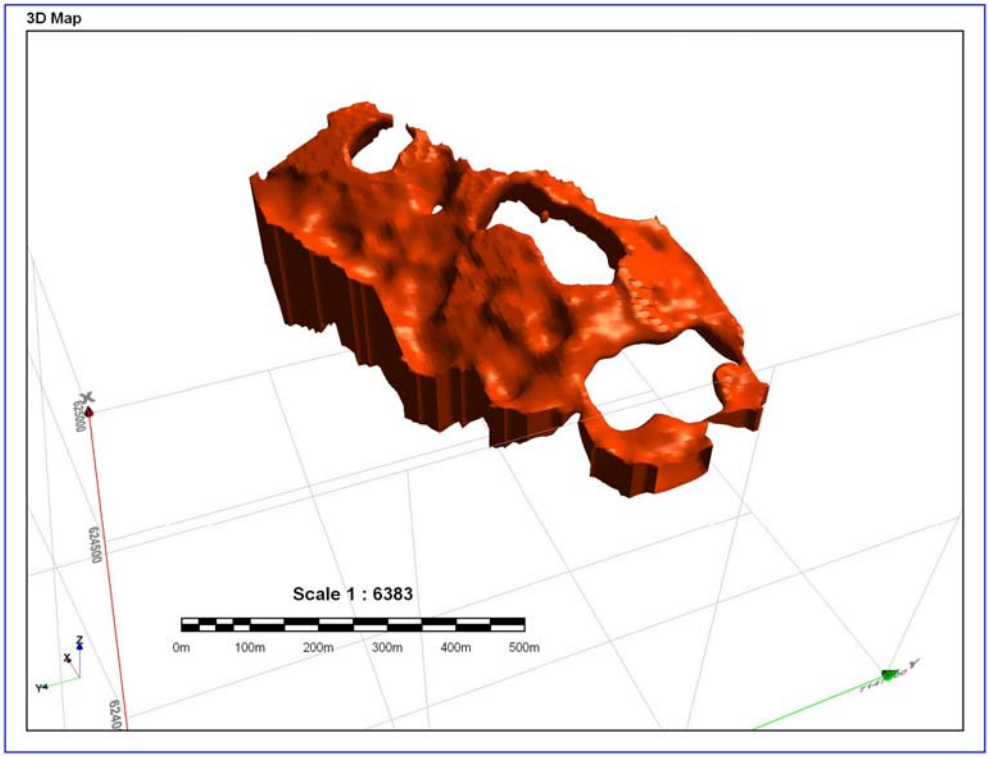



**Figure 4: Walt Ridge Voxel model (0.27 g/cc).**

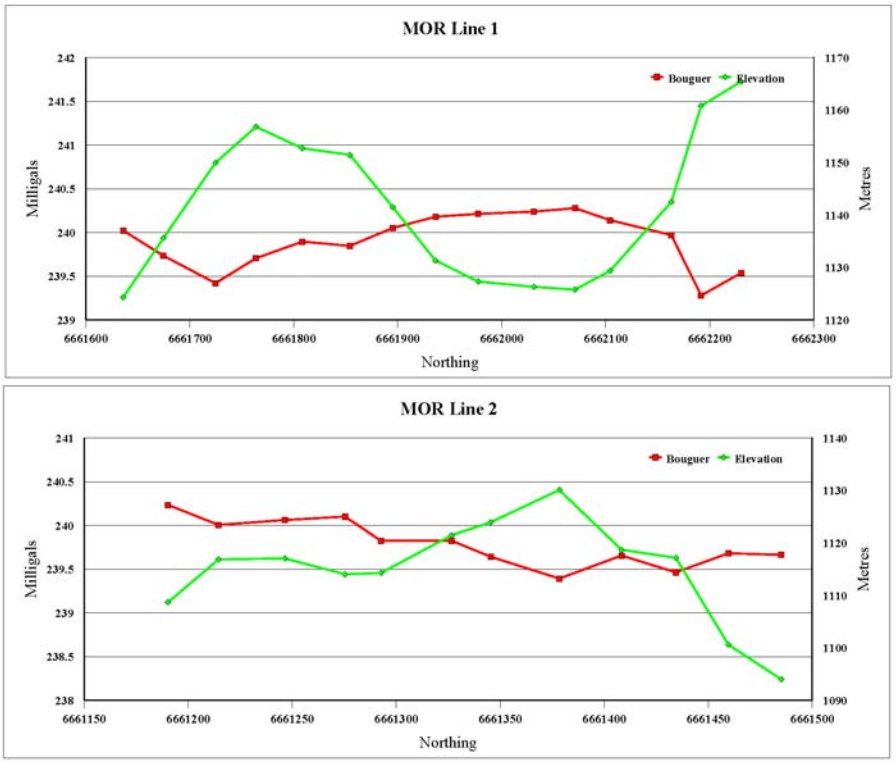



**Figure 5: Mor lines 1 and 2.**

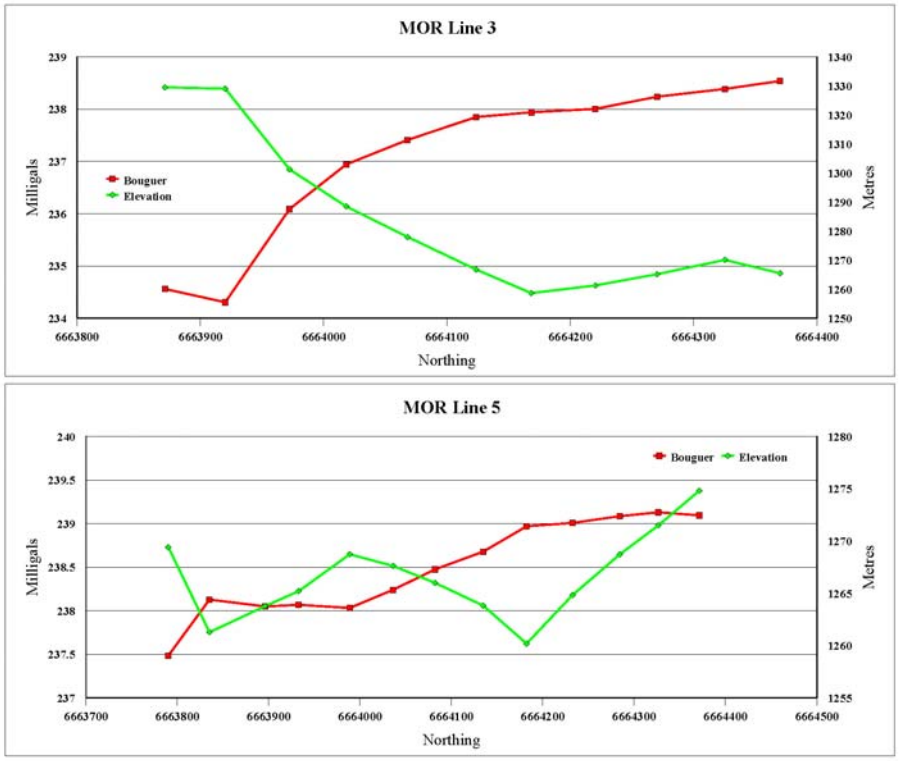



**Figure 6: Mor lines 3 and 5.**

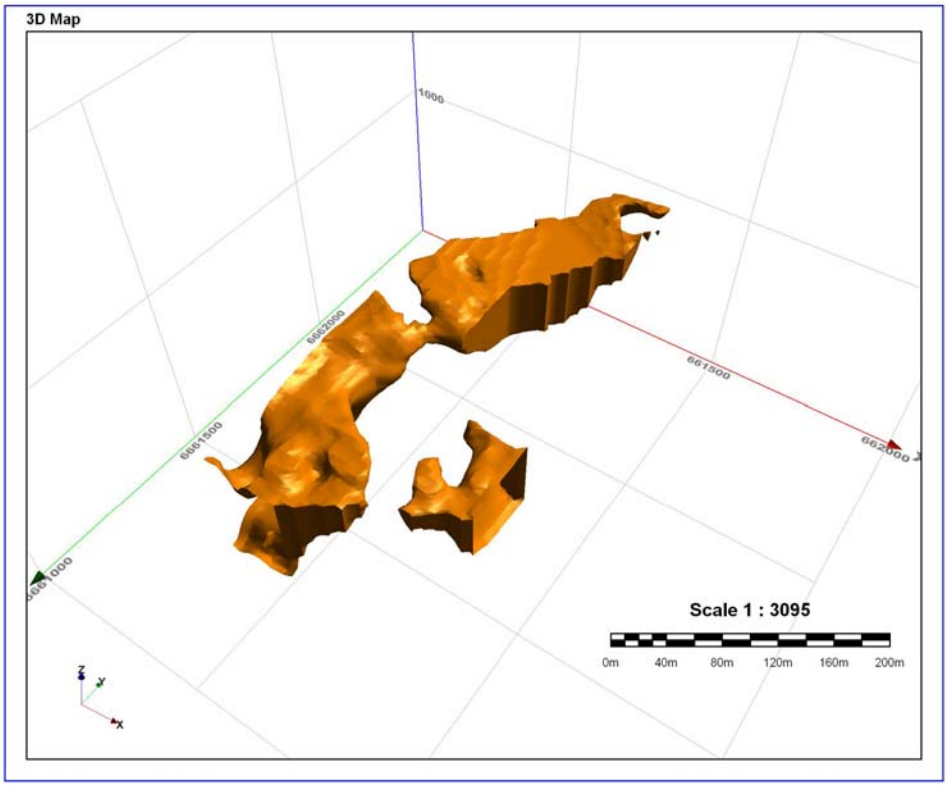



**Figure 7: Mor 1_2 Voxel model (0.11 g/cc).**

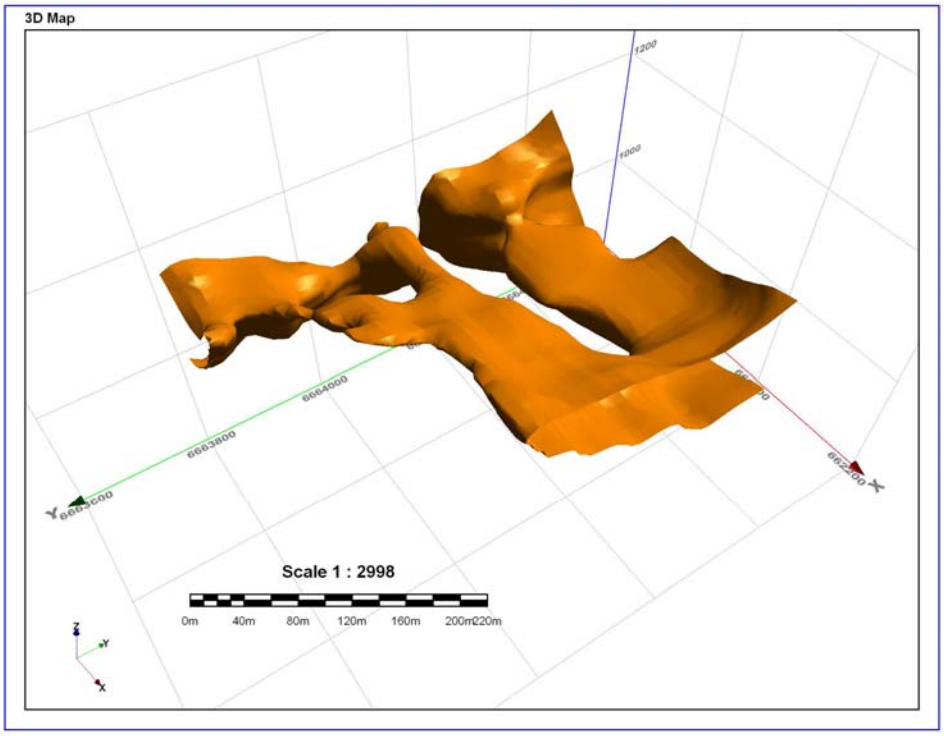



**Figure 8: Mor 3_5 Voxel model (0.86 g/cc).**

Note, the AVIs have all been produced using MPEG-4 Video Codec V1 format.

# APPENDIX A-MWH Geo-surveys Gravity Survey for Tarsis Capital

MWH Geo-Surveys Ltd.

# Proposal for Land Gravity & GPS Positioning Survey
# **Goz Creek, Yukon**

*For Tarsis Capital Corp.*

MWH Geo-Surveys Ltd.
May 20, 2008

May 20, 2008

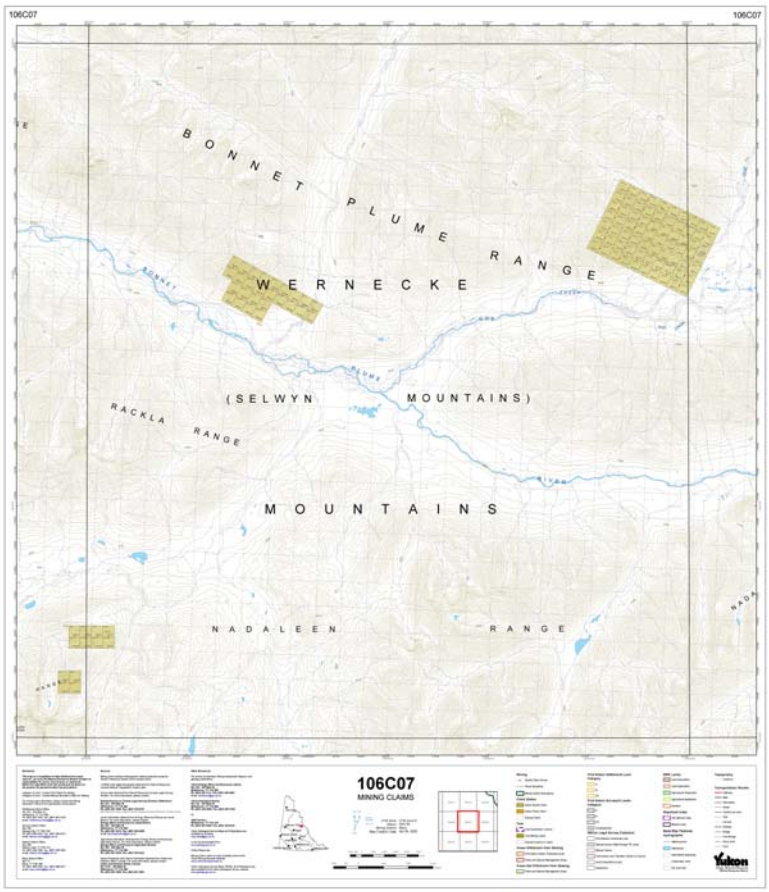
Mr. Marc G. Blythe, P.Eng., MBA.
President and CEO
Tarsis Capital Corp. 1103 – 750 W Pender Street
Vancouver BC Canada V6C 2T8

Re: Goz Creek, Yukon Gravity Survey

As per requested our proposal for the noted gravity survey:

*SURVEY LAYOUT, EQUIPMENT & CREW*

*Layout:* The project will consist of several target sites in the Northern Yukon Territory. Line locations and station intervals will be determined after discussions with Tarsis personnel. Stations will be located at sites accessible on foot.




*Crew & Equipment:* To carry out this survey MWH Geo-Surveys, Inc. will supply a crew equipped as follows:

- Two geophysical surveyors
- Two Lacoste & Romberg Aliod electronic microgravity meters
- Two handheld field PC operating *GControl* proprietary software
- Three Magellan (Ashtech) dual frequency RTK GPS receivers
- RTK base radio equipment and Allegro controller operating *FastSurvey*
- Computing equipment


*MWH Geo-Surveys Ltd.*
*Suite 388, 3104 – 30 Avenue, Vernon, B.C. V1T 2C2 (250)542-9897*

*Gravity Equipment:* MWH Geo-Surveys uses LaCoste & Romberg Aliod electronic gravity meters operated via proprietary controller software. These gravity meters, which incorporate electronic levels and electronic beam nulling, have proven to be quick, very accurate and reliable. The digital output from the Aliod meter is captured wirelessly via Bluetooth by *GControl*, software developed by MWH Geo-Surveys, operating on a Juniper Archer field PC. At each gravity station, *GControl* records gravity samples at 2 second intervals; the resultant average of these records is used as the final gravity reading, thereby removing much of the high frequency noise, such as that caused by wind and ground motion. *GControl* calculates precise real-time, location specific tidal corrections during data collection. Typical data accuracy is 0.02 milligals.



*Positional Survey Equipment:* MWH Geo-Surveys uses dual frequency, 12 channel Magellan (Ashtech) Z-Surveyor, Z-Xtreme and the latest wireless RTK Z-Max GPS receivers. The GPS methodology would be Real Time Kinematic (RTK) survey with static GPS control ties to USGS CORS GPS site in El Paso, Texas.

RTK acceptance criteria will be set to .025m horizontal & vertical. Only fixed solutions are utilized. *FastSurvey 2.0* is used as the controlling software.

*Gravity & GPS Data Processing:* The digital gravity readings obtained in the field will be reduced to Observed Gravity by converting to milligals and correcting for: earth tides, instrument height, instrument drift and base shifts. Bouguer gravity will be calculated by applying latitude, inner terrain, free air and bouguer corrections to the Observed Gravity values.

Static GPS data will be downloaded daily into Trimble Total Control version 2.73 for post-processing. RTK solutions are downloaded into GNSS Solutions.

*Terrain Correction Procedures:* Inner zone terrain corrections will be derived from a detailed DEM which is produced from merging GPS positions and positions obtained from a reflector-less laser. The laser is used to rapidly collect positions around the RTK GPS sightings yielding a large number of terrain points from which a detailed DEM is calculated.

Canadian Geospatial elevation data is downloaded, gridded and used for far zone terrain corrections. Using these data sources, high precision terrain corrections are calculated to a radius suitable for the project.


*MWH Geo-Surveys Ltd.*
*Suite 388, 3104 – 30 Avenue, Vernon, B.C. V1T 2C2 (250)542-9897*

*MWH Geo-Surveys; EXPERIENCE & CAPABILITIES:*

MWH Geo-Surveys has since 1980, been exclusively conducting gravity surveys and their related topographic surveys. MWH has extensive experience for both US and International surveys including surveys in Argentina, Bolivia, Chad, Cuba, Eritrea, Ethiopia, Gambia, Indonesia, Iraq, Italy, Mexico, Mongolia, Oman, Peru, Philippines, Senegal, Spain, Sudan, Thailand, Trinidad, Tunisia and Yemen. Additional information on our capabilities can be found at http://www.mwhgeo.com

*COST QUOTATION & PRODUCTION ESTIMATES*

*Costs:* Our rates for the services as outlined above in US dollars:

| | |
|---|---|
| Mobilization/demobilization expenses: | At cost |
| Survey Production: | $1,770 per day |
| Standby days due to equipment malfunction: | nil |
| Standby due to weather conditions or travel days: | $1,250 per day |

Land use permits and access will, as required, be arranged by Tarsis or their associates. Tarsis or their associates will be responsible for providing local transportation, a survey helper and room & board. Rates are exclusive of any duties or taxation which may apply.

*Production and Scheduling:* Production is typically dependent on access to work area, access within work area, station to station transport mode, severity of the topography and GPS methodology. An **estimate** of the production rate for this survey would be approximately 75 stations per day at 50 meter intervals. With current project commitments we anticipate a crew available for this project in late June.

If we can provide any further information or clarifications please contact me at by email or 250 542-9897.

Kevin MacNabb
MWH Geo-Surveys Ltd.

MWH Geo-Surveys, Inc.

## *Gravity Survey at Goz/Walt/MOR Grids, Yukon*

**for Tarsis Capital Corp.**

| | | | | |
|---|---|---|---|---|
| Boug density #1: | 2.30 | unique stations: | 345 | |
| Boug density #2: | 2.50 | repeats: | 10 | |
| Boug density #3: | 2.67 | stdev of repeats: | 0.009 | |

| Area | Stn# | Date | UTC | Meter | Dial | TC-Aliod | H.I. | Tide | StatG | G Observed | TC@2.0 gm/cc 0 - 500 m | TC@2.0 gm/cc 0.5-10km |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Goz1 | 1001 | 2008/7/10 | 15:50:50 | 562 | 5363.00 | -34.455 | 0.040 | -0.003 | 5508.870 | 981963.463 | 1.30 | 4.65 |
| Goz1 | 1002 | 2008/7/10 | 15:51:17 | 562 | 5363.00 | -32.963 | 0.040 | -0.003 | 5510.362 | 981964.956 | 1.30 | 4.51 |
| Goz1 | 1003 | 2008/7/10 | 15:56:53 | 562 | 5363.00 | -30.908 | 0.040 | -0.002 | 5512.417 | 981967.011 | 1.33 | 4.39 |
| Goz1 | 1004 | 2008/7/10 | 16:00:58 | 562 | 5363.00 | -28.798 | 0.040 | -0.002 | 5514.527 | 981969.120 | 1.40 | 4.21 |
| Goz1 | 1005 | 2008/7/10 | 16:07:26 | 562 | 5363.00 | -26.912 | 0.040 | -0.002 | 5516.413 | 981971.005 | 1.52 | 4.03 |
| Goz1 | 1006 | 2008/7/10 | 16:11:33 | 562 | 5363.00 | -25.588 | 0.040 | -0.002 | 5517.737 | 981972.329 | 1.66 | 3.89 |
| Goz1 | 1007 | 2008/7/10 | 16:19:41 | 562 | 5363.00 | -22.937 | 0.040 | -0.002 | 5520.388 | 981974.980 | 1.79 | 3.68 |
| Goz1 | 1008 | 2008/7/10 | 16:29:07 | 562 | 5363.00 | -22.471 | 0.040 | -0.002 | 5520.854 | 981975.445 | 1.84 | 3.58 |
| Goz1 | 1009 | 2008/7/10 | 16:36:00 | 562 | 5363.00 | -21.316 | 0.040 | -0.002 | 5522.009 | 981976.600 | 1.89 | 3.43 |
| Goz1 | 1010 | 2008/7/10 | 16:51:30 | 562 | 5363.00 | -19.663 | 0.040 | -0.002 | 5523.662 | 981978.252 | 1.97 | 3.28 |
| Goz1 | 1011 | 2008/7/10 | 16:58:15 | 562 | 5363.00 | -18.158 | 0.040 | -0.002 | 5525.167 | 981979.756 | 2.04 | 3.18 |
| Goz1 | 1012 | 2008/7/10 | 17:05:14 | 562 | 5363.00 | -16.839 | 0.040 | -0.002 | 5526.486 | 981981.074 | 2.11 | 3.10 |
| Goz1 | 1013 | 2008/7/10 | 17:12:09 | 562 | 5363.00 | -15.134 | 0.040 | -0.003 | 5528.191 | 981982.779 | 2.18 | 3.00 |
| Goz1 | 1014 | 2008/7/10 | 17:21:03 | 562 | 5363.00 | -13.443 | 0.040 | -0.003 | 5529.882 | 981984.469 | 2.21 | 2.92 |
| Goz1 | 1015 | 2008/7/10 | 17:29:36 | 562 | 5363.00 | -14.368 | 0.040 | -0.003 | 5528.957 | 981983.543 | 2.21 | 3.01 |
| Goz1 | 1016 | 2008/7/10 | 17:37:15 | 562 | 5363.00 | -13.150 | 0.040 | -0.004 | 5530.174 | 981984.761 | 2.22 | 2.97 |
| Goz2 | 2001 | 2008/7/10 | 18:02:42 | 562 | 5363.00 | -34.235 | 0.040 | -0.006 | 5509.090 | 981963.675 | 1.28 | 4.75 |
| Goz2 | 2002 | 2008/7/10 | 18:08:44 | 562 | 5363.00 | -33.076 | 0.040 | -0.006 | 5510.249 | 981964.833 | 1.27 | 4.70 |
| Goz2 | 2003 | 2008/7/10 | 18:12:51 | 562 | 5363.00 | -31.723 | 0.040 | -0.007 | 5511.602 | 981966.186 | 1.28 | 4.63 |
| Goz2 | 2004 | 2008/7/10 | 18:17:07 | 562 | 5363.00 | -30.394 | 0.040 | -0.007 | 5512.931 | 981967.514 | 1.33 | 4.53 |
| Goz2 | 2005 | 2008/7/10 | 18:21:13 | 562 | 5363.00 | -30.223 | 0.040 | -0.007 | 5513.101 | 981967.685 | 1.42 | 4.47 |
| Goz2 | 2006 | 2008/7/10 | 18:26:47 | 562 | 5363.00 | -29.405 | 0.040 | -0.008 | 5513.920 | 981968.503 | 1.54 | 4.36 |
| Goz2 | 2007 | 2008/7/10 | 18:32:55 | 562 | 5363.00 | -28.490 | 0.040 | -0.009 | 5514.835 | 981969.418 | 1.67 | 4.26 |
| Goz2 | 2008 | 2008/7/10 | 18:37:34 | 562 | 5363.00 | -26.647 | 0.040 | -0.009 | 5516.678 | 981971.260 | 1.78 | 4.07 |
| Goz2 | 2009 | 2008/7/10 | 18:46:48 | 562 | 5363.00 | -24.901 | 0.040 | -0.010 | 5518.424 | 981973.005 | 1.88 | 3.93 |
| Goz2 | 2010 | 2008/7/10 | 18:52:45 | 562 | 5363.00 | -23.239 | 0.040 | -0.011 | 5520.086 | 981974.667 | 1.96 | 3.78 |
| Goz2 | 2011 | 2008/7/10 | 19:03:27 | 562 | 5363.00 | -21.804 | 0.040 | -0.012 | 5521.521 | 981976.101 | 2.01 | 3.66 |
| Goz2 | 2012 | 2008/7/10 | 19:09:13 | 562 | 5363.00 | -20.555 | 0.040 | -0.013 | 5522.770 | 981977.350 | 2.03 | 3.52 |
| Goz2 | 2013 | 2008/7/10 | 19:14:48 | 562 | 5363.00 | -18.228 | 0.040 | -0.014 | 5525.097 | 981979.677 | 2.06 | 3.34 |
| Goz2 | 2014 | 2008/7/10 | 19:22:00 | 562 | 5363.00 | -15.971 | 0.040 | -0.015 | 5527.354 | 981981.933 | 2.11 | 3.20 |
| Goz2 | 2015 | 2008/7/10 | 19:25:54 | 562 | 5363.00 | -14.160 | 0.040 | -0.015 | 5529.165 | 981983.743 | 2.15 | 3.09 |
| Goz2.5 | 2101 | 2008/7/11 | 21:35:43 | 562 | 5363.00 | -31.542 | 0.040 | -0.020 | 5511.783 | 981966.331 | 1.56 | 4.66 |
| Goz2.5 | 2102 | 2008/7/11 | 21:30:43 | 562 | 5363.00 | -30.980 | 0.040 | -0.019 | 5512.345 | 981966.893 | 1.58 | 4.61 |
| Goz2.5 | 2103 | 2008/7/11 | 21:26:46 | 562 | 5363.00 | -30.449 | 0.040 | -0.018 | 5512.876 | 981967.424 | 1.62 | 4.56 |
| Goz2.5 | 2104 | 2008/7/11 | 21:22:53 | 562 | 5363.00 | -29.709 | 0.040 | -0.017 | 5513.616 | 981968.164 | 1.66 | 4.49 |
| Goz2.5 | 2105 | 2008/7/11 | 21:18:51 | 562 | 5363.00 | -29.098 | 0.040 | -0.017 | 5514.227 | 981968.775 | 1.70 | 4.42 |
| Goz2.5 | 2106 | 2008/7/11 | 21:14:32 | 562 | 5363.00 | -28.571 | 0.040 | -0.016 | 5514.754 | 981969.302 | 1.76 | 4.34 |
| Goz2.5 | 2107 | 2008/7/11 | 21:09:54 | 562 | 5363.00 | -27.547 | 0.040 | -0.015 | 5515.778 | 981970.327 | 1.80 | 4.25 |
| Goz2.5 | 2108 | 2008/7/11 | 21:04:36 | 562 | 5363.00 | -26.961 | 0.040 | -0.014 | 5516.364 | 981970.913 | 1.83 | 4.21 |
| Goz2.5 | 2109 | 2008/7/11 | 20:54:47 | 562 | 5363.00 | -26.629 | 0.040 | -0.011 | 5516.696 | 981971.244 | 1.85 | 4.22 |
| Goz2.5 | 2110 | 2008/7/11 | 20:59:53 | 562 | 5363.00 | -24.605 | 0.040 | -0.012 | 5518.719 | 981973.268 | 1.89 | 4.03 |
| Goz3 | 3001 | 2008/7/10 | 21:05:54 | 562 | 5363.00 | -32.194 | 0.040 | -0.029 | 5511.131 | 981965.703 | 1.48 | 4.81 |
| Goz3 | 3002 | 2008/7/10 | 20:59:17 | 562 | 5363.00 | -33.970 | 0.040 | -0.028 | 5509.355 | 981963.927 | 1.51 | 4.92 |
| Goz3 | 3003 | 2008/7/10 | 20:54:58 | 562 | 5363.00 | -34.382 | 0.040 | -0.028 | 5508.943 | 981963.515 | 1.52 | 4.98 |
| Goz3 | 3004 | 2008/7/10 | 20:52:08 | 562 | 5363.00 | -34.146 | 0.040 | -0.027 | 5509.179 | 981963.751 | 1.52 | 4.99 |
| Goz3 | 3005 | 2008/7/10 | 20:48:22 | 562 | 5363.00 | -33.551 | 0.040 | -0.027 | 5509.773 | 981964.346 | 1.54 | 4.94 |
| Goz3 | 3006 | 2008/7/10 | 20:44:03 | 562 | 5363.00 | -32.783 | 0.040 | -0.026 | 5510.542 | 981965.115 | 1.58 | 4.87 |
| Goz3 | 3007 | 2008/7/10 | 20:39:56 | 562 | 5363.00 | -31.370 | 0.040 | -0.025 | 5511.955 | 981966.528 | 1.62 | 4.77 |
| Goz3 | 3008 | 2008/7/10 | 20:36:00 | 562 | 5363.00 | -29.666 | 0.040 | -0.025 | 5513.659 | 981968.233 | 1.66 | 4.63 |
| Goz3 | 3009 | 2008/7/10 | 20:32:14 | 562 | 5363.00 | -28.665 | 0.040 | -0.024 | 5514.660 | 981969.234 | 1.73 | 4.50 |
| Goz3 | 3010 | 2008/7/10 | 20:27:47 | 562 | 5363.00 | -28.171 | 0.040 | -0.024 | 5515.154 | 981969.728 | 1.83 | 4.39 |
| Goz3 | 3011 | 2008/7/10 | 20:20:49 | 562 | 5363.00 | -26.119 | 0.040 | -0.023 | 5517.206 | 981971.781 | 1.91 | 4.22 |
| Goz3 | 3012 | 2008/7/10 | 20:09:08 | 562 | 5363.00 | -23.603 | 0.040 | -0.021 | 5519.722 | 981974.297 | 1.96 | 4.00 |
| Goz3 | 3013 | 2008/7/10 | 20:04:47 | 562 | 5363.00 | -22.539 | 0.040 | -0.020 | 5520.786 | 981975.362 | 1.97 | 3.87 |
| Goz3 | 3014 | 2008/7/10 | 19:58:51 | 562 | 5363.00 | -19.886 | 0.040 | -0.020 | 5523.439 | 981978.015 | 1.98 | 3.64 |
| Goz3 | 3015 | 2008/7/10 | 19:51:56 | 562 | 5363.00 | -17.934 | 0.040 | -0.019 | 5525.391 | 981979.968 | 1.89 | 3.48 |
| Goz3.5 | 3101 | 2008/7/11 | 21:59:48 | 562 | 5363.00 | -33.530 | 0.040 | -0.025 | 5509.795 | 981964.343 | 1.68 | 4.95 |
| Goz3.5 | 3102 | 2008/7/11 | 22:04:06 | 562 | 5363.00 | -32.961 | 0.040 | -0.027 | 5510.364 | 981964.913 | 1.59 | 4.89 |
| Goz3.5 | 3103 | 2008/7/11 | 22:07:32 | 562 | 5363.00 | -31.302 | 0.040 | -0.027 | 5512.023 | 981966.572 | 1.63 | 4.78 |
| Goz3.5 | 3104 | 2008/7/11 | 22:10:56 | 562 | 5363.00 | -29.788 | 0.040 | -0.028 | 5513.537 | 981968.085 | 1.66 | 4.65 |
| Goz3.5 | 3201 | 2008/7/11 | 22:52:20 | 562 | 5363.00 | -33.701 | 0.040 | -0.037 | 5509.624 | 981964.173 | 1.60 | 5.06 |
| Goz3.5 | 3202 | 2008/7/11 | 22:49:01 | 562 | 5363.00 | -33.361 | 0.040 | -0.036 | 5509.964 | 981964.513 | 1.59 | 5.03 |
| Goz3.5 | 3203 | 2008/7/11 | 22:45:50 | 562 | 5363.00 | -33.144 | 0.040 | -0.035 | 5510.181 | 981964.730 | 1.59 | 5.00 |
| Goz3.5 | 3204 | 2008/7/11 | 22:42:23 | 562 | 5363.00 | -32.709 | 0.040 | -0.035 | 5510.616 | 981965.164 | 1.60 | 4.96 |
| Goz3.5 | 3205 | 2008/7/11 | 22:38:33 | 562 | 5363.00 | -32.037 | 0.040 | -0.034 | 5511.288 | 981965.837 | 1.59 | 4.91 |
| Goz3.5 | 3207 | 2008/7/11 | 22:31:06 | 562 | 5363.00 | -30.451 | 0.040 | -0.032 | 5512.874 | 981967.422 | 1.57 | 4.79 |
| Goz3.5 | 3208 | 2008/7/11 | 22:27:29 | 562 | 5363.00 | -29.699 | 0.040 | -0.032 | 5513.626 | 981968.175 | 1.58 | 4.73 |
| Goz3.5 | 3209 | 2008/7/11 | 22:24:08 | 562 | 5363.00 | -29.597 | 0.040 | -0.031 | 5513.728 | 981968.276 | 1.64 | 4.69 |
| Goz3.5 | 3210 | 2008/7/11 | 22:19:11 | 562 | 5363.00 | -29.725 | 0.040 | -0.030 | 5513.600 | 981968.148 | 1.69 | 4.64 |
| Goz4 | 4101 | 2008/7/10 | 21:14:46 | 562 | 5363.00 | -29.037 | 0.040 | -0.031 | 5514.288 | 981968.859 | 1.73 | 4.69 |
| Goz4 | 4102 | 2008/7/10 | 21:25:29 | 562 | 5363.00 | -32.517 | 0.040 | -0.032 | 5510.808 | 981965.378 | 1.75 | 4.92 |
| Goz4 | 4103 | 2008/7/10 | 21:29:02 | 562 | 5363.00 | -33.585 | 0.040 | -0.033 | 5509.739 | 981964.309 | 1.77 | 5.04 |
| Goz4 | 4104 | 2008/7/10 | 21:32:15 | 562 | 5363.00 | -34.150 | 0.040 | -0.033 | 5509.175 | 981963.744 | 1.76 | 5.11 |
| Goz4 | 4201 | 2008/7/11 | 22:58:06 | 562 | 5363.00 | -33.982 | 0.040 | -0.038 | 5509.343 | 981963.892 | 1.73 | 5.12 |
| Goz4 | 4105 | 2008/7/10 | 21:36:11 | 562 | 5363.00 | -33.741 | 0.040 | -0.034 | 5509.584 | 981964.153 | 1.71 | 5.11 |
| Goz4 | 4202 | 2008/7/11 | 23:05:23 | 562 | 5363.00 | -33.378 | 0.040 | -0.039 | 5509.947 | 981964.496 | 1.68 | 5.09 |
| Goz4 | 4106 | 2008/7/11 | 16:08:40 | 562 | 5363.00 | -32.865 | 0.040 | 0.014 | 5510.460 | 981965.007 | 1.65 | 5.05 |
| Goz4 | 4106 | 2008/7/10 | 21:49:38 | 562 | 5363.00 | -32.870 | 0.040 | -0.036 | 5510.455 | 981965.023 | 1.64 | 5.05 |
| Goz4 | 4203 | 2008/7/11 | 23:08:53 | 562 | 5363.00 | -32.403 | 0.040 | -0.040 | 5510.922 | 981965.471 | 1.63 | 5.02 |
| Goz4 | 4107 | 2008/7/10 | 21:53:55 | 562 | 5363.00 | -31.938 | 0.040 | -0.036 | 5511.386 | 981965.955 | 1.61 | 4.98 |
| Goz4 | 4204 | 2008/7/11 | 23:12:35 | 562 | 5363.00 | -31.227 | 0.040 | -0.041 | 5512.098 | 981966.646 | 1.58 | 4.93 |
| Goz4 | 4108 | 2008/7/10 | 21:57:35 | 562 | 5363.00 | -30.461 | 0.040 | -0.037 | 5512.864 | 981967.431 | 1.56 | 4.87 |
| Goz4 | 4205 | 2008/7/11 | 23:18:53 | 562 | 5363.00 | -29.605 | 0.040 | -0.042 | 5513.720 | 981968.268 | 1.56 | 4.81 |
| Goz4 | 4109 | 2008/7/10 | 22:01:40 | 562 | 5363.00 | -29.457 | 0.040 | -0.037 | 5513.868 | 981968.436 | 1.60 | 4.76 |
| Goz4 | 4110 | 2008/7/10 | 22:06:28 | 562 | 5363.00 | -28.653 | 0.040 | -0.038 | 5514.672 | 981969.239 | 1.68 | 4.65 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Goz4 | 4112 | 2008/7/10 | 22:14:36 | 562 | 5363.00 | -28.525 | 0.040 | -0.039 | 5514.800 | 981969.367 | 1.98 | 4.39 |
| Goz4 | 4113 | 2008/7/10 | 22:21:05 | 562 | 5363.00 | -25.743 | 0.040 | -0.040 | 5517.582 | 981972.148 | 1.94 | 4.21 |
| Goz4 | 4114 | 2008/7/10 | 22:27:53 | 562 | 5363.00 | -24.257 | 0.040 | -0.041 | 5519.068 | 981973.634 | 1.85 | 4.11 |
| Goz4 | 4115 | 2008/7/10 | 22:32:50 | 562 | 5363.00 | -21.675 | 0.040 | -0.042 | 5521.650 | 981976.215 | 1.82 | 3.89 |
| Goz5 | 5001 | 2008/7/10 | 00:28:01 | 562 | 5363.00 | -27.258 | 0.040 | -0.051 | 5516.067 | 981970.624 | 2.07 | 4.51 |
| Goz5 | 5002 | 2008/7/10 | 00:33:40 | 562 | 5363.00 | -29.007 | 0.040 | -0.052 | 5514.318 | 981968.874 | 2.07 | 4.68 |
| Goz5 | 5003 | 2008/7/10 | 00:38:41 | 562 | 5363.00 | -31.246 | 0.040 | -0.052 | 5512.079 | 981966.636 | 2.05 | 4.87 |
| Goz5 | 5004 | 2008/7/10 | 00:43:59 | 562 | 5363.00 | -31.771 | 0.040 | -0.053 | 5511.554 | 981966.110 | 2.00 | 4.99 |
| Goz5 | 5005 | 2008/7/10 | 00:47:38 | 562 | 5363.00 | -32.415 | 0.040 | -0.053 | 5510.910 | 981965.465 | 1.94 | 5.07 |
| Goz5 | 5006 | 2008/7/10 | 00:52:29 | 562 | 5363.00 | -32.264 | 0.040 | -0.053 | 5511.061 | 981965.617 | 1.90 | 5.09 |
| Goz5 | 5007 | 2008/7/10 | 00:55:57 | 562 | 5363.00 | -31.990 | 0.040 | -0.054 | 5511.335 | 981965.890 | 1.87 | 5.09 |
| Goz5 | 5008 | 2008/7/10 | 00:59:27 | 562 | 5363.00 | -31.308 | 0.040 | -0.054 | 5512.017 | 981966.572 | 1.82 | 5.04 |
| Goz5 | 5009 | 2008/7/11 | 16:14:34 | 562 | 5363.00 | -30.282 | 0.040 | 0.015 | 5513.043 | 981967.590 | 1.77 | 4.94 |
| Goz5 | 5009 | 2008/7/10 | 01:03:58 | 562 | 5363.00 | -30.262 | 0.040 | -0.054 | 5513.063 | 981967.618 | 1.72 | 4.94 |
| Goz5 | 5010 | 2008/7/11 | 16:19:12 | 562 | 5363.00 | -28.359 | 0.040 | 0.015 | 5514.966 | 981969.513 | 1.67 | 4.73 |
| Goz5 | 5011 | 2008/7/11 | 16:23:32 | 562 | 5363.00 | -27.501 | 0.040 | 0.015 | 5515.824 | 981970.371 | 1.64 | 4.64 |
| Goz5 | 5012 | 2008/7/11 | 16:27:17 | 562 | 5363.00 | -26.312 | 0.040 | 0.016 | 5517.013 | 981971.560 | 1.66 | 4.53 |
| Goz5 | 5013 | 2008/7/11 | 16:31:05 | 562 | 5363.00 | -25.913 | 0.040 | 0.016 | 5517.412 | 981971.959 | 1.75 | 4.46 |
| Goz5 | 5014 | 2008/7/11 | 16:34:30 | 562 | 5363.00 | -26.109 | 0.040 | 0.016 | 5517.216 | 981971.763 | 1.87 | 4.39 |
| Goz5 | 5015 | 2008/7/11 | 16:39:35 | 562 | 5363.00 | -25.391 | 0.040 | 0.016 | 5517.933 | 981972.481 | 1.95 | 4.27 |
| Goz6 | 6001 | 2008/7/10 | 00:12:39 | 562 | 5363.00 | -21.009 | 0.040 | -0.050 | 5522.316 | 981976.875 | 2.87 | 4.14 |
| Goz6 | 6002 | 2008/7/10 | 00:02:03 | 562 | 5363.00 | -24.172 | 0.040 | -0.049 | 5519.153 | 981973.712 | 2.88 | 4.37 |
| Goz6 | 6003 | 2008/7/10 | 23:54:25 | 562 | 5363.00 | -26.636 | 0.040 | -0.052 | 5516.689 | 981971.249 | 2.91 | 4.53 |
| Goz6 | 6004 | 2008/7/10 | 23:47:04 | 562 | 5363.00 | -29.020 | 0.040 | -0.051 | 5514.305 | 981968.865 | 2.89 | 4.69 |
| Goz6 | 6005 | 2008/7/10 | 23:41:09 | 562 | 5363.00 | -28.582 | 0.040 | -0.050 | 5514.743 | 981969.304 | 2.75 | 4.74 |
| Goz6 | 6006 | 2008/7/10 | 23:31:48 | 562 | 5363.00 | -27.129 | 0.040 | -0.049 | 5516.196 | 981970.757 | 2.54 | 4.73 |
| Goz6 | 6007 | 2008/7/10 | 23:23:25 | 562 | 5363.00 | -27.332 | 0.040 | -0.048 | 5515.993 | 981970.555 | 2.49 | 4.71 |
| Goz6 | 6008 | 2008/7/11 | 19:34:29 | 562 | 5363.00 | -28.463 | 0.040 | 0.004 | 5514.861 | 981969.409 | 2.57 | 4.71 |
| Goz6 | 6008 | 2008/7/10 | 23:16:10 | 562 | 5363.00 | -28.461 | 0.040 | -0.047 | 5514.863 | 981969.426 | 2.56 | 4.71 |
| Goz6 | 6009 | 2008/7/10 | 23:11:29 | 562 | 5363.00 | -28.203 | 0.040 | -0.047 | 5515.122 | 981969.685 | 2.46 | 4.67 |
| Goz6 | 6010 | 2008/7/10 | 23:07:25 | 562 | 5363.00 | -27.580 | 0.040 | -0.046 | 5515.745 | 981970.308 | 2.36 | 4.63 |
| Goz6 | 6011 | 2008/7/10 | 23:03:55 | 562 | 5363.00 | -25.984 | 0.040 | -0.046 | 5517.341 | 981971.904 | 2.16 | 4.57 |
| Goz6 | 6012 | 2008/7/10 | 22:57:32 | 562 | 5363.00 | -23.615 | 0.040 | -0.045 | 5519.710 | 981974.274 | 1.92 | 4.52 |
| Goz6 | 6013 | 2008/7/10 | 22:52:49 | 562 | 5363.00 | -22.806 | 0.040 | -0.044 | 5520.518 | 981975.082 | 1.80 | 4.50 |
| Goz6 | 6014 | 2008/7/10 | 22:49:30 | 562 | 5363.00 | -21.878 | 0.040 | -0.044 | 5521.447 | 981976.012 | 1.79 | 4.46 |
| Goz6 | 6015 | 2008/7/10 | 22:46:23 | 562 | 5363.00 | -21.674 | 0.040 | -0.043 | 5521.651 | 981976.215 | 1.82 | 4.43 |
| Goz7 | 7000 | 2008/7/11 | 18:46:53 | 562 | 5363.00 | -20.088 | 0.040 | 0.011 | 5523.237 | 981977.784 | 3.83 | 3.95 |
| Goz7 | 7001 | 2008/7/11 | 18:41:24 | 562 | 5363.00 | -21.554 | 0.040 | 0.012 | 5521.771 | 981976.318 | 3.73 | 4.09 |
| Goz7 | 7002 | 2008/7/11 | 18:37:36 | 562 | 5363.00 | -22.434 | 0.040 | 0.012 | 5520.890 | 981975.438 | 3.56 | 4.12 |
| Goz7 | 7003 | 2008/7/11 | 18:30:16 | 562 | 5363.00 | -21.489 | 0.040 | 0.013 | 5521.836 | 981976.383 | 3.30 | 4.09 |
| Goz7 | 7004 | 2008/7/11 | 18:20:27 | 562 | 5363.00 | -20.090 | 0.040 | 0.014 | 5523.235 | 981977.782 | 3.01 | 4.12 |
| Goz7 | 7005 | 2008/7/11 | 17:51:04 | 562 | 5363.00 | -17.936 | 0.040 | 0.016 | 5525.389 | 981979.936 | 2.81 | 4.09 |
| Goz7 | 7006 | 2008/7/11 | 17:41:46 | 562 | 5363.00 | -19.777 | 0.040 | 0.016 | 5523.548 | 981978.095 | 2.77 | 4.14 |
| Goz7 | 7007 | 2008/7/11 | 17:34:00 | 562 | 5363.00 | -22.495 | 0.040 | 0.017 | 5520.830 | 981975.378 | 2.80 | 4.24 |
| Goz7 | 7008 | 2008/7/11 | 17:29:22 | 562 | 5363.00 | -23.248 | 0.040 | 0.017 | 5520.077 | 981974.625 | 2.85 | 4.34 |
| Goz7 | 7009 | 2008/7/11 | 17:25:31 | 562 | 5363.00 | -22.386 | 0.040 | 0.017 | 5520.939 | 981975.487 | 2.78 | 4.28 |
| Goz7 | 7010 | 2008/7/11 | 17:21:05 | 562 | 5363.00 | -21.340 | 0.040 | 0.017 | 5521.985 | 981976.532 | 2.57 | 4.20 |
| Goz7 | 7011 | 2008/7/11 | 17:17:25 | 562 | 5363.00 | -19.961 | 0.040 | 0.017 | 5523.364 | 981977.911 | 2.39 | 4.17 |
| Goz7 | 7012 | 2008/7/11 | 17:13:00 | 562 | 5363.00 | -19.110 | 0.040 | 0.017 | 5524.215 | 981978.762 | 2.31 | 4.15 |
| Goz7 | 7013 | 2008/7/11 | 17:09:32 | 562 | 5363.00 | -18.196 | 0.040 | 0.017 | 5525.129 | 981979.676 | 2.23 | 4.10 |
| Goz7 | 7014 | 2008/7/11 | 17:06:00 | 562 | 5363.00 | -17.887 | 0.040 | 0.017 | 5525.438 | 981979.985 | 2.30 | 4.08 |
| Goz7 | 7015 | 2008/7/11 | 17:01:02 | 562 | 5363.00 | -17.444 | 0.040 | 0.017 | 5525.881 | 981980.428 | 2.50 | 4.11 |
| Goz Base1 | 1 | 2008/7/12 | 14:54:35 | 562 | 5363.00 | -34.004 | 0.040 | 0.010 | 5509.321 | 981963.860 | 1.53 | 4.89 |
| Goz Base1 | 1 | 2008/7/11 | 15:22:18 | 562 | 5363.00 | -34.005 | 0.040 | 0.009 | 5509.320 | 981963.866 | 1.53 | 4.89 |
| Goz Base1 | 1 | 2008/7/10 | 15:28:17 | 562 | 5363.00 | -34.045 | 0.040 | -0.004 | 5509.280 | 981963.875 | 1.53 | 4.89 |
| Goz Base1 | 1 | 2008/7/11 | 23:29:07 | 562 | 5363.00 | -33.968 | 0.040 | -0.044 | 5509.357 | 981963.906 | 1.53 | 4.89 |
| Goz Base1 | 1 | 2008/7/10 | 01:25:44 | 562 | 5363.00 | -33.970 | 0.040 | -0.056 | 5509.354 | 981963.908 | 1.53 | 4.89 |
| regional | 1 | 2008/7/11 | 16:51:21 | 562 | 5363.00 | -15.622 | 0.040 | 0.017 | 5527.703 | 981982.250 | 3.60 | 3.78 |
| regional | 2 | 2008/7/12 | 15:33:39 | 562 | 5363.00 | -41.761 | 0.040 | 0.019 | 5501.564 | 981956.103 | 1.84 | 4.83 |
| regional | 3 | 2008/7/12 | 16:36:20 | 562 | 5363.00 | 23.555 | 0.040 | 0.029 | 5566.880 | 982021.420 | 1.52 | 4.79 |
| Goz tie line | 2 | 2008/7/11 | 19:07:43 | 562 | 5363.00 | -24.073 | 0.040 | 0.008 | 5519.252 | 981973.800 | 2.58 | 4.41 |
| Goz tie line | 3 | 2008/7/11 | 19:28:18 | 562 | 5363.00 | -25.546 | 0.040 | 0.005 | 5517.779 | 981972.327 | 2.52 | 4.52 |
| Goz tie line | 4 | 2008/7/11 | 19:38:39 | 562 | 5363.00 | -30.200 | 0.040 | 0.003 | 5513.125 | 981967.673 | 2.43 | 4.87 |
| Goz tie line | 5 | 2008/7/11 | 19:43:01 | 562 | 5363.00 | -31.027 | 0.040 | 0.003 | 5512.298 | 981966.846 | 2.30 | 5.00 |
| Goz tie line | 6 | 2008/7/11 | 19:46:54 | 562 | 5363.00 | -31.238 | 0.040 | 0.002 | 5512.087 | 981966.635 | 2.09 | 5.05 |
| Goz tie line | 7 | 2008/7/11 | 19:51:03 | 562 | 5363.00 | -31.274 | 0.040 | 0.001 | 5512.051 | 981966.599 | 1.90 | 5.06 |
| Goz tie line | 8 | 2008/7/11 | 19:54:49 | 562 | 5363.00 | -31.509 | 0.040 | 0.001 | 5511.816 | 981966.364 | 1.79 | 5.03 |
| Goz tie line | 9 | 2008/7/11 | 19:58:33 | 562 | 5363.00 | -31.668 | 0.040 | 0.000 | 5511.657 | 981966.205 | 1.70 | 5.01 |
| Goz tie line | 10 | 2008/7/11 | 20:02:20 | 562 | 5363.00 | -31.589 | 0.040 | -0.001 | 5511.736 | 981966.284 | 1.64 | 4.97 |
| Goz tie line | 11 | 2008/7/11 | 20:06:48 | 562 | 5363.00 | -31.531 | 0.040 | -0.002 | 5511.794 | 981966.342 | 1.60 | 4.92 |
| Goz tie line | 12 | 2008/7/11 | 20:10:38 | 562 | 5363.00 | -31.077 | 0.040 | -0.002 | 5512.248 | 981966.796 | 1.58 | 4.84 |
| Goz tie line | 12 | 2008/7/11 | 22:35:29 | 562 | 5363.00 | -31.054 | 0.040 | -0.033 | 5512.271 | 981966.819 | 1.58 | 4.84 |
| Goz tie line | 13 | 2008/7/11 | 20:15:07 | 562 | 5363.00 | -30.857 | 0.040 | -0.003 | 5512.468 | 981967.016 | 1.61 | 4.77 |
| Goz tie line | 14 | 2008/7/11 | 20:18:49 | 562 | 5363.00 | -29.990 | 0.040 | -0.004 | 5513.335 | 981967.883 | 1.63 | 4.62 |
| Goz tie line | 15 | 2008/7/11 | 20:24:07 | 562 | 5363.00 | -29.322 | 0.040 | -0.005 | 5514.003 | 981968.551 | 1.67 | 4.45 |
| Goz tie line | 16 | 2008/7/11 | 20:29:03 | 562 | 5363.00 | -27.952 | 0.040 | -0.006 | 5515.373 | 981969.921 | 1.72 | 4.26 |
| Goz tie line | 17 | 2008/7/11 | 20:32:31 | 562 | 5363.00 | -26.352 | 0.040 | -0.007 | 5516.973 | 981971.521 | 1.77 | 4.02 |
| Goz tie line | 18 | 2008/7/11 | 20:36:36 | 562 | 5363.00 | -24.751 | 0.040 | -0.008 | 5518.574 | 981973.122 | 1.80 | 3.80 |
| Walt Base2 | 2 | 2008/7/13 | 02:36:56 | 562 | 5363.00 | -29.046 | 0.040 | -0.071 | 5514.279 | 981968.858 | 2.02 | 3.73 |
| Walt Base2 | 2 | 2008/7/13 | 14:29:52 | 562 | 5363.00 | -29.005 | 0.040 | 0.002 | 5514.320 | 981968.864 | 2.02 | 3.73 |
| Walt L1 | 1001 | 2008/7/12 | 19:45:50 | 562 | 5363.00 | 3.286 | 0.040 | 0.022 | 5546.611 | 982001.150 | 1.18 | 2.11 |
| Walt L1 | 1002 | 2008/7/12 | 20:05:54 | 562 | 5363.00 | 4.689 | 0.040 | 0.018 | 5548.014 | 982002.553 | 1.07 | 2.08 |
| Walt L1 | 1003 | 2008/7/12 | 20:11:21 | 562 | 5363.00 | 5.350 | 0.040 | 0.017 | 5548.675 | 982003.214 | 1.11 | 2.04 |
| Walt L1 | 1004 | 2008/7/12 | 20:14:36 | 562 | 5363.00 | 4.888 | 0.040 | 0.017 | 5548.212 | 982002.751 | 1.16 | 2.02 |
| Walt L1 | 1005 | 2008/7/12 | 20:18:26 | 562 | 5363.00 | 5.755 | 0.040 | 0.016 | 5549.079 | 982003.618 | 1.20 | 2.00 |
| Walt L1 | 1006 | 2008/7/12 | 20:22:12 | 562 | 5363.00 | 6.325 | 0.040 | 0.015 | 5549.650 | 982004.189 | 1.23 | 1.98 |
| Walt L1 | 1007 | 2008/7/12 | 20:25:52 | 562 | 5363.00 | 5.471 | 0.040 | 0.014 | 5548.796 | 982003.335 | 1.25 | 1.98 |
| Walt L1 | 1008 | 2008/7/12 | 20:30:11 | 562 | 5363.00 | 5.047 | 0.040 | 0.013 | 5548.371 | 982002.910 | 1.26 | 1.98 |
| Walt L1 | 1009 | 2008/7/12 | 20:35:03 | 562 | 5363.00 | 4.996 | 0.040 | 0.012 | 5548.321 | 982002.860 | 1.26 | 1.98 |
| Walt L1 | 1010 | 2008/7/12 | 20:39:17 | 562 | 5363.00 | 4.269 | 0.040 | 0.011 | 5547.594 | 982002.133 | 1.26 | 1.98 |
| Walt L1 | 1011 | 2008/7/12 | 20:43:47 | 562 | 5363.00 | 3.735 | 0.040 | 0.010 | 5547.060 | 982001.599 | 1.25 | 1.98 |
| Walt L1 | 1012 | 2008/7/12 | 20:47:25 | 562 | 5363.00 | 2.446 | 0.040 | 0.009 | 5545.771 | 982000.310 | 1.25 | 1.98 |
| Walt L1 | 1013 | 2008/7/12 | 20:52:20 | 562 | 5363.00 | 2.413 | 0.040 | 0.008 | 5545.738 | 982000.277 | 1.25 | 1.99 |
| Walt L1 | 1014 | 2008/7/12 | 20:57:27 | 562 | 5363.00 | 3.230 | 0.040 | 0.007 | 5546.555 | 982001.093 | 1.23 | 1.98 |
| Walt L1 | 1015 | 2008/7/12 | 21:02:37 | 562 | 5363.00 | 4.051 | 0.040 | 0.005 | 5547.376 | 982001.915 | 1.21 | 1.97 |
| Walt L1 | 1016 | 2008/7/12 | 21:07:07 | 562 | 5363.00 | 5.063 | 0.040 | 0.004 | 5548.386 | 982002.925 | 1.17 | 1.96 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Walt L1 | 1018 | 2008/7/12 | 21:19:28 | 562 | 5363.00 | 6.828 | 0.040 | 0.001 | 5550.153 | 982004.692 | 1.09 | 1.95 |
| Walt L2 | 2000 | 2008/7/13 | 17:22:54 | 562 | 5363.00 | -6.052 | 0.040 | 0.043 | 5537.273 | 981991.825 | 1.63 | 2.44 |
| Walt L2 | 2001 | 2008/7/13 | 17:17:34 | 562 | 5363.00 | -8.650 | 0.040 | 0.042 | 5534.675 | 981989.228 | 1.57 | 2.54 |
| Walt L2 | 2002 | 2008/7/13 | 17:07:37 | 562 | 5363.00 | -11.830 | 0.040 | 0.041 | 5531.495 | 981986.047 | 1.67 | 2.68 |
| Walt L2 | 2003 | 2008/7/13 | 17:02:15 | 562 | 5363.00 | -13.055 | 0.040 | 0.040 | 5530.270 | 981984.822 | 1.78 | 2.74 |
| Walt L2 | 2004 | 2008/7/13 | 16:57:26 | 562 | 5363.00 | -14.580 | 0.040 | 0.039 | 5528.745 | 981983.296 | 1.84 | 2.83 |
| Walt L2 | 2005 | 2008/7/13 | 16:52:25 | 562 | 5363.00 | -16.020 | 0.040 | 0.039 | 5527.304 | 981981.856 | 1.91 | 2.90 |
| Walt L2 | 2006 | 2008/7/13 | 16:47:48 | 562 | 5363.00 | -17.221 | 0.040 | 0.038 | 5526.104 | 981980.655 | 1.97 | 2.96 |
| Walt L2 | 2007 | 2008/7/13 | 16:41:32 | 562 | 5363.00 | -18.612 | 0.040 | 0.037 | 5524.713 | 981979.264 | 2.03 | 3.00 |
| Walt L2 | 2008 | 2008/7/13 | 16:37:08 | 562 | 5363.00 | -19.759 | 0.040 | 0.036 | 5523.566 | 981978.117 | 2.11 | 3.06 |
| Walt L2 | 2009 | 2008/7/13 | 16:29:32 | 562 | 5363.00 | -22.148 | 0.040 | 0.034 | 5521.177 | 981975.727 | 2.19 | 3.17 |
| Walt L2 | 2010 | 2008/7/13 | 16:21:23 | 562 | 5363.00 | -23.484 | 0.040 | 0.033 | 5519.841 | 981974.391 | 2.24 | 3.26 |
| Walt L2 | 2011 | 2008/7/13 | 16:15:45 | 562 | 5363.00 | -23.988 | 0.040 | 0.031 | 5519.337 | 981973.886 | 2.26 | 3.28 |
| Walt L2 | 2012 | 2008/7/13 | 16:11:18 | 562 | 5363.00 | -23.843 | 0.040 | 0.030 | 5519.482 | 981974.031 | 2.23 | 3.26 |
| Walt L2 | 2013 | 2008/7/13 | 16:03:51 | 562 | 5363.00 | -22.035 | 0.040 | 0.028 | 5521.290 | 981975.839 | 2.19 | 3.15 |
| Walt L2 | 2014 | 2008/7/13 | 15:55:06 | 562 | 5363.00 | -20.931 | 0.040 | 0.026 | 5522.394 | 981976.943 | 2.14 | 3.07 |
| Walt L2 | 2015 | 2008/7/13 | 15:48:29 | 562 | 5363.00 | -19.206 | 0.040 | 0.025 | 5524.119 | 981978.667 | 2.09 | 2.95 |
| Walt L2 | 2016 | 2008/7/13 | 15:42:02 | 562 | 5363.00 | -17.541 | 0.040 | 0.023 | 5525.784 | 981980.332 | 2.04 | 2.81 |
| Walt L2 | 2017 | 2008/7/13 | 15:36:37 | 562 | 5363.00 | -14.923 | 0.040 | 0.021 | 5528.402 | 981982.950 | 1.96 | 2.63 |
| Walt L2 | 2018 | 2008/7/13 | 15:32:51 | 562 | 5363.00 | -13.292 | 0.040 | 0.020 | 5530.033 | 981984.581 | 1.88 | 2.52 |
| Walt L2 | 2019 | 2008/7/13 | 15:28:30 | 562 | 5363.00 | -10.646 | 0.040 | 0.019 | 5532.679 | 981987.227 | 1.85 | 2.34 |
| Walt L2 | 2020 | 2008/7/13 | 15:25:02 | 562 | 5363.00 | -8.385 | 0.040 | 0.018 | 5534.940 | 981989.487 | 1.83 | 2.24 |
| Walt L2 | 2021 | 2008/7/13 | 15:21:19 | 562 | 5363.00 | -6.231 | 0.040 | 0.017 | 5537.094 | 981991.640 | 1.81 | 2.15 |
| Walt L2 | 2022 | 2008/7/13 | 15:17:32 | 562 | 5363.00 | -4.752 | 0.040 | 0.016 | 5538.573 | 981993.120 | 1.77 | 2.09 |
| Walt L2 | 2023 | 2008/7/13 | 15:04:37 | 562 | 5363.00 | -1.689 | 0.040 | 0.012 | 5541.636 | 981996.182 | 1.72 | 2.00 |
| Walt L2 | 2024 | 2008/7/12 | 21:49:44 | 562 | 5363.00 | -0.117 | 0.040 | -0.007 | 5543.208 | 981997.747 | 1.67 | 1.98 |
| Walt L2 | 2024 | 2008/7/13 | 15:00:52 | 562 | 5363.00 | -0.112 | 0.040 | 0.011 | 5543.213 | 981997.759 | 1.67 | 1.98 |
| Walt L2 | 2025 | 2008/7/12 | 21:41:10 | 562 | 5363.00 | 2.858 | 0.040 | -0.005 | 5546.183 | 982000.721 | 1.56 | 1.97 |
| Walt L3 | 3002 | 2008/7/13 | 21:38:06 | 562 | 5363.00 | -28.608 | 0.040 | 0.014 | 5514.717 | 981969.282 | 1.08 | 3.77 |
| Walt L3 | 3003 | 2008/7/13 | 21:41:59 | 562 | 5363.00 | -28.788 | 0.040 | 0.013 | 5514.537 | 981969.102 | 1.10 | 3.78 |
| Walt L3 | 3004 | 2008/7/13 | 21:45:09 | 562 | 5363.00 | -29.291 | 0.040 | 0.012 | 5514.034 | 981968.599 | 1.15 | 3.75 |
| Walt L3 | 3005 | 2008/7/13 | 21:48:34 | 562 | 5363.00 | -29.152 | 0.040 | 0.011 | 5514.173 | 981968.738 | 1.18 | 3.67 |
| Walt L3 | 3006 | 2008/7/13 | 21:51:49 | 562 | 5363.00 | -28.713 | 0.040 | 0.010 | 5514.612 | 981969.178 | 1.24 | 3.61 |
| Walt L3 | 3007 | 2008/7/13 | 21:55:14 | 562 | 5363.00 | -27.335 | 0.040 | 0.008 | 5515.990 | 981970.556 | 1.32 | 3.53 |
| Walt L3 | 3008 | 2008/7/13 | 21:59:15 | 562 | 5363.00 | -25.841 | 0.040 | 0.007 | 5517.483 | 981972.049 | 1.44 | 3.44 |
| Walt L3 | 3009 | 2008/7/13 | 22:03:30 | 562 | 5363.00 | -23.285 | 0.040 | 0.006 | 5520.040 | 981974.606 | 1.60 | 3.25 |
| Walt L3 | 3010 | 2008/7/13 | 22:07:43 | 562 | 5363.00 | -21.233 | 0.040 | 0.005 | 5522.092 | 981976.658 | 1.77 | 3.03 |
| Walt L3 | 3011 | 2008/7/13 | 22:12:00 | 562 | 5363.00 | -18.495 | 0.040 | 0.003 | 5524.830 | 981979.396 | 1.94 | 2.80 |
| Walt L3 | 3012 | 2008/7/13 | 22:16:19 | 562 | 5363.00 | -16.126 | 0.040 | 0.002 | 5527.199 | 981981.765 | 2.08 | 2.62 |
| Walt L3 | 3013 | 2008/7/13 | 22:20:39 | 562 | 5363.00 | -13.349 | 0.040 | 0.000 | 5529.976 | 981984.542 | 2.19 | 2.42 |
| Walt L3 | 3014 | 2008/7/13 | 22:24:58 | 562 | 5363.00 | -10.997 | 0.040 | -0.001 | 5532.328 | 981986.895 | 2.32 | 2.29 |
| Walt L3 | 3015 | 2008/7/13 | 22:29:23 | 562 | 5363.00 | -8.537 | 0.040 | -0.002 | 5534.788 | 981989.355 | 2.41 | 2.17 |
| Walt L3 | 3016 | 2008/7/13 | 22:35:48 | 562 | 5363.00 | -5.736 | 0.040 | -0.004 | 5537.589 | 981992.156 | 2.37 | 2.07 |
| Walt L3 | 3017 | 2008/7/13 | 22:40:18 | 562 | 5363.00 | -3.666 | 0.040 | -0.006 | 5539.659 | 981994.227 | 2.29 | 2.03 |
| Walt L3 | 3018 | 2008/7/13 | 22:50:05 | 562 | 5363.00 | -1.129 | 0.040 | -0.009 | 5542.196 | 981996.764 | 2.26 | 2.01 |
| Walt L3 | 3019 | 2008/7/13 | 22:54:38 | 562 | 5363.00 | 0.716 | 0.040 | -0.011 | 5544.041 | 981998.609 | 2.20 | 2.02 |
| Walt L3 | 3020 | 2008/7/13 | 22:59:27 | 562 | 5363.00 | 3.232 | 0.040 | -0.012 | 5546.557 | 982001.125 | 1.94 | 2.07 |
| Walt L4 | 4001 | 2008/7/13 | 17:40:38 | 562 | 5363.00 | 11.146 | 0.040 | 0.045 | 5554.470 | 982009.024 | 1.03 | 1.98 |
| Walt L4 | 4002 | 2008/7/13 | 17:45:37 | 562 | 5363.00 | 9.320 | 0.040 | 0.045 | 5552.645 | 982007.199 | 0.99 | 1.97 |
| Walt L4 | 4003 | 2008/7/13 | 17:49:34 | 562 | 5363.00 | 8.669 | 0.040 | 0.046 | 5551.994 | 982006.547 | 1.04 | 1.97 |
| Walt L4 | 4004 | 2008/7/13 | 17:54:35 | 562 | 5363.00 | 7.943 | 0.040 | 0.046 | 5551.268 | 982005.822 | 1.14 | 1.98 |
| Walt L4 | 4005 | 2008/7/13 | 17:58:09 | 562 | 5363.00 | 6.721 | 0.040 | 0.046 | 5550.046 | 982004.600 | 1.25 | 1.98 |
| Walt L4 | 4006 | 2008/7/13 | 18:02:36 | 562 | 5363.00 | 4.498 | 0.040 | 0.046 | 5547.823 | 982002.378 | 1.34 | 2.00 |
| Walt L4 | 4007 | 2008/7/13 | 18:06:24 | 562 | 5363.00 | 2.532 | 0.040 | 0.046 | 5545.857 | 982000.412 | 1.47 | 2.02 |
| Walt L4 | 4008 | 2008/7/13 | 18:11:33 | 562 | 5363.00 | -0.572 | 0.040 | 0.047 | 5542.753 | 981997.308 | 1.64 | 2.07 |
| Walt L4 | 4009 | 2008/7/13 | 18:17:15 | 562 | 5363.00 | -2.870 | 0.040 | 0.047 | 5540.455 | 981995.010 | 1.83 | 2.13 |
| Walt L4 | 4010 | 2008/7/13 | 18:26:39 | 562 | 5363.00 | -7.462 | 0.040 | 0.047 | 5535.862 | 981990.418 | 2.04 | 2.27 |
| Walt L4 | 4011 | 2008/7/13 | 18:36:04 | 562 | 5363.00 | -10.656 | 0.040 | 0.047 | 5532.669 | 981987.225 | 2.19 | 2.42 |
| Walt L4 | 4012 | 2008/7/13 | 18:42:56 | 562 | 5363.00 | -13.279 | 0.040 | 0.046 | 5530.046 | 981984.602 | 2.27 | 2.59 |
| Walt L4 | 4013 | 2008/7/13 | 18:48:47 | 562 | 5363.00 | -16.653 | 0.040 | 0.046 | 5526.672 | 981981.229 | 2.29 | 2.79 |
| Walt L4 | 4014 | 2008/7/13 | 18:55:14 | 562 | 5363.00 | -20.008 | 0.040 | 0.046 | 5523.317 | 981977.874 | 2.29 | 3.02 |
| Walt L4 | 4015 | 2008/7/13 | 19:00:12 | 562 | 5363.00 | -22.582 | 0.040 | 0.046 | 5520.743 | 981975.300 | 2.27 | 3.18 |
| Walt L4 | 4016 | 2008/7/13 | 19:05:00 | 562 | 5363.00 | -25.366 | 0.040 | 0.045 | 5517.959 | 981972.516 | 2.21 | 3.37 |
| Walt L4 | 4017 | 2008/7/13 | 19:08:41 | 562 | 5363.00 | -27.130 | 0.040 | 0.045 | 5516.195 | 981970.753 | 2.11 | 3.53 |
| Walt L4 | 4018 | 2008/7/13 | 19:12:43 | 562 | 5363.00 | -28.128 | 0.040 | 0.045 | 5515.197 | 981969.754 | 1.98 | 3.63 |
| Walt L4 | 4019 | 2008/7/13 | 19:16:31 | 562 | 5363.00 | -28.804 | 0.040 | 0.044 | 5514.521 | 981969.079 | 1.84 | 3.68 |
| Walt L4 | 4020 | 2008/7/13 | 19:36:40 | 562 | 5363.00 | -28.845 | 0.040 | 0.042 | 5514.480 | 981969.039 | 1.68 | 3.71 |
| Walt L4 | 4021 | 2008/7/13 | 19:40:46 | 562 | 5363.00 | -28.671 | 0.040 | 0.041 | 5514.654 | 981969.213 | 1.52 | 3.73 |
| Walt L4 | 4023 | 2008/7/13 | 19:51:47 | 562 | 5363.00 | -28.276 | 0.040 | 0.040 | 5515.048 | 981969.608 | 1.38 | 3.71 |
| Walt L4 | 4024 | 2008/7/13 | 19:55:46 | 562 | 5363.00 | -28.157 | 0.040 | 0.039 | 5515.168 | 981969.728 | 1.29 | 3.65 |
| Walt L4 | 4025 | 2008/7/13 | 19:59:39 | 562 | 5363.00 | -28.368 | 0.040 | 0.038 | 5514.957 | 981969.517 | 1.25 | 3.60 |
| Walt L4 | 4026 | 2008/7/13 | 20:03:57 | 562 | 5363.00 | -28.296 | 0.040 | 0.037 | 5515.028 | 981969.589 | 1.23 | 3.58 |
| Walt L4 | 4027 | 2008/7/13 | 20:08:02 | 562 | 5363.00 | -27.710 | 0.040 | 0.036 | 5515.615 | 981970.175 | 1.21 | 3.45 |
| Walt L4 | 4028 | 2008/7/13 | 20:15:50 | 562 | 5363.00 | -25.908 | 0.040 | 0.035 | 5517.417 | 981971.977 | 1.23 | 3.33 |
| Walt L4 | 4029 | 2008/7/13 | 20:20:21 | 562 | 5363.00 | -23.909 | 0.040 | 0.034 | 5519.416 | 981973.977 | 1.29 | 3.28 |
| Walt L4 | 4030 | 2008/7/13 | 20:24:10 | 562 | 5363.00 | -24.573 | 0.040 | 0.033 | 5518.752 | 981973.313 | 1.32 | 3.27 |
| Walt L4 | 4031 | 2008/7/13 | 20:28:08 | 562 | 5363.00 | -24.896 | 0.040 | 0.032 | 5518.429 | 981972.991 | 1.28 | 3.16 |
| Walt L4 | 4032 | 2008/7/13 | 20:32:13 | 562 | 5363.00 | -25.857 | 0.040 | 0.031 | 5517.467 | 981972.029 | 1.23 | 3.17 |
| Walt L4 | 4033 | 2008/7/13 | 20:37:16 | 562 | 5363.00 | -26.593 | 0.040 | 0.030 | 5516.732 | 981971.294 | 1.27 | 3.22 |
| Walt L4 | 4034 | 2008/7/13 | 20:42:05 | 562 | 5363.00 | -25.668 | 0.040 | 0.029 | 5517.656 | 981972.219 | 1.37 | 3.10 |
| Walt L4 | 4035 | 2008/7/13 | 20:46:35 | 562 | 5363.00 | -28.159 | 0.040 | 0.028 | 5515.166 | 981969.729 | 1.44 | 3.13 |
| Walt L4 | 4036 | 2008/7/13 | 20:53:01 | 562 | 5363.00 | -32.713 | 0.040 | 0.026 | 5510.612 | 981965.174 | 1.48 | 3.41 |
| Walt L4 | 4037 | 2008/7/13 | 20:57:38 | 562 | 5363.00 | -35.418 | 0.040 | 0.025 | 5507.907 | 981962.470 | 1.50 | 3.56 |
| Walt L4 | 4038 | 2008/7/13 | 21:02:30 | 562 | 5363.00 | -35.551 | 0.040 | 0.024 | 5507.774 | 981962.337 | 1.55 | 3.51 |
| Walt L4 | 4039 | 2008/7/13 | 21:07:02 | 562 | 5363.00 | -33.668 | 0.040 | 0.023 | 5509.657 | 981964.220 | 1.66 | 3.42 |
| Walt L4 | 4040 | 2008/7/13 | 21:10:44 | 562 | 5363.00 | -34.155 | 0.040 | 0.022 | 5509.170 | 981963.733 | 1.86 | 3.50 |
| Walt L4 | 4041 | 2008/7/13 | 21:13:50 | 562 | 5363.00 | -33.884 | 0.040 | 0.021 | 5509.441 | 981964.004 | 2.16 | 3.41 |
| Walt L5 | 5001 | 2008/7/13 | 23:23:26 | 562 | 5363.00 | 9.621 | 0.040 | -0.020 | 5552.945 | 982007.515 | 0.90 | 1.92 |
| Walt L5 | 5002 | 2008/7/13 | 23:28:23 | 562 | 5363.00 | 8.469 | 0.040 | -0.022 | 5551.794 | 982006.364 | 0.96 | 1.92 |
| Walt L5 | 5003 | 2008/7/13 | 23:34:43 | 562 | 5363.00 | 7.644 | 0.040 | -0.024 | 5550.969 | 982005.539 | 1.06 | 1.95 |
| Walt L5 | 5004 | 2008/7/13 | 23:39:34 | 562 | 5363.00 | 5.190 | 0.040 | -0.025 | 5548.514 | 982003.085 | 1.17 | 1.96 |
| Walt L5 | 5005 | 2008/7/13 | 23:44:25 | 562 | 5363.00 | 1.342 | 0.040 | -0.027 | 5544.667 | 981999.237 | 1.26 | 1.99 |
| Walt L5 | 5006 | 2008/7/13 | 23:48:49 | 562 | 5363.00 | -1.515 | 0.040 | -0.028 | 5541.810 | 981996.381 | 1.36 | 2.05 |
| Walt L5 | 5007 | 2008/7/13 | 23:53:13 | 562 | 5363.00 | -3.886 | 0.040 | -0.030 | 5539.439 | 981994.010 | 1.50 | 2.09 |
| Walt L5 | 5008 | 2008/7/13 | 23:57:33 | 562 | 5363.00 | -5.456 | 0.040 | -0.031 | 5537.869 | 981992.440 | 1.63 | 2.13 |
| Walt L5 | 5009 | 2008/7/13 | 00:02:21 | 562 | 5363.00 | -6.231 | 0.040 | -0.032 | 5537.094 | 981991.666 | 1.75 | 2.19 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Walt L5 | 5011 | 2008/7/13 | 00:11:41 | 562 | 5363.00 | -7.170 | 0.040 | -0.045 | 5536.155 | 981990.727 | 1.95 | 2.17 |
| Walt L5 | 5012 | 2008/7/13 | 00:17:20 | 562 | 5363.00 | -7.088 | 0.040 | -0.047 | 5536.237 | 981990.809 | 2.06 | 2.16 |
| Walt L5 | 5013 | 2008/7/13 | 00:22:58 | 562 | 5363.00 | -6.716 | 0.040 | -0.048 | 5536.609 | 981991.181 | 2.16 | 2.13 |
| Walt L5 | 5014 | 2008/7/13 | 00:28:36 | 562 | 5363.00 | -6.343 | 0.040 | -0.049 | 5536.982 | 981991.555 | 2.21 | 2.10 |
| Walt L5 | 5015 | 2008/7/13 | 00:34:57 | 562 | 5363.00 | -5.646 | 0.040 | -0.050 | 5537.679 | 981992.252 | 2.24 | 2.06 |
| Walt L5 | 5016 | 2008/7/13 | 00:40:54 | 562 | 5363.00 | -6.277 | 0.040 | -0.052 | 5537.048 | 981991.621 | 2.26 | 2.08 |
| Walt L5 | 5017 | 2008/7/13 | 00:52:48 | 562 | 5363.00 | -5.920 | 0.040 | -0.054 | 5537.405 | 981991.979 | 2.26 | 2.07 |
| Walt L5 | 5018 | 2008/7/13 | 00:59:56 | 562 | 5363.00 | -4.583 | 0.040 | -0.056 | 5538.742 | 981993.316 | 2.27 | 2.03 |
| Walt L5 | 5019 | 2008/7/13 | 01:05:03 | 562 | 5363.00 | -3.778 | 0.040 | -0.057 | 5539.547 | 981994.121 | 2.31 | 2.03 |
| Walt L5 | 5020 | 2008/7/13 | 01:10:25 | 562 | 5363.00 | -3.435 | 0.040 | -0.058 | 5539.890 | 981994.464 | 2.35 | 2.03 |
| Walt L5 | 5021 | 2008/7/13 | 01:15:30 | 562 | 5363.00 | -3.383 | 0.040 | -0.059 | 5539.942 | 981994.517 | 2.33 | 2.04 |
| Walt L5 | 5022 | 2008/7/13 | 01:25:43 | 562 | 5363.00 | -6.618 | 0.040 | -0.060 | 5536.707 | 981991.282 | 2.21 | 2.05 |
| Walt L5 | 5023 | 2008/7/13 | 01:31:12 | 562 | 5363.00 | -7.951 | 0.040 | -0.062 | 5535.374 | 981989.950 | 2.12 | 2.06 |
| Walt L5 | 5024 | 2008/7/13 | 01:36:48 | 562 | 5363.00 | -9.100 | 0.040 | -0.062 | 5534.225 | 981988.801 | 2.12 | 2.07 |
| Walt L5 | 5025 | 2008/7/13 | 01:41:56 | 562 | 5363.00 | -10.499 | 0.040 | -0.063 | 5532.826 | 981987.402 | 2.17 | 2.08 |
| Walt L5 | 5026 | 2008/7/13 | 01:46:58 | 562 | 5363.00 | -11.197 | 0.040 | -0.064 | 5532.128 | 981986.704 | 2.24 | 2.10 |
| Walt L5 | 5027 | 2008/7/13 | 01:51:20 | 562 | 5363.00 | -10.602 | 0.040 | -0.065 | 5532.723 | 981987.300 | 2.26 | 2.10 |
| Walt L5 | 5028 | 2008/7/13 | 01:55:09 | 562 | 5363.00 | -11.654 | 0.040 | -0.065 | 5531.671 | 981986.248 | 2.20 | 2.12 |
| Walt L5 | 5029 | 2008/7/13 | 02:00:36 | 562 | 5363.00 | -12.261 | 0.040 | -0.066 | 5531.064 | 981985.641 | 2.10 | 2.13 |
| Walt L5 | 5030 | 2008/7/13 | 02:04:33 | 562 | 5363.00 | -12.033 | 0.040 | -0.067 | 5531.292 | 981985.869 | 2.03 | 2.15 |
| MOR1 | 1002 | 2008/7/15 | 18:42:58 | 562 | 5115.00 | -45.922 | 0.040 | 0.075 | 5241.284 | 981933.938 | | |
| MOR1 | 1003 | 2008/7/15 | 18:55:25 | 562 | 5115.00 | -45.291 | 0.040 | 0.077 | 5241.914 | 981934.570 | | |
| MOR1 | 1004 | 2008/7/15 | 19:03:08 | 562 | 5115.00 | -41.015 | 0.040 | 0.078 | 5246.190 | 981938.846 | | |
| MOR1 | 1005 | 2008/7/15 | 19:10:30 | 562 | 5115.00 | -38.303 | 0.040 | 0.078 | 5248.902 | 981941.559 | | |
| MOR1 | 1006 | 2008/7/15 | 19:18:05 | 562 | 5115.00 | -37.484 | 0.040 | 0.079 | 5249.721 | 981942.378 | | |
| MOR1 | 1007 | 2008/7/15 | 19:24:43 | 562 | 5115.00 | -37.655 | 0.040 | 0.079 | 5249.550 | 981942.207 | | |
| MOR1 | 1008 | 2008/7/15 | 19:39:14 | 562 | 5115.00 | -37.915 | 0.040 | 0.079 | 5249.290 | 981941.949 | | |
| MOR1 | 1009 | 2008/7/15 | 19:58:59 | 562 | 5115.00 | -38.773 | 0.040 | 0.078 | 5248.432 | 981941.093 | | |
| MOR1 | 1010 | 2008/7/15 | 20:11:03 | 562 | 5115.00 | -40.934 | 0.040 | 0.077 | 5246.271 | 981938.933 | | |
| MOR1 | 1011 | 2008/7/15 | 20:20:06 | 562 | 5115.00 | -43.128 | 0.040 | 0.076 | 5244.077 | 981936.740 | | |
| MOR1 | 1012 | 2008/7/15 | 20:30:32 | 562 | 5115.00 | -43.356 | 0.040 | 0.074 | 5243.849 | 981936.513 | | |
| MOR1 | 1013 | 2008/7/15 | 20:55:40 | 562 | 5115.00 | -44.386 | 0.040 | 0.069 | 5242.819 | 981935.485 | | |
| MOR1 | 1014 | 2008/7/15 | 21:05:00 | 562 | 5115.00 | -43.349 | 0.040 | 0.067 | 5243.856 | 981936.523 | | |
| MOR1 | 1015 | 2008/7/15 | 21:15:08 | 562 | 5115.00 | -40.248 | 0.040 | 0.064 | 5246.957 | 981939.624 | | |
| MOR1 | 1016 | 2008/7/15 | 21:30:40 | 562 | 5115.00 | -37.759 | 0.040 | 0.060 | 5249.446 | 981942.115 | | |
| MOR2 | 2002 | 2008/7/16 | 20:22:26 | 562 | 5115.00 | -32.259 | 0.040 | 0.081 | 5254.946 | 981947.603 | | |
| MOR2 | 2003 | 2008/7/16 | 20:34:09 | 562 | 5115.00 | -33.566 | 0.040 | 0.080 | 5253.639 | 981946.296 | | |
| MOR2 | 2004 | 2008/7/16 | 20:43:46 | 562 | 5115.00 | -37.057 | 0.040 | 0.079 | 5250.148 | 981942.804 | | |
| MOR2 | 2005 | 2008/7/16 | 20:50:22 | 562 | 5115.00 | -37.184 | 0.040 | 0.078 | 5250.021 | 981942.677 | | |
| MOR2 | 2006 | 2008/7/16 | 21:02:56 | 562 | 5115.00 | -39.707 | 0.040 | 0.076 | 5247.498 | 981940.154 | | |
| MOR2 | 2007 | 2008/7/16 | 21:11:00 | 562 | 5115.00 | -38.271 | 0.040 | 0.075 | 5248.934 | 981941.590 | | |
| MOR2 | 2008 | 2008/7/16 | 21:19:11 | 562 | 5115.00 | -37.608 | 0.040 | 0.073 | 5249.597 | 981942.252 | | |
| MOR2 | 2009 | 2008/7/16 | 21:29:33 | 562 | 5115.00 | -36.221 | 0.040 | 0.070 | 5250.984 | 981943.639 | | |
| MOR2 | 2010 | 2008/7/16 | 21:37:05 | 562 | 5115.00 | -35.903 | 0.040 | 0.068 | 5251.302 | 981943.956 | | |
| MOR2 | 2011 | 2008/7/16 | 21:50:28 | 562 | 5115.00 | -36.555 | 0.040 | 0.065 | 5250.650 | 981943.304 | | |
| MOR2 | 2012 | 2008/7/16 | 21:55:52 | 562 | 5115.00 | -36.593 | 0.040 | 0.063 | 5250.612 | 981943.266 | | |
| MOR2 | 2013 | 2008/7/16 | 22:04:21 | 562 | 5115.00 | -34.771 | 0.040 | 0.060 | 5252.434 | 981945.087 | | |
| MOR3 | 3002 | 2008/7/16 | 15:50:36 | 562 | 5115.00 | -65.128 | 0.040 | 0.001 | 5222.078 | 981914.745 | | |
| MOR3 | 3003 | 2008/7/16 | 15:57:45 | 562 | 5115.00 | -66.213 | 0.040 | 0.004 | 5220.992 | 981913.659 | | |
| MOR3 | 3004 | 2008/7/16 | 16:04:30 | 562 | 5115.00 | -65.438 | 0.040 | 0.007 | 5221.767 | 981914.434 | | |
| MOR3 | 3005 | 2008/7/16 | 16:10:18 | 562 | 5115.00 | -64.939 | 0.040 | 0.010 | 5222.266 | 981914.933 | | |
| MOR3 | 3006 | 2008/7/16 | 16:17:51 | 562 | 5115.00 | -64.525 | 0.040 | 0.013 | 5222.680 | 981915.346 | | |
| MOR3 | 3007 | 2008/7/16 | 16:22:40 | 562 | 5115.00 | -66.237 | 0.040 | 0.016 | 5220.968 | 981913.634 | | |
| MOR3 | 3008 | 2008/7/16 | 16:28:55 | 562 | 5115.00 | -68.932 | 0.040 | 0.019 | 5218.273 | 981910.939 | | |
| MOR3 | 3009 | 2008/7/16 | 16:36:08 | 562 | 5115.00 | -71.497 | 0.040 | 0.022 | 5215.708 | 981908.373 | | |
| MOR3 | 3010 | 2008/7/16 | 16:41:31 | 562 | 5115.00 | -74.900 | 0.040 | 0.025 | 5212.305 | 981904.970 | | |
| MOR3 | 3011 | 2008/7/16 | 16:48:00 | 562 | 5115.00 | -82.192 | 0.040 | 0.028 | 5205.013 | 981897.679 | | |
| MOR3 | 3012 | 2008/7/16 | 16:54:50 | 562 | 5115.00 | -82.061 | 0.040 | 0.030 | 5205.144 | 981897.809 | | |
| MOR4 | 4002 | 2008/7/17 | 15:33:50 | 562 | 5115.00 | -67.112 | 0.040 | -0.028 | 5220.093 | 981912.752 | | |
| MOR4 | 4003 | 2008/7/17 | 15:39:12 | 562 | 5115.00 | -66.394 | 0.040 | -0.025 | 5220.811 | 981913.471 | | |
| MOR4 | 4004 | 2008/7/17 | 15:43:30 | 562 | 5115.00 | -65.755 | 0.040 | -0.023 | 5221.450 | 981914.109 | | |
| MOR4 | 4005 | 2008/7/17 | 15:55:58 | 562 | 5115.00 | -66.692 | 0.040 | -0.018 | 5220.513 | 981913.173 | | |
| MOR5 | 5014 | 2008/7/17 | 17:26:58 | 562 | 5115.00 | -66.388 | 0.040 | 0.025 | 5220.817 | 981913.477 | | |
| MOR5 | 5013 | 2008/7/17 | 17:22:51 | 562 | 5115.00 | -65.732 | 0.040 | 0.023 | 5221.473 | 981914.132 | | |
| MOR5 | 5012 | 2008/7/17 | 17:17:02 | 562 | 5115.00 | -65.260 | 0.040 | 0.021 | 5221.945 | 981914.605 | | |
| MOR5 | 5011 | 2008/7/17 | 17:12:29 | 562 | 5115.00 | -64.607 | 0.040 | 0.019 | 5222.599 | 981915.258 | | |
| MOR5 | 5010 | 2008/7/17 | 17:07:29 | 562 | 5115.00 | -63.767 | 0.040 | 0.016 | 5223.438 | 981916.097 | | |
| MOR5 | 5009 | 2008/7/17 | 17:02:55 | 562 | 5115.00 | -64.808 | 0.040 | 0.014 | 5222.397 | 981915.056 | | |
| MOR5 | 5008 | 2008/7/17 | 16:58:35 | 562 | 5115.00 | -65.475 | 0.040 | 0.012 | 5221.730 | 981914.389 | | |
| MOR5 | 5007 | 2008/7/17 | 16:53:30 | 562 | 5115.00 | -66.062 | 0.040 | 0.010 | 5221.143 | 981913.802 | | |
| MOR5 | 5006 | 2008/7/17 | 16:45:21 | 562 | 5115.00 | -66.524 | 0.040 | 0.006 | 5220.681 | 981913.340 | | |
| MOR5 | 5005 | 2008/7/17 | 16:38:21 | 562 | 5115.00 | -65.833 | 0.040 | 0.002 | 5221.372 | 981914.031 | | |
| MOR5 | 5004 | 2008/7/17 | 16:31:11 | 562 | 5115.00 | -65.595 | 0.040 | -0.001 | 5221.610 | 981914.269 | | |
| MOR5 | 5003 | 2008/7/17 | 16:22:58 | 562 | 5115.00 | -65.070 | 0.040 | -0.005 | 5222.135 | 981914.795 | | |
| MOR5 | 5002 | 2008/7/17 | 16:14:08 | 562 | 5115.00 | -67.346 | 0.040 | -0.009 | 5219.859 | 981912.519 | | |

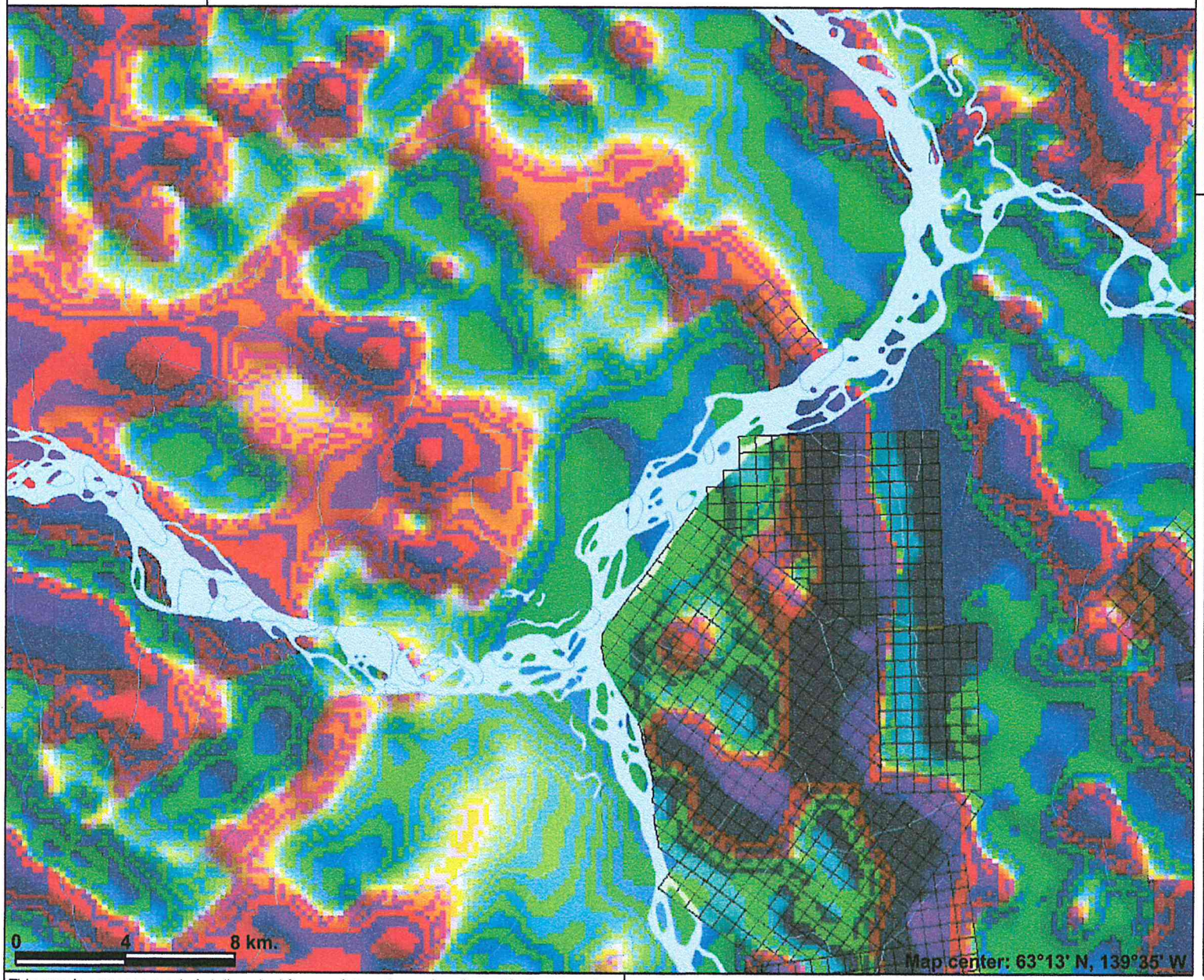
| total TC | NIMA 1998 Theoretical | Elevation | UTM8 Easting | NAD83 Northing | Latitude | Longitude | BG @2.30 | BG @2.50 | BG @2.67 |
|---|---|---|---|---|---|---|---|---|---|
| 5.95 | 982249.73 | 1432.87 | 619759.71 | 7147402.14 | 64.4311 | -132.5127 | 24.58 | 13.16 | 3.45 |
| 5.81 | 982249.74 | 1426.26 | 619765.20 | 7147423.33 | 64.4313 | -132.5125 | 24.50 | 13.12 | 3.44 |
| 5.72 | 982249.75 | 1416.89 | 619783.90 | 7147428.97 | 64.4314 | -132.5121 | 24.45 | 13.14 | 3.53 |
| 5.61 | 982249.75 | 1407.46 | 619802.91 | 7147442.08 | 64.4315 | -132.5117 | 24.43 | 13.18 | 3.63 |
| 5.55 | 982249.76 | 1398.46 | 619821.81 | 7147455.15 | 64.4316 | -132.5113 | 24.32 | 13.15 | 3.65 |
| 5.55 | 982249.77 | 1392.13 | 619832.50 | 7147467.09 | 64.4317 | -132.5111 | 24.30 | 13.18 | 3.73 |
| 5.47 | 982249.78 | 1379.37 | 619849.95 | 7147480.53 | 64.4318 | -132.5107 | 24.14 | 13.12 | 3.75 |
| 5.42 | 982249.78 | 1376.70 | 619868.35 | 7147486.01 | 64.4318 | -132.5103 | 23.98 | 12.97 | 3.62 |
| 5.32 | 982249.79 | 1370.75 | 619882.95 | 7147497.32 | 64.4319 | -132.5100 | 23.75 | 12.78 | 3.47 |
| 5.25 | 982249.80 | 1362.06 | 619902.47 | 7147511.19 | 64.4320 | 132.5096 | 23.47 | 12.57 | 3.31 |
| 5.22 | 982249.81 | 1354.40 | 619919.40 | 7147522.60 | 64.4321 | -132.5092 | 23.30 | 12.46 | 3.25 |
| 5.20 | 982249.81 | 1347.57 | 619935.22 | 7147531.86 | 64.4322 | -132.5089 | 23.14 | 12.36 | 3.20 |
| 5.18 | 982249.82 | 1338.73 | 619952.28 | 7147544.19 | 64.4323 | -132.5085 | 22.94 | 12.23 | 3.13 |
| 5.13 | 982249.83 | 1330.22 | 619969.51 | 7147553.40 | 64.4324 | -132.5082 | 22.76 | 12.12 | 3.08 |
| 5.22 | 982249.81 | 1334.69 | 619983.51 | 7147533.53 | 64.4322 | -132.5079 | 22.90 | 12.23 | 3.16 |
| 5.18 | 982249.82 | 1328.44 | 620001.12 | 7147536.20 | 64.4322 | -132.5075 | 22.75 | 12.13 | 3.10 |
| 6.03 | 982249.71 | 1430.80 | 619776.39 | 7147371.44 | 64.4308 | -132.5123 | 24.46 | 13.07 | 3.38 |
| 5.97 | 982249.71 | 1425.28 | 619794.23 | 7147381.14 | 64.4309 | -132.5120 | 24.38 | 13.02 | 3.37 |
| 5.91 | 982249.72 | 1419.01 | 619812.05 | 7147390.86 | 64.4310 | -132.5116 | 24.32 | 13.01 | 3.40 |
| 5.86 | 982249.73 | 1412.90 | 619827.38 | 7147402.12 | 64.4311 | -132.5113 | 24.29 | 13.02 | 3.45 |
| 5.89 | 982249.73 | 1411.60 | 619846.75 | 7147411.55 | 64.4312 | -132.5108 | 24.21 | 12.96 | 3.40 |
| 5.91 | 982249.74 | 1407.66 | 619863.42 | 7147421.88 | 64.4313 | -132.5105 | 24.21 | 12.99 | 3.46 |
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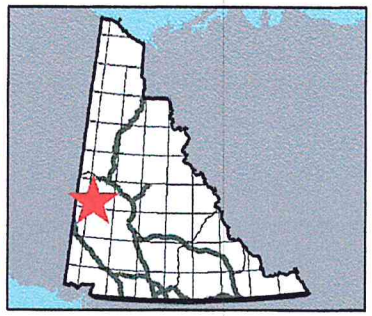
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| 3.23 | 982249.64 | 1233.37 | 623826.97 | 7147398.82 | 64.4296 | -132.4283 | 18.66 | 8.64 | 0.12 |
| 3.24 | 982249.65 | 1234.07 | 623815.31 | 7147416.27 | 64.4298 | -132.4285 | 18.75 | 8.73 | 0.21 |
| 3.24 | 982249.66 | 1238.44 | 623805.56 | 7147434.75 | 64.4300 | -132.4287 | 18.94 | 8.88 | 0.32 |
| 3.23 | 982249.67 | 1242.00 | 623795.21 | 7147450.92 | 64.4301 | -132.4289 | 19.14 | 9.05 | 0.47 |
| 3.23 | 982249.68 | 1248.87 | 623791.74 | 7147466.77 | 64.4303 | -132.4290 | 19.31 | 9.16 | 0.53 |
| 3.23 | 982249.70 | 1249.73 | 623779.16 | 7147489.54 | 64.4305 | -132.4292 | 19.44 | 9.28 | 0.65 |
| 3.22 | 982249.71 | 1245.83 | 623770.50 | 7147500.33 | 64.4306 | -132.4294 | 19.40 | 9.27 | 0.67 |
| 3.18 | 982249.72 | 1242.26 | 623760.20 | 7147521.73 | 64.4308 | -132.4296 | 19.41 | 9.31 | 0.73 |

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|---|---|---|---|---|---|---|---|---|---|
| 3.04 | 982249.75 | 1230.08 | 623732.50 | 7147573.14 | 64.4312 | -132.4301 | 19.40 | 9.39 | 0.88 |
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| 4.93 | 982249.61 | 1342.30 | 624066.31 | 7147377.66 | 64.4294 | -132.4233 | 21.49 | 10.73 | 1.58 |
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| 5.36 | 982249.64 | 1363.23 | 624037.61 | 7147427.11 | 64.4298 | -132.4239 | 21.47 | 10.57 | 1.31 |
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| 5.20 | 982249.70 | 1358.62 | 623986.70 | 7147513.68 | 64.4306 | -132.4249 | 21.48 | 10.60 | 1.36 |
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| 4.85 | 982249.72 | 1344.59 | 623970.10 | 7147551.92 | 64.4310 | -132.4252 | 21.45 | 10.66 | 1.49 |
| 4.59 | 982249.74 | 1333.61 | 623958.74 | 7147571.13 | 64.4311 | -132.4254 | 21.43 | 10.71 | 1.59 |
| 4.40 | 982249.75 | 1326.34 | 623950.70 | 7147584.04 | 64.4313 | -132.4256 | 21.29 | 10.61 | 1.53 |
| 4.19 | 982249.76 | 1313.74 | 623935.54 | 7147608.77 | 64.4315 | -132.4259 | 21.00 | 10.40 | 1.40 |
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| 3.95 | 982249.79 | 1293.26 | 623917.71 | 7147640.97 | 64.4318 | -132.4262 | 20.78 | 10.33 | 1.44 |
| 3.85 | 982249.79 | 1286.18 | 623911.00 | 7147652.45 | 64.4319 | -132.4263 | 20.63 | 10.23 | 1.39 |
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| 3.65 | 982249.82 | 1263.60 | 623892.94 | 7147689.36 | 64.4322 | -132.4267 | 20.21 | 9.98 | 1.28 |
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| 4.61 | 982249.80 | 1328.19 | 624127.56 | 7147676.71 | 64.4320 | -132.4218 | 21.83 | 11.16 | 2.08 |
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| 4.31 | 982249.85 | 1280.86 | 624088.84 | 7147744.79 | 64.4326 | -132.4226 | 21.09 | 10.78 | 2.02 |
| 4.27 | 982249.86 | 1267.81 | 624077.63 | 7147764.25 | 64.4328 | -132.4228 | 20.79 | 10.58 | 1.91 |
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| 3.01 | 982249.60 | 1205.67 | 623763.60 | 7147326.23 | 64.4290 | -132.4297 | 18.68 | 8.87 | 0.53 |
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| 3.12 | 982249.62 | 1220.42 | 623821.26 | 7147357.52 | 64.4293 | -132.4284 | 18.72 | 8.80 | 0.36 |
| 3.23 | 982249.62 | 1225.60 | 623836.58 | 7147358.88 | 64.4293 | -132.4281 | 18.72 | 8.77 | 0.30 |
| 3.34 | 982249.62 | 1235.92 | 623854.78 | 7147372.11 | 64.4294 | -132.4277 | 18.80 | 8.77 | 0.25 |
| 3.49 | 982249.63 | 1245.82 | 623869.81 | 7147380.27 | 64.4295 | -132.4274 | 19.11 | 9.01 | 0.42 |
| 3.71 | 982249.63 | 1261.59 | 623892.27 | 7147390.17 | 64.4295 | -132.4269 | 19.60 | 9.39 | 0.71 |
| 3.97 | 982249.63 | 1272.72 | 623906.63 | 7147397.56 | 64.4296 | -132.4266 | 19.96 | 9.68 | 0.95 |
| 4.31 | 982249.64 | 1294.26 | 623924.64 | 7147411.40 | 64.4297 | -132.4263 | 20.32 | 9.90 | 1.04 |
| 4.62 | 982249.64 | 1309.38 | 623949.77 | 7147409.26 | 64.4297 | -132.4257 | 20.70 | 10.18 | 1.24 |
| 4.86 | 982249.65 | 1322.17 | 623958.65 | 7147426.54 | 64.4298 | -132.4255 | 21.05 | 10.45 | 1.44 |
| 5.08 | 982249.65 | 1337.92 | 623975.38 | 7147437.43 | 64.4299 | -132.4252 | 21.27 | 10.56 | 1.45 |
| 5.30 | 982249.66 | 1353.32 | 623998.26 | 7147444.94 | 64.4300 | -132.4247 | 21.44 | 10.62 | 1.43 |
| 5.45 | 982249.66 | 1364.46 | 624013.33 | 7147452.75 | 64.4301 | -132.4244 | 21.39 | 10.50 | 1.23 |
| 5.58 | 982249.67 | 1376.68 | 624027.75 | 7147465.45 | 64.4302 | -132.4241 | 21.35 | 10.36 | 1.02 |
| 5.64 | 982249.67 | 1385.63 | 624048.37 | 7147474.82 | 64.4302 | -132.4236 | 21.55 | 10.49 | 1.10 |
| 5.61 | 982249.68 | 1391.25 | 624068.73 | 7147485.93 | 64.4303 | -132.4232 | 21.70 | 10.59 | 1.15 |
| 5.52 | 982249.68 | 1394.97 | 624083.36 | 7147496.66 | 64.4304 | -132.4229 | 21.70 | 10.56 | 1.08 |
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| 4.85 | 982249.72 | 1398.60 | 624188.48 | 7147554.02 | 64.4309 | -132.4207 | 22.11 | 10.86 | 1.31 |
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| 4.56 | 982249.74 | 1390.72 | 624269.44 | 7147596.28 | 64.4312 | -132.4189 | 22.54 | 11.33 | 1.81 |
| 4.57 | 982249.75 | 1382.16 | 624292.06 | 7147612.35 | 64.4314 | -132.4185 | 22.72 | 11.59 | 2.13 |
| 4.59 | 982249.76 | 1385.10 | 624321.16 | 7147623.11 | 64.4315 | -132.4178 | 22.70 | 11.55 | 2.06 |
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| 4.40 | 982249.77 | 1391.07 | 624371.41 | 7147653.94 | 64.4317 | -132.4168 | 22.44 | 11.22 | 1.68 |
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| 4.47 | 982249.79 | 1390.58 | 624425.56 | 7147685.90 | 64.4320 | -132.4156 | 22.59 | 11.38 | 1.84 |
| 4.57 | 982249.80 | 1401.82 | 624452.01 | 7147697.43 | 64.4321 | -132.4151 | 22.60 | 11.30 | 1.70 |
| 4.89 | 982249.81 | 1421.37 | 624483.04 | 7147711.48 | 64.4322 | -132.4144 | 22.55 | 11.12 | 1.40 |
| 5.06 | 982249.81 | 1432.92 | 624506.38 | 7147722.80 | 64.4323 | -132.4139 | 22.49 | 10.98 | 1.20 |
| 5.06 | 982249.82 | 1434.30 | 624529.39 | 7147737.55 | 64.4324 | -132.4134 | 22.64 | 11.12 | 1.32 |
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| 2.82 | 982249.71 | 1216.33 | 623671.92 | 7147499.48 | 64.4306 | -132.4314 | 19.10 | 9.18 | 0.75 |
| 2.88 | 982249.72 | 1222.43 | 623695.08 | 7147508.90 | 64.4307 | -132.4309 | 19.31 | 9.35 | 0.88 |
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| 3.25 | 982249.74 | 1255.76 | 623775.45 | 7147553.05 | 64.4310 | -132.4292 | 19.66 | 9.45 | 0.78 |
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| 4.12 | 982249.79 | 1297.38 | 623931.28 | 7147642.24 | 64.4318 | -132.4259 | 20.93 | 10.47 | 1.57 |
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| | 981923.59 | 1165.46 | 6662230.17 | 661348.54 | 60.0654 | -132.1010 | 257.62 | 247.84 | 239.54 |
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| | 981922.87 | 1108.67 | 6661190.26 | 661016.72 | 60.0562 | -132.1077 | 257.44 | 248.14 | 240.24 |
| | 981925.06 | 1265.47 | 6664370.11 | 662099.55 | 60.0843 | -132.0858 | 258.17 | 247.56 | 238.54 |
| | 981925.03 | 1270.07 | 6664325.36 | 662099.97 | 60.0839 | -132.0858 | 258.09 | 247.44 | 238.39 |
| | 981924.99 | 1265.17 | 6664270.35 | 662104.59 | 60.0834 | -132.0858 | 257.87 | 247.26 | 238.24 |
| | 981924.95 | 1261.28 | 6664220.29 | 662106.78 | 60.0829 | -132.0858 | 257.57 | 247.00 | 238.01 |
| | 981924.92 | 1258.65 | 6664168.37 | 662110.01 | 60.0825 | -132.0858 | 257.47 | 246.91 | 237.94 |
| | 981924.88 | 1266.74 | 6664123.62 | 662114.51 | 60.0821 | -132.0857 | 257.50 | 246.88 | 237.85 |
| | 981924.84 | 1278.00 | 6664068.05 | 662118.50 | 60.0816 | -132.0857 | 257.24 | 246.52 | 237.41 |
| | 981924.81 | 1288.49 | 6664018.29 | 662120.05 | 60.0811 | -132.0857 | 256.93 | 246.13 | 236.94 |
| | 981924.77 | 1301.28 | 6663972.29 | 662125.06 | 60.0807 | -132.0856 | 256.28 | 245.36 | 236.09 |
| | 981924.73 | 1329.09 | 6663920.18 | 662126.88 | 60.0802 | -132.0856 | 254.93 | 243.78 | 234.31 |
| | 981924.70 | 1329.54 | 6663871.25 | 662131.26 | 60.0798 | -132.0856 | 255.19 | 244.04 | 234.56 |
| | 981925.04 | 1278.02 | 6664332.73 | 661769.82 | 60.0841 | -132.0917 | 258.86 | 248.14 | 239.03 |
| | 981925.01 | 1274.51 | 6664285.55 | 661774.85 | 60.0836 | -132.0917 | 258.86 | 248.18 | 239.09 |
| | 981924.97 | 1270.87 | 6664225.17 | 661777.16 | 60.0831 | -132.0917 | 258.77 | 248.11 | 239.06 |
| | 981924.94 | 1274.25 | 6664185.14 | 661786.89 | 60.0827 | -132.0915 | 258.58 | 247.90 | 238.81 |
| | 981925.07 | 1274.82 | 6664371.32 | 661682.59 | 60.0844 | -132.0933 | 258.87 | 248.18 | 239.10 |
| | 981925.04 | 1271.51 | 6664326.61 | 661683.82 | 60.0840 | -132.0933 | 258.86 | 248.19 | 239.13 |
| | 981925.01 | 1268.72 | 6664284.22 | 661688.13 | 60.0837 | -132.0932 | 258.77 | 248.13 | 239.09 |
| | 981924.97 | 1264.83 | 6664232.45 | 661693.99 | 60.0832 | -132.0932 | 258.63 | 248.02 | 239.01 |
| | 981924.94 | 1260.19 | 6664182.30 | 661699.34 | 60.0827 | -132.0931 | 258.52 | 247.95 | 238.97 |
| | 981924.90 | 1263.83 | 6664134.71 | 661703.75 | 60.0823 | -132.0931 | 258.29 | 247.69 | 238.68 |
| | 981924.87 | 1265.99 | 6664082.24 | 661708.17 | 60.0818 | -132.0930 | 258.12 | 247.50 | 238.48 |
| | 981924.83 | 1267.62 | 6664036.17 | 661714.07 | 60.0814 | -132.0930 | 257.91 | 247.28 | 238.24 |
| | 981924.80 | 1268.74 | 6663988.60 | 661718.32 | 60.0810 | -132.0929 | 257.72 | 247.08 | 238.03 |
| | 981924.76 | 1265.21 | 6663932.78 | 661723.75 | 60.0805 | -132.0929 | 257.70 | 247.09 | 238.07 |
| | 981924.74 | 1263.77 | 6663895.89 | 661728.62 | 60.0802 | -132.0928 | 257.66 | 247.06 | 238.05 |
| | 981924.69 | 1261.28 | 6663835.10 | 661735.26 | 60.0796 | -132.0927 | 257.70 | 247.12 | 238.13 |
| | 981924.66 | 1269.42 | 6663790.15 | 661748.64 | 60.0792 | -132.0925 | 257.18 | 246.53 | 237.49 |

# SH PROPERTY FIRST DERIVATIVE



## Legend

- Yukon Border - Surveyed Borders (1M)
- AB
- International
- BC
- NT

Quartz Claims

- Active
- Expired

Land and Sea

- Ocean
- Yukon
- Other

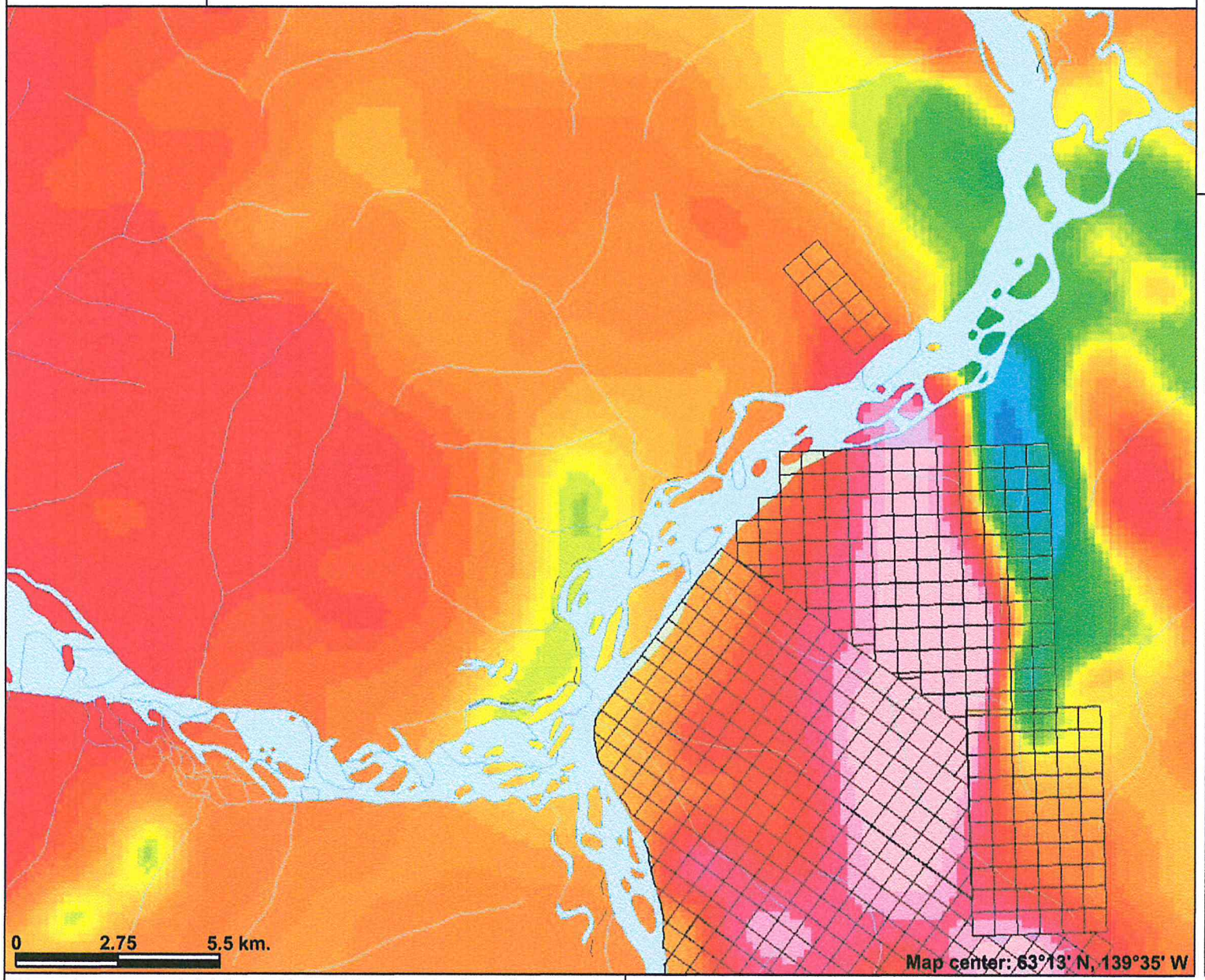
Geophysics First Vertical Derivative Raster

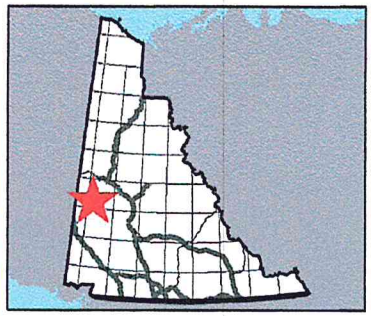
N

Scale: 1:218,112

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# SH AREA REGIONAL MAGNETICS



## Legend

- Yukon Border - Surveyed Borders (1M)
- AB
- International
- BC
- NT

Quartz Claims

- Active
- Expired

Land and Sea

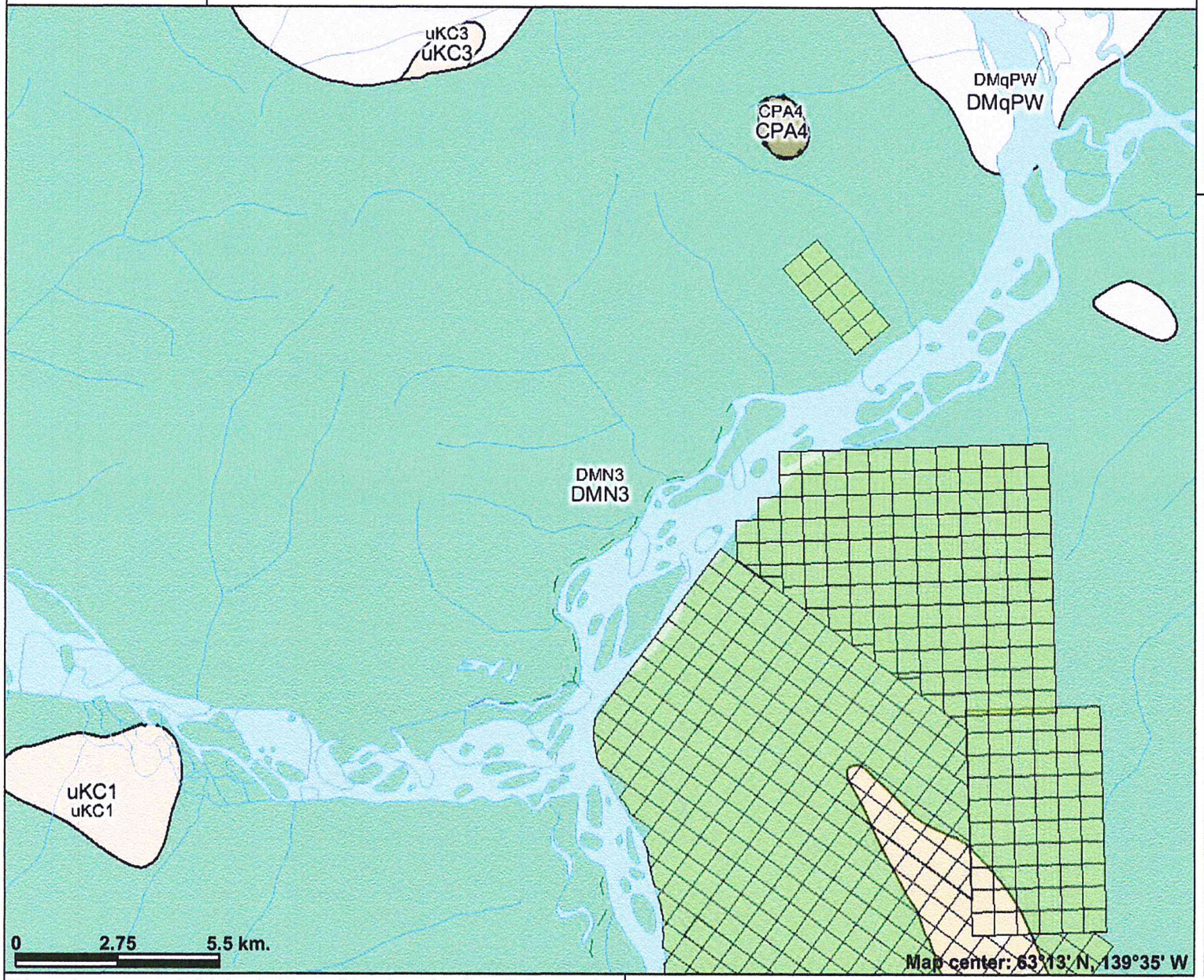
- Ocean
- Yukon
- Other

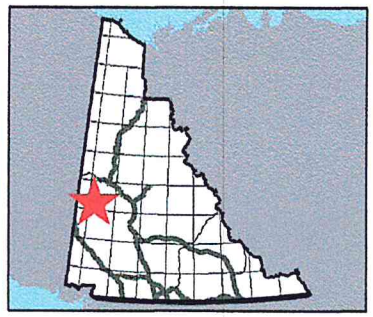
Geophysics Residual Total Field Raster

Scale: 1:161,448

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# SH REGIONAL GEOLOGY



## Legend

- Yukon Border - Surveyed
- Borders (1M)
  - AB
  - International
  - BC
  - NT
- Quartz Claims
  - Active
  - Expired
- Faults (250K)
  - defined
  - approximate
  - assumed
  - extrapolated
  - defined
  - extrapolated
  - defined
  - approximate
  - assumed
  - extrapolated
  - defined
  - approximate
  - assumed
  - extrapolated
  - defined
  - approximate
  - assumed
  - extrapolated
- Land and Sea
  - Ocean
  - Yukon
  - Other
- Bedrock Geology - Regional Unit Outline (250K)

N

Scale: 1:161,448

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# APPENDIX IV

# GEOLOGICAL AND GEOTECHNICAL LOGS

# MOR 2008 DRILL LOG GLOSSARY

| | |
|---|---|
| +/w | and/with |
| ALT | altered/alteration |
| AND | andesite |
| BI | biotite |
| BK/BLK | black |
| C/A | core axis |
| CAR | carbonate |
| CHL/CL | chlorite |
| CL/CY | clay |
| CONC. | concentrated |
| CP | chalcopyrite |
| DISS | disseminated |
| DK | dark |
| EPI | epidote |
| Fd | feldspars |
| FELS | Felsic |
| FN | fold nose |
| FO | foliated |
| FW | footwall |
| GA | Galena |
| GN | green |
| GNE | Gneissic |
| GR | graphitic |
| GRAD | gradational |
| GY | grey |
| HEM | hematite |
| HW | hanging wall |
| INT. | Interval |
| INTER FO | interfoliated |
| LT | light |
| MA | Massive |
| MAG. | magnetism |
| MD | medium |
| Mg | magnetite |
| MOD MAG. | moderately magnetic |
| MU | muscovite |
| OCC. | occasional |
| OPAL | opalescent |
| PHYLL | Phyllite |
| PO | Pyrrhotite |
| PORPH | porphyritic |
| PY | Pyrite |
| QCM | quartz mucovite chlorite schist |
| RHY | Rhyolite/rhyolitic |
| SCH | schist |
| ST. | strong |
| SUC | sucrosic |
| SX | sulfide |
| TR | trace |
| V, | very |
| V.F.G | very fine grained |
| WK | weak |

**PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-05

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 660985 | 6661905 | 1151 | 192.33 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS 300

Core size: BTW
Casing depth: 30' (m) in/out

Drilling dates: June 7-June 10 2008

Logged by: M.NUNEZ, B. WENGYZNOWSKI

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 30 | 60 | BRUNTON | | | | |
| 192.33 | 30 | 59.7 | Acid | | | | |
| | | | | | | | |
| | | | | | | | |

Target: TESTING VTEM ANOMALY SOUTH OF DISCOVERY ZONE

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
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| | | | | |

**SAMPLES**

Numbers: G004001-G004012
G004015-G004057, G004152-G004153
Total: 57
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 80 | 0.00 | 11.23 | | | | | | QTZ PHYRIC MU SER CHL SCH; FOLD | | | | | | | | | | | | | | | 0.00 | 9.45 | 9.45 | 1.38 | 14.6 | 0.78 | 8 | | |
| FO | 78 | | | | | | | | NOSE @0.00M; TR. DISS. PY ; 1-2% Mg | | | | | | | | | | | | | | | 9.45 | 12.50 | 3.05 | 3.05 | 100 | 2.03 | 67 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 12.50 | 15.55 | 3.05 | 3.05 | 100 | 2.61 | 86 | | |
| | | 11.23 | 11.84 | | | | | | SPECKLED GY MU SER QTZ SCH | | | | | | | | | | | | | | | 15.55 | 18.59 | 3.04 | 2.91 | 95.7 | 2.54 | 84 | | |
| | | | | | | | | | WITH BANDS OF GRANULAR GY QTZ | | | | | | | | | | | | | | | 18.59 | 21.64 | 3.05 | 3.05 | 100 | 2.73 | 90 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 21.64 | 24.69 | 3.05 | 3.05 | 100 | 2.33 | 76 | | |
| C | 75 | 11.84 | 13.64 | | | | | | GRANULAR QTZ PHYRIC (TUFF) MU | | | | | | | | | | | | | | | 24.69 | 27.74 | 3.05 | 2.99 | 98 | 2.64 | 87 | | |
| FO | 76 | | | | | | | | SER CHL SCH WITH TR. PY; ST. CAR | | | | | | | | | | | | | | | 27.74 | 30.78 | 3.04 | 3.05 | 100 | 2.83 | 93 | | |
| | | | | | | | | | 3-5%Mg; | | | | | | | | | | | | | | | 30.78 | 33.83 | 3.05 | 3.05 | 100 | 2.27 | 74 | | |
| | | | | | | | | | 12.94-13.64 | | | | | | | | | | | | | | | 33.83 | 36.88 | 3.05 | 3.05 | 100 | 2.58 | 85 | | |
| | | | | | | | | | MD GN GRITTY TUFF 1-2%Mg | | | | | | | | | | | | | | | 36.88 | 39.93 | 3.05 | 3.05 | 100 | 2.59 | 85 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 39.93 | 42.98 | 3.05 | 3.05 | 100 | 2.57 | 84 | | |
| C | 81 | 13.64 | 15.48 | | | | | | GY SPECKLED QTZ MU SER SCH | | | | | | | | | | | | | | | 42.98 | 46.02 | 3.04 | 3.05 | 100 | 2.82 | 93 | | |
| FO | 79 | | | | | | | | WITH NEEDLED BIOTITE HBL'S; TR. | | | | | | | | | | | | | | | 46.02 | 49.07 | 3.05 | 3.04 | 99.7 | 2.96 | 97 | | |
| | | | | | | | | | DISS. COARSE PY; 2-3%Mg; Weakly | | | | | | | | | | | | | | | 49.07 | 52.12 | 3.05 | 3.02 | 99 | 2.49 | 82 | | |
| | | | | | | | | | EPI ALT. | | | | | | | | | | | | | | | 52.12 | 55.17 | 3.05 | 3.05 | 100 | 2.84 | 93 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 55.17 | 58.22 | 3.05 | 3.05 | 100 | 2.90 | 95 | | |
| C | 79 | 15.48 | 16.22 | | | | | | GRANULAR QTZ PHYRIC (TUFF) MU | | | | | | | | | | | | | | | 58.22 | 61.27 | 3.05 | 3.05 | 100 | 2.68 | 88 | | |
| | | | | | | | | | CHL CAR SCH ; 1 % Mg; V.W. EPI ALT | | | | | | | | | | | | | | | 61.27 | 64.31 | 3.04 | 3.05 | 100 | 2.58 | 85 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 64.31 | 67.36 | 3.05 | 3.05 | 100 | 2.30 | 75 | | |
| C | 60 | 16.22 | 25.68 | | | | | | GY SPECKLED QTZ SER CHL SCH | | | | | | | | | | | | | | | 67.36 | 70.41 | 3.05 | 3.05 | 100 | 2.39 | 78 | | |
| | | | | | | | | | WITH OCC. LENSES OF GY QTZ; TR. | | | | | | | | | | | | | | | 70.41 | 73.46 | 3.05 | 2.82 | 92.5 | 1.97 | 65 | | |
| | | | | | | | | | DISS. PY; LATHES OF HBL AND CHL | | | | | | | | | | | | | | | 73.46 | 76.50 | 3.04 | 3.00 | 98.7 | 1.39 | 46 | | |
| | | | | | | | | | ; INTERVALS OF COARSE TUFF MU | | | | | | | | | | | | | | | 76.50 | 79.55 | 3.05 | 3.04 | 99.7 | 2.64 | 87 | | |
| | | | | | | | | | CHL QTZ CAR SCH 4-10 CM WIDE; | | | | | | | | | | | | | | | 79.55 | 82.60 | 3.05 | 3.05 | 100 | 2.83 | 93 | | |
| | | | | | | | | | RARE <1% FLECKS OF PY AND Mg | | | | | | | | | | | | | | | 82.60 | 85.64 | 3.04 | 3.05 | 100 | 1.61 | 53 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 85.64 | 88.69 | 3.05 | 2.74 | 89.8 | 1.44 | 47 | | |
| | | 25.68 | 28.78 | | | | | | MD GN THINNLY FO QTZ PHYRIC SER | | | | | | | | | | | | | | | 88.69 | 91.74 | 3.05 | 2.95 | 96.7 | 2.10 | 69 | | |
| | | | | | | | | | MU CHL SCH (TUFF); 2% INTERFO | | | | | | | | | | | | | | | 91.74 | 94.79 | 3.05 | 3.04 | 99.7 | 1.91 | 63 | | |
| | | | | | | | | | FLECKS OF PY; BANDS ARE OCC. DK | | | | | | | | | | | | | | | 94.79 | 97.83 | 3.04 | 3.00 | 98.7 | 2.79 | 92 | | |
| | | | | | | | | | GN (HYDRO. CHL?) NO Mg; MOD CAR; | | | | | | | | | | | | | | | 97.83 | 100.88 | 3.05 | 3.05 | 100 | 2.44 | 80 | | |
| | | | | | | | | | SHARP CONTACTS | | | | | | | | | | | | | | | 100.88 | 103.93 | 3.05 | 3.05 | 100 | 2.97 | 97 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 103.93 | 106.98 | 3.05 | 2.97 | 97.4 | 2.48 | 81 | | |
| FO | 77 | 28.78 | 30.85 | | | | | | CAR TUFF CHL QTZ SER SCH; | EPI | | Mg | | | | | | | | | | | | 106.98 | 110.03 | 3.05 | 3.03 | 99.3 | 2.53 | 83 | | |
| BD | 63 | | | | | | | | MD GN-LT GN SER CHL SCH WITH | | | | | | | | | | | | | | | 110.03 | 113.08 | 3.05 | 3.05 | 100 | 2.43 | 80 | | |
| C | 85 | | | | | | | | FOLIATED EPI ALT BANDS; MOD- | | | | | | | | | | | | | | | 113.08 | 116.12 | 3.04 | 3.01 | 99 | 2.61 | 86 | | |
| | | | | | | | | | WEAK BLEBS OF CAR ; OCC. DK GN | | | | | | | | | | | | | | | 116.12 | 119.17 | 3.05 | 3.04 | 99.7 | 2.61 | 86 | | |
| | | | | | | | | | HYDRO. CHL BANDS; 3-5% FLECKS | | | | | | | | | | | | | | | 119.17 | 122.22 | 3.05 | 3.01 | 98.7 | 2.96 | 97 | | |
| | | | | | | | | | OF Mg 1-2% INTERFO PY; OCC. | | | | | | | | | | | | | | | 122.22 | 125.27 | 3.05 | 3.05 | 100 | 2.77 | 91 | | |
| | | | | | | | | | LENSES OF QTZ | | | | | | | | | | | | | | | 125.27 | 128.32 | 3.05 | 3.05 | 100 | 2.38 | 78 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 128.32 | 131.37 | 3.05 | 3.02 | 99 | 1.94 | 64 | | |
| | | 30.85 | 32.00 | | | | | | GY FLOW BANDED CREAM | EPI | | | | | | | | | | | | | | 131.37 | 134.42 | 3.05 | 3.03 | 99.3 | 2.67 | 88 | | |
| | | | | | | | | | COLOURED RHY; FINE SILICA | | | | | | | | | | | | | | | 134.42 | 137.46 | 3.04 | 2.99 | 98.4 | 2.70 | 89 | | |
| | | | | | | | | | BE GNEISS; CHL ALT PHENOS WITH | | | | | | | | | | | | | | | 137.46 | 140.51 | 3.05 | 3.05 | 100 | 2.35 | 77 | | |
| | | | | | | | | | CLOTS + LA WITH TR. PY AND CLOTS | | | | | | | | | | | | | | | 140.51 | 143.56 | 3.05 | 3.03 | 99.3 | 2.29 | 75 | | |
| | | | | | | | | | OF CAR | | | | | | | | | | | | | | | 143.56 | 146.60 | 3.04 | 3.05 | 100 | 2.27 | 75 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 146.60 | 149.65 | 3.05 | 3.05 | 100 | 1.59 | 52 | | |
| C | 78 | 32.00 | 34.57 | | | | | | COARSE GRANULAR CHL MU QTZ | EPI | | Mg | | | | | | | | | | | | 149.65 | 152.70 | 3.05 | 3.05 | 100 | 1.77 | 58 | | |
| FO | 82 | | | | | | | | PHYRIC SCH WITH W.CAR AND WEAK | | | | | | | | | | | | | | | 152.70 | 155.75 | 3.05 | 3.03 | 99.3 | 1.13 | 37 | | |
| | | | | | | | | | DISS. Mg AND TR. PY | | | | | | | | | | | | | | | 155.75 | 158.80 | 3.05 | 3.03 | 99.3 | 1.96 | 64 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 158.80 | 161.85 | 3.05 | 2.93 | 96.1 | 2.04 | 67 | | |
| FO | 82 | 34.57 | 37.42 | | | | | | PALE GREEN CREAM EPI COLOURED | EPI | | PY | | | | | | | | | | | | 161.85 | 164.80 | 2.95 | 2.94 | 99.7 | 1.41 | 48 | | |
| | | | | | | | | | APHANITIC QTZ SER CHL RHY WITH | | | | | | | | | | | | | | | 164.80 | 167.94 | 3.14 | 3.04 | 96.8 | 1.79 | 57 | | |
| | | | | | | | | | LATHS OF CHL + FLOW BANDED | | | | | | | | | | | | | | | 167.94 | 170.99 | 3.05 | 2.93 | 96.1 | 1.82 | 60 | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | CLOTS OF EPI ALT | | | | | | | | | | | | | | | 170.99 | 174.04 | 3.05 | 3.05 | 100 | 1.81 | 59 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 174.04 | 177.08 | 3.04 | 3.04 | 100 | 1.56 | 51 | | |
| | | 37.42 | 38.00 | | | | | | SPECKLED QTZ CHL MU SCH WITH | | | | | | | | | | | | | | | 177.08 | 180.13 | 3.05 | 3.05 | 100 | 2.11 | 69 | | |
| FO | 83 | | | | | | | | CLOTS OF PALE YELLOW GN EPI ALT.; | | | | | | | | | | | | | | | 180.13 | 183.18 | 3.05 | 3.00 | 98.4 | 2.07 | 68 | | |
| | | | | | | | | | WEALKLY MAG. | | | | | | | | | | | | | | | 183.18 | 186.23 | 3.05 | 3.01 | 98.7 | 2.75 | 90 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 186.23 | 189.28 | 3.05 | 3.05 | 100 | 0.89 | 29 | | |
| | | 38.00 | 38.80 | | | | | | ANDESITE; ST. CAR; NO Mg | | | | | | | | | | | | | | | 189.28 | 192.32 | 3.04 | 3.05 | 100 | 1.38 | 45 | | |
| | | 38.80 | 41.63 | | | | | | SPECKLED GY-YELOW SER CHL QTZ SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH STREAKS + CLOTS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NON MAGNETIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 40.70-41.63 G004001 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 41.63 | 42.50 | | | | | | DARK GN FINE GRAINED QTZ PHYRIC | | | | | | 40.70 | 41.65 | | G004001 | <0.005 | <0.2 | 9 | 3 | 8 | | | | | | | | | |
| | | | | | | | | | CHL SCH WITH DISS. PY+CP AND MA | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDED PO; 5% PY OVER INTERVAL | | | | | | 41.63 | 42.50 | | G004002 | 0.008 | 2 | 2490 | <20 | 20 | | | | | | | | | |
| | | | | | | | | | OCCURING AS COARSE GRAINED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED BANDS 1-2 CM WIDE; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 2 % OCCURING AS IRREGULAR LAMELLAE; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PO + CP SYNGENETIC; PY POSTGENETIC; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NOSE FOLD @ 42.00 WITH RINGS OF PO; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | STRONGLY MAGNETIC WITH BANDS OF MG AND FLECKS OF MG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 41.63-42.50 G004003 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 42.50 | 46.51 | | | | | | MEDIUM GN SPECKLED QTZ CHL SER MU | | | | | | 42.50 | 44.08 | | G004003 | 0.005 | <0.2 | 88 | 7 | 65 | | | | | | | | | |
| | | | | | | | | | SCH WITH TRACE FLECKS OF PY; EPI ALT | | | | | | 44.08 | 45.28 | | G004004 | <0.005 | <0.2 | 40 | 3 | 69 | | | | | | | | | |
| | | | | | | | | | OCCURING ALONG FOLIATIONS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERFOLIATED SER + BANDS OF CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | 45.28 | 46.51 | | | | | | VERY FINE GRAINED MEDIUM GN MA | | | | | | 45.28 | 46.52 | | G004005 | <0.005 | <0.2 | 63 | 4 | 59 | | | | | | | | | |
| | | | | | | | | | WEAKLY CAR AND WITH WEAK FLECKS OF PY; NO MG; MOD. CAR OCURING IN BL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND BANDS.; UNIT GRADES INTO GRITTY VOLCANICLASTIC QTZ PHYRIC CHL MU SCH. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 46.52 | 46.96 | | | | | | SPECKLED QTZ SER CHL SCH; MOD. EPI ALT | | | | | | 46.52 | 47.00 | | G004006 | 0.01 | <0.2 | 241 | 7 | 27 | | | | | | | | | |
| | | | | | | | | | 46.51-46.75 | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | DARK GN HYDROTHEMAL CHL QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PHYRIC SCH; MOD. CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 4.52-47.00 G004006 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 46.96 | 48.20 | | | | | | MXSX; MA MG + SMA PO WITH 15% PY | | | | | | 47.00 | 48.20 | | G004007 | 0.006 | 1 | 1620 | <20 | <20 | | | | | | | | | | |
| | | | | | | | | | AND LESSER CP HOSTED IN A | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HYDROTHERMAL CHL SCH; SCH IS DARK | | | | | | BLANK | | | G004008 | <0.005 | <1 | <10 | <20 | <20 | | | | | | | | | | |
| | | | | | | | | | GN TO BLACK; MG OCURS AS BANDED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MASSES FLECKS; PO | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 47.00-48.20 G004007 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BLANK G004008 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED PALE GN TO MD GN NON | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 48.20 | 49.50 | | | | | | MAG. | | | | | | 48.20 | 49.32 | | G004009 | <0.005 | <0.2 | 11 | <2 | 18 | | | | | | | | | | |
| | | | | | | | | | EPI ALT QTZ SER MU SCH; EPI OCCURS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | IN CLOTS AND WISPS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 48.20-49.32 G004009 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 49.50 | 51.26 | | | | | | GRITTY QT PHYRI CHL MU SCH WITH EPI | | | | | | 49.32 | 50.20 | | G004010 | <0.005 | <0.2 | 53 | 2 | 34 | | | | | | | | | | |
| | | | | | | | | | ALT CLOTS AND WISPS; NON CAR | | | | | | 50.20 | 51.53 | | G004011 | 0.015 | <0.2 | 114 | 5 | 39 | | | | | | | | | | |
| | | | | | | | | | SAMPLE 49.32-50.20 G004010 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 51.26 | 52.22 | | | | | | GRITTY QTZ PYRIC CHL MU SCH | | | | | | 51.53 | 52.00 | | G004012 | 0.057 | 0.6 | 920 | 4 | 33 | | | | | | | | | | |
| | | | | | | | | | FLOODED WITH BANDS OF GY RHY QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND WISPS AND BANDS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SEDS; | | | | | | 52.00 | 52.52 | | G004013 | | | | | | | | | | | | | | | |
| | | | | | | | | | MOST INTENSE EPI OCCURS JUST | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BEFORE A SHORT INTERVAL OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HYDROTHERMAL CHL AT SCH; MOD. | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS OF CAR AND OCC. WISPS AND | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | THIN BANDS OF COARSE PY OCCURING | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AS FR. INFILL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 50.20-51.28 G004011 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 51.08-52.00 G004012 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 52.22 | 52.42 | | | | | | DKGN-BLK HYDROTHERMAL CHL ALT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH WITH 3 % CP +2% MG | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SAMPLE 52.0-5252 G004013 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 52.42 | 54.94 | | | | | | Speckled QTZ SER MU CHL SCH | | | | | | 52.52 | 53.20 | | G004014 | | | | | | | | | | | | | | | |
| | | | | | | | | | with MOD. clots and wisps of EPI alt seds; | | | | | | 53.20 | 54.94 | | G004015 | <0.005 | <0.2 | 5 | 3 | 21 | | | | | | | | | | |
| | | | | | | | | | occ.bands of CAR; run incl. 22cm of DK | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GN barren Hydrothermal CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 54.94 | 55.41 | | | | | | DK GN Hydrothermal CHL SCH, | | | | | | 54.94 | 56.00 | | G004016 | 0.008 | <0.2 | 144 | 6 | 82 | | | | | | | | | | |
| | | | | | | | | | thinnly FO with 2 bands 0.5cm wide with coarse | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | grains of PY + BL of Mg; Unit grades into | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL MU QTZ phyric SCH with EPI alt | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | augens; min. 3-5% Py and lesser CP | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 55.41 | 57.37 | | | | | | Speckeld QTZ CHL MU SCH with streaks + | | | | | | 56.00 | 57.22 | | G004017 | <0.005 | <0.2 | 36 | 5 | 79 | | | | | | | | | | |
| | | | | | | | | | patches of EPI alt. seds + tr Diss. | | | | | | 57.22 | 57.96 | | G004018 | 0.006 | <0.2 | 123 | 3 | 37 | | | | | | | | | | |
| | | | | | | | | | PY; occ.bands of xcutting CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 57.37 | 58.63 | | | | | | DK GN Hydrothermal CHL alt QTZ phyric | | | | | | 57.96 | 58.62 | | G004019 | <0.005 | <0.2 | 80 | 4 | 32 | | | | | | | | | | |
| | | | | | | | | | CAR MU SCH; ST. CAR with BL+steaks of | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI alt seds occ. rare patches of Diss. CP +PY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 57.37-57.53 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Barren DK GN CHL SCH FW contact occurs | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | as distinct graphitic band | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 57.53-58.63 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 5% Min. with BLs of coarse PY and patches | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | of Mg occuring as flecks between | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | foliations SCh is intermixed with DK GN | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Hydrothermal CHL + BLs of weak CHL | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | alt seds; Min. is intermittent; unit is weakly CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 58.63 | 59.41 | | | | | | ANDESITE | | | | | | 58.62 | 59.36 | | G004020 | 0.011 | <0.2 | 81 | 7 | 49 | | | | | | | | | | |
| | | 59.41 | 60.33 | | | | | | Speckled GY QTZ SER CHL SCH with Diss. | | | | | | 59.36 | 60.33 | | G004021 | <0.005 | <0.2 | 13 | 4 | 26 | | | | | | | | | | |
| | | | | | | | | | PY and patches of brown purple alt | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HEM? Unit has a gritty appearance | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 60.33 | 61.51 | | | | | | Coarse granular MD. GN QTZ phyric CHL | | | | | | 60.33 | 60.87 | | G004022 | 0.039 | 0.6 | 536 | 13 | 100 | | | | | | | | | | |
| | | | | | | | | | MU SCH with Mod. bands of CAR | | | | | | 60.87 | 61.51 | | G004023 | 0.012 | <0.2 | 5 | 6 | 84 | | | | | | | | | | |
| | | | | | | | | | 60.49-60.69 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DK GN Hydrothermal CHL alt SCH hosting | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Ma Py; Mod.-ST MAG. with fair coarse Mg | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 61.51 | 62.30 | | | | | | Barren CHL CAR SCH with thin bands of CAR | | | | | | 61.51 | 62.29 | | G004024 | 0.005 | <0.2 | 28 | 6 | 65 | | | | | | | | | | |
| | | | | | | | | | and trace 1% Mg, weakly MAG in areas ; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ANDESITE? | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 62.30 | 68.04 | | | | | | Speckled EPI alt QTZ SER SCH with occ. | | | | | | 62.29 | 63.35 | | G004025 | 0.011 | <0.2 | 1 | 3 | 19 | | | | | | | | | | |
| | | | | | | | | | patches of HEM alt; Weakly CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 77 | 71.65 | 72.49 | | F.VOL | SCQ SCH | | | GY GN SER CHL QTZ SCH | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| F | 78 | | | | | | | | WITH BLEACHED WH INTER F0 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ-FLD PHYRES; ST. CAR; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR DISS HEM ALONG F0; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT CLOTS TOWARDS CONTACT | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 72.49 | 76.45 | | SED | QSC SCH | | | QTZSER CHL SCH WEAKLY | | EPI | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT WITH STRONG CAR.; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MD GN SPECKLED; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 74.27-74.67 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | F.G MD GN FOLIATED AND | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | 76 | | | | | | | | WITH STREAKS + CLOTS OF | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT; STRONG CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 76.45 | 77.42 | | M.VOL | AND | | | MD GN F.G FOL AND WITH MOD. | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTS AND STREAKS OF EDI ALT; | | | | | | | | | | | | | | | | | | | | | | | | | |
| F | 75 | | | | | | | | NOSE FOLD OF EPI ALT HOSTING BL | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF MUSC + TRACE DISS PY AND COARSE | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY ALONG BOUNDARIES @ 77.35M | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 77.42 | 83.00 | | SED | QCSCH | | | QTZ CHL SCH WITH STREAKS AND | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTS OF EPI AND TR HEM.; UNIT IS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MIXED BTWN SED QSC SCH + AND; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HAS MILD SPECKLED APPEARANCE ; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD- WEAK CAR; QTZ IS GREY; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED YELLOW TUFF THROUGHOUT | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 83.08 | 84.20 | | M.VOL | AND | | | MD GN F.G WITH STREAKS + CLOTS OF | | EPI | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 77 | | | | | | | | EPI ALT; V. THINLY FOLIATED WITH BL OF | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ASSOC WITH TR LENSES OF GY QTZ; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD. CAR; CONTACT SHARP | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 76 | 84.20 | 93.90 | | | QCS SCH | | | SPECKLED GY GN QTZ CHL SCH; MOD. | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | STREAKS + CLOTS OF EPI; WEAK PURPLE | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 78 | | | | | | | | HEM ALONG FR + ON F0 SURFACES | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD CAR + WEAK YELLOW FLECKS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | (TUFF?); CONTACTS SHARP INCRE SER | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACT SHARP INCR SER TOWARDS FW | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | | | | | RHY | | | 86.24-86.74 | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 78 | | | | | | | | RHY QTZ CHL SCH WITH PHYRIC QTZ | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING WITHIN CLOTS OF CHL ALT; | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 73 | | | | | | | | WEAK CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | AND | | | 87.96-88.38 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND; MOD CAR WITH CLOTS OF EPI | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | | | | | QSC SCH | | | 91.43-91.47 | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
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| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| F0 | 78 | | | | | | | | LT PALE GN WEAKLY SPECKLED WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HBI? CHL OCCURING ALONG F0 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS WEAKLY SPECKLED | | | | | | | | | | | | | | | | | | | | | | |
| C | 73 | 93.90 | 95.45 | | VOL | QSM SCH | | | GY BANDED SER MU Q SCH; GHOSTED | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | | QTZ PHYRES AND BANDS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF DK GN CHL; ALT IS MINI MAC | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RARE COARSE PY; QTZ IS GREY | | | | | | | | | | | | | | | | | | | | | | |
| C | 84 | 95.45 | 96.54 | | M.VOL | AND | | | GN GRANULAR F.G AND; WITH | | EPI | PY | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD BANDS + CLOTS OF EPI; MOD. CAR | | | | | | | | | | | | | | | | | | | | | | |
| | | 96.54 | 101.28 | | VOL | | | | GY BANDED QTZ SM SCH; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QUATRZ PHYRES OCCURING WITHIN | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MATRIX AND W- MOD BANDS OF | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL; QTZ IS GY AND IS STREAKED | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH EPI; TR DISS PY; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 4 CM THINK BAND OF BULL WH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ @ 97.84 WITH OCC. STREAKS OF EPI | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 99.69-100.19 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | M.VOL | AND | | | GRANULAR GN EPI CLOTTED | | EPI | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND; SHARP CONTACT; W. LENSES | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF GY QUARTZ; W. CAR | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 101.28 | 106.66 | | SED | QCS SCH | | | SPECKLED GN F0 QTZ CHI SER SCH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLES APEAR TO BE BIOTITE | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND HBL'S; V. WEAK CAR; MOD | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | STREAKS + CLOTS OF EPI ALT; TR DISS PY | | | | | | | | | | | | | | | | | | | | | | |
| C | 78 | | | | | | | | 102.87-103.47 | | EPI | PY | MG | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR MG, PY AND DYKE WITH FOLD NOSE | | | | | | | | | | | | | | | | | | | | | | |
| C | 74 | | | | | | | | 105.00-105.34 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY AND PINK QTZ SER MU SCH WITH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS OF HEM ALT + QTZ FLD PHYRES | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 106.66 | 109.45 | | VOL CI | QCS SCH | | | THINNLY LA QUARTZ PHYRIC MD-DK GN | | | PY | CP | | | | | | | | | | | | | | | | | | |
| LA | 85 | | | | | | | | MD GN QUARTZ CHL MU SER SCH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH TR DISS. FLECKS OF PY AND CP | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | AND | | | 107.58-107.88 | | | | | | | | | | | | | | | | | | | | | | |
| LA | 84 | | | | | | | | GRANULAR F.G AND DYKE; MOD CAR | | EPI | PY | MG | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH CLOTS OF EPI ALT TR PY | | | | | | | | | | | | | | | | | | | | | | |
| C | 86 | | | | | AND | | | 108.45-108.75 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | V. FINE GRAINED CAR AND ; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | V. WEAKLY CAR; TR. FLECKS PY | | | | | | | | | | | | | | | | | | | | | | |
| C | 78 | 109.45 | 112.70 | | F.VOL | RHY | | | DK GY QUARTZ RHY WITH LA OF CHL AND | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | SER HOSTING TR MG AND WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| BNI | 85 | | | | | | | | FLECKS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF PY ALONG CHL SEAMS; TR DISS CP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WEAK CAR ALONG CHL SEAMS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 112.70 | 113.00 | | | SCQ SCH | | | SER CHL QUARTZ SCH WITH WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY ALONG F0 SURFACES | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 113.00 | 114.04 | | | AND | | | MD GN CARAND MOD MAG. | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 80 | | | | | | | | AND; CHL IS V. DK GN AND | | EPI | | MG | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTTED WITH PATCHES OF EPI | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 113.28-113.58 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY GN QTZ SER SCH; ST CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH TR PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MAG DROPS OFF TOWARDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW STRONGEST IN HW | | | | | | | | | | | | | | | | | | | | | | | |
| C | 82 | 114.84 | 116.22 | | SED | QSC SCH | | | SPECKLED QUARTZ SER CHL SCH; | | EPI | | | | | | | | | | | | | | | | | | | | | |
| F0 | 80 | | | | | | | | MOD EPI ALT; V THINNLY LA | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND SPECKLED; PALE YELLOW GN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH TR DISS PY ALONG LA | | | | | | | | | | | | | | | | | | | | | | | |
| | | 116.22 | 117.78 | | | AND | | | CAR GN AND; W-MOD MAG. | | EPI | | MG | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH CLOTS + STREAKS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI; TR DISS PY OCCURING IN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS AT FW CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| LA | 85 | 117.78 | 118.96 | | | QCS SCH | | | QTZ PHYRIC THINNLY LA QCS SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH PATCHES OF EPI AND CLOTS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING AS AUGENS BTWN LA; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DISS TR PY OCCURING ALONG LA | | | | | | | | | | | | | | | | | | | | | | | |
| | | 118.96 | 122.38 | | SED | | | | SPECKLED PALE GN QTZ SER | | | | | | | | | | | | | | | | | | | | | | | |
| LA | 75 | | | | | | | | CHL SCH; EPI ALT OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AS MINOR CLOTS AND BL ALONG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LA; MINOR QTZ BANDING TOWARDS FN; | | | | | | | | | | | | | | | | | | | | | | | |
| | | 122.38 | 123.54 | | VOL | QCS SCH | | | THINNLY LA QUARTZ PHYRIC | | EPI | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SER MU SCH; MD GN WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MINOR CLOTS OF EPI AND TR PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 122.42-122.67 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MG AND DYKE; MG OCCURS AS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS ST CAR. | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 123.54 | 129.87 | | | QCMS SCH | | | GY THINNLY LA QTZ PHYRIC SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC. HEM ALT LA; STRONG-MOD CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH OCC BL OF PY OCCURING WITHIN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR BANDS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 126.50-126.92 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY RHY QTZ WITH F0 QTZ | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
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| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | SEAMS BECOME BANDED WITHIN SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 126.92 | 129.87 | | | QCS SCH | | | SPECKLED WH YELLOW QCS SCH WITH | | EPI | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RARE STREAKS OF EPI; EPI OCCURS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALONG SEAMS AND AS AUGENED CLOTS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 78 | 129.87 | 140.77 | | | CSQ SCH | | | GN THINNLY LA. CHL SER QTZ | | | | | | 135.55 | 136.76 | | G004031 | <0.005 | <1 | 10 | <20 | 40 | | | | | | | | | |
| | | | | | | | | | PHYRIC SCH; VERY SOFT; UNIT | | | | | | 136.76 | 137.64 | | G004032 | <0.005 | <1 | 10 | <20 | 50 | | | | | | | | | |
| | | | | | | | | | REACTS ST. TO ACID; UNIT | | | | | | 137.64 | 138.45 | | G004033 | 0.005 | <1 | 20 | <20 | 60 | | | | | | | | | |
| | | | | | | | | | HOSTS SHORT RUNS OF DARK | | | | | | 138.45 | 139.21 | | G004034 | <0.005 | <1 | 10 | <20 | 40 | | | | | | | | | |
| | | | | | | | | | GN DK GN CHL SCH HOSTING | | | | | | 139.21 | 139.65 | | G004035 | 0.02 | <1 | 170 | 20 | 50 | | | | | | | | | |
| | | | | | | | | | BANDS OF COARSE PY AND TR | | | | | | 139.65 | 140.55 | | G004036 | 0.005 | <1 | 40 | <20 | 50 | | | | | | | | | |
| | | | | | | | | | MG; ST CAR | | | | | | 140.55 | 142.05 | | G004037 | <0.005 | <1 | 10 | <20 | <20 | | | | | | | | | |
| | | | | | | | | | 133.30-133.82 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 78 | | | | | | | | SPECKLED QCS SCH EPI ALT | | EPI | | | | | | | | | | | | | | | | | | | | | |
| | | 140.77 | 142.11 | | | QCS SCH | | | SPECKLED STEPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALMOST NEON GREEN | | | | | | | | | | | | | | | | | | | | | | | |
| | | 142.11 | 144.14 | | | | | | DK GN - BLK HYDRO CHL ALT V.F.G | | | | | | 142.05 | 143.08 | | G004038 | 0.037 | 1 | 370 | <20 | 100 | | | | | | | | | |
| | | | | | | | | | CHL SCH; ST DISS PY OCCURING | | | | | | 143.08 | 143.62 | | G004039 | <0.005 | <1 | 20 | <20 | 30 | | | | | | | | | |
| | | | | | | | | | IN COARSE MASSES ALONG | | | | | | 143.62 | 144.15 | | G004040 | <0.005 | <1 | 10 | <20 | 40 | | | | | | | | | |
| | | | | | | | | | F0 PLANE; 15% Sx | | | | | | 144.15 | 144.76 | | G004041 | <0.005 | <1 | 90 | <20 | 40 | | | | | | | | | |
| | | 144.14 | 145.06 | | | | | | DK GN SIL CHL SER SCH WITH | | | | | | 144.76 | 146.50 | | G004042 | <0.005 | <1 | 50 | <20 | 30 | | | | | | | | | |
| | | | | | | | | | MOD CAR AND AUGENED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT CLOTS ALONG F0 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 145.06 | 146.16 | | | | | | GN GY SPECKLED FINELY LA QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER SCH WITH TRACE FLECKS OF PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | 146.16 | 154.73 | | | | | | F.G QTZ PHYRIC CHL SER SCH; | | | | | | 146.50 | 147.21 | | G004026 | 0.005 | 1 | 100 | <20 | 40 | | | | | | | | | |
| | | | | | | | | | MOD GY QTZ BANDING AND WH QTZ-FLD | | | | | | 151.63 | 151.71 | | G004027 | <0.005 | <1 | 10 | <20 | <20 | | | | | | | | | |
| | | | | | | | | | PHYRES | | | | | | 151.71 | 152.96 | | G004028 | <0.005 | 1 | 30 | <20 | 50 | | | | | | | | | |
| | | | | | | RHY | | | **147.33-147.73; 148.31-149.66** | | | | | | 153.23 | 154.44 | | G004029 | <0.005 | 1 | 10 | <20 | 40 | | | | | | | | | |
| | | | | | | | | | **GY QTZ SER SCH WITH SPECKLED** | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | **CHL ALT CLOTS RHY?** | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT HOST TR DISS PY IN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS + COARSE GRAINS | | | | | | | | | | | | | | | | | | | | | | | |
| | | 154.73 | 155.95 | | | | | | SPECKLED PALE GN QTZ SER CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH WITH BANDS AND AUGEN SCF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT CLASS AND WEAK INTER F0 PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT CHL BECOMES DAR NEAR GN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TOWARDS FW | | | | | | | | | | | | | | | | | | | | | | | |
| | | 155.95 | 163.08 | | | V.CLAST | | | QTZ PHYRIC GRANULAR; QTZ CHL | | | | | | 155.90 | 158.75 | | G004030 | 0.009 | <1 | 180 | <20 | 70 | | | | | | | | | |
| | | | | | | | | | SER SCH; MOD CAR; F0 BANDS | | | | | | 158.75 | 160.70 | | G004043 | <0.005 | <1 | 30 | 20 | 60 | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | OF EPI ALT SEDS WITHIN SEQUENCE AND | | | | | | 160.70 | 163.06 | | G004044 | <0.005 | <1 | 10 | <20 | 30 | | | | | | | | | | |
| | | | | | | | | | HOMOCLINDE FOLDS; CONTACT GRAD; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WEAK DISS COARSE PY; UNIT IS WEAKLY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MAG; TR FLECKS OF MG ASSOC WITH MA | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF PY AND ALONG FR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 162.46-162.51 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MA PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 158.80-161.55 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT BECOMES INTER F0 WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LENSES AND CLOTS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ LENSES ARE GY + GLASSY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 163.08 | 166.39 | | | | | | SPECKLED PALE GN EPI ALT QTZ | | | | | | 163.06 | 164.15 | | G004045 | <0.005 | <1 | 20 | <20 | 40 | | | | | | | | | | |
| F0 | 85 | | | | | | | | SER CHC SCH; TR PY; GRAD CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 82 | 166.39 | 169.24 | | | | | | QTZ PHYRIC GRANULAR QTZ | | | | PY | | 166.30 | 167.46 | | G004046 | 0.012 | <1 | 230 | <20 | 60 | | | | | | | | | | |
| | | | | | | | | | CHL SER SCH; W-F | | | | | | 167.46 | 167.94 | | G004047 | <0.005 | <1 | 40 | <20 | 100 | | | | | | | | | | |
| | | | | | | | | | DISS PY ALONG F0; PY | | | | | | 167.94 | 169.02 | | G004048 | <0.005 | <1 | 20 | <20 | 70 | | | | | | | | | | |
| | | | | | | | | | OCCURING ALONG F0 + WEAKLY ASSOC WITH MG; WEAK CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 169.24 | 172.69 | | | | | | WEAKLY EPI ALT SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ SER CHL SCH WITH HEM ON TR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SURFACES PALE GN MOD CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 170.99-171.29 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SOLID WH QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW CONTACT SHARP + WITH HEM | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 172.69 | 186.74 | | | | | | PYRITIC QUARTZ PHYRIC QTZ | | | | | | 172.70 | 174.04 | | G004049 | 0.008 | <1 | 100 | <20 | 90 | | | | | | | | | | |
| F0 | 82 | | | | | | | | CHL SER SCH WITH ST CAR. | | | | | | 174.04 | 174.82 | | G004050 | <0.005 | 1 | 50 | <20 | 40 | | | | | | | | | | |
| | | | | | | | | | 175.00-177.78 | | | | | | BLANK | | | G004051 | <0.005 | <1 | 20 | <20 | 20 | | | | | | | | | | |
| C | 55 | | | | | | | | SCH BECOMES INTER F0 WITH | | | | | | 174.82 | 177.72 | | G004052 | 0.007 | <1 | 70 | <20 | 60 | | | | | | | | | | |
| F0 | 56 | | | | | | | | SER LA CHL SCH CHL BECOMES | | | | | | 177.72 | 180.14 | | G004053 | 0.007 | <1 | 60 | 40 | 90 | | | | | | | | | | |
| | | | | | | | | | NEEDLED LITTLE TC ING PY | | | | | | 180.14 | 180.82 | | G004054 | 0.005 | <1 | 90 | <20 | 90 | | | | | | | | | | |
| | | | | | | | | | BETWEEN LA; | | | | | | 180.82 | 182.93 | | G004055 | 0.006 | <1 | 70 | 40 | 90 | | | | | | | | | | |
| | | | | | | | | | APPENDUM 180.36 | | | | | | 182.93 | 185.88 | | G004056 | 0.006 | <1 | 20 | 30 | 70 | | | | | | | | | | |
| | | | | | | | | | UNIT INTERSECTS FOLD NOSE | | | | | | 185.88 | 187.07 | | G004057 | <0.005 | <1 | <10 | <20 | 50 | | | | | | | | | | |
| | | | | | | | | | LA NEAR HORIZ LA SHALLOW TO 15 DEG. | | | | | | 187.07 | 190.08 | | G004151 | <0.005 | <1 | 10 | <20 | 30 | | | | | | | | | | |
| | | | | | | | | | TO 180.58; F0 ARE KINK BANDED TILE CONTACT SHARP | | | | | | 190.08 | 192.32 | | G004152 | 0.005 | <1 | <10 | <20 | <20 | | | | | | | | | | |
| C | 85 | 186.74 | 192.32 | | | | | | LA GY GN QTZ SER MU | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH WITH WAVY LA + CLOTS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL; GRADES INTO FINER | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTS OF CHL; W-TR DISS PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING ON FO; WEAK CAR; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ IS WH + MILKY GIVES | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT A RHY TEXTURAL | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-05

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | FEEL | | | | | | | | | | | | | | | | | | | | | | | |
| | | EOH 192.32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-06

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 662220 | 6663935 | 1287 | 218.54 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS 300

Core size: BTW
Casing depth: 6.10 (m) OUT

Drilling dates: June 12 - June 17, 2008

Logged by: M.NUNEZ

Target: TEST EASTERN EXTENTION OF DISCOVERY HORIZON

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 60 | BRUNTON | | | | |
| | | | | | | | |
| 218.54 | 355 | 58.5 | ACID | | | | |
| | | | | | | | |

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004061-G004115
G004153
Total: 56
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-06

| LITHOLOGY | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 12.67 | 12.67 | | AND | | MDGN CHL MU CAR SCH (AND) | | | | | | | | | | | | | | | 0.00 | 6.40 | 6.40 | 1.33 | 20.8 | 0.36 | 5.63 | | |
| F0 | 50 | | | | | | | BANDS OF CAR ; UNIT GRADES INTO | | | | | | | | | | | | | | | 6.40 | 9.45 | | 2.41 | | 0.79 | | | |
| F0 | 60 | | | | | | | SPECKLED ORE CHL MU SCH | | | | | | | | | | | | | | | 9.45 | 12.49 | | 2.98 | | 1.42 | | | |
| | | 12.67 | 13.60 | 0.93 | | QCM | | SPECKLED QTZ CHL MU SCH ; | | | | | | | | | | | | | | | 12.49 | 15.54 | | 2.94 | | 1.21 | | | |
| F0 | 60 | | | | | | | RARE TR DISS. ROTTED PY; ST. CAR | | | | | | | | | | | | | | | 15.54 | 18.59 | | 2.84 | | 0.22 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 18.59 | 21.64 | | 2.00 | | 0.77 | | | |
| C | 55 | 13.60 | 31.73 | 18.13 | | AND | | Dk GN AND SPECKLED WITH YELLOW | | | | | | | | | | | | | | | 15.54 | 18.59 | | 2.84 | | 0.22 | | | |
| | | | | | | | | (TUFF?) FLECKS; ST. CAR V.F.G | | | | | | | | | | | | | | | 18.59 | 21.64 | | 2.00 | | 0.77 | | | |
| | | | | | | | | 27.46-27.56 | | | | | | | | | | | | | | | 21.64 | 24.69 | | 2.95 | | 2.42 | | | |
| | | | | | | | | SPECKLED GNE QTZ CHL MU | | | | | | | | | | | | | | | 24.69 | 27.74 | | 3.10 | | 1.52 | | | |
| | | | | | | | | SCH | | | | | | | | | | | | | | | 27.74 | 30.78 | | 3.03 | | 2.66 | | | |
| C | | | | | | | | 18.86-1949 | | | | | | | | | | | | | | | 30.78 | 33.83 | | 3.03 | | 2.88 | | | |
| | | | | | | | | RUSTY + CL ALT QTZ CAR FR. ZONE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | HW CONTACT OBSCURED; FW GRADES | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | APPROX 80% INTO QCM SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 31.73 | 37.90 | 6.17 | | QCM | | GY+BLK+WH SPECKLED QTZ CHL MU | | | | | | | | | | | | | | | 33.83 | 36.88 | | 3.01 | | 2.45 | | | |
| | | | | | | | | SCH; MOD. MAG. WITH TR. DISS | | | | | | | | | | | | | | | 36.88 | 39.93 | | 3.00 | | 1.57 | | | |
| | | | | | | | | PY + WEAK ST. DISS FLECKS OF Mg; | | | | | | | | | | | | | | | 39.93 | 42.78 | | 3.04 | | 1.95 | | | |
| | | | | | | | | WEAKLY EPI ALT FD'S ; QTZ GY+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SUC. WEAK EPI; ALMOST PORPH? IN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | APPEARANCE; OCC. FLECKS + BANDS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | HEM; GRAD CONTACT @ FW | | | | | | | | | | | | | | | | | | | | | | | |
| | | 39.90 | 41.08 | 1.18 | | AND | | MOD. YELLOW FLECKS; ST. CAR; | | | | | | | | | | | | | | | 39.93 | 42.78 | | 3.04 | | 1.95 | | | |
| | | | | | | | | CHL MU SCH | | | | | | | | | | | | | | | 42.78 | 46.02 | | 3.02 | | 1.86 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 46.02 | 49.07 | | 3.04 | | 2.55 | | | |
| C | 85 | 41.08 | 42.08 | 1.00 | | SED | | GY CHL CLOTED QTZ CHL MU | | | | | | | | | | | | | | | 49.07 | 52.12 | | 3.00 | | 2.55 | | | |
| F0 | 74 | | | | | | | SCH; TR DISS PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | 42.08 | 51.00 | 8.92 | | AND | | WEAK CAR. MD, GN AND WITH CLOTS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | AND FLECKS OF EPI ALT; OCC, | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FR, ALONG CORE AXIS W. QTZ + FAIR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CAR; TR. FLECKS OF PO AND | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | YELLOW TUFF FLECKS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 47.38 49.26 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GN QTZ MU CHL SCH SPECKLED WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ CHL FR. ALONG C/A; TR PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 51.00 | 52.78 | 1.78 | | QCM | | MOD PYRITIC GN QTZ MU CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITH CLOTS OF NEON EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | W. CAR ALONG FR. | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 52.78 | 54.11 | 1.33 | | AND | | WEAKLY PYRITIC; WEAK CAR; | | | | | | | | | | | | | | | 52.12 | 55.17 | | 3.05 | | 2.57 | | | |
| | | | | | | | | V.F.G; MOD YELLOW TUFF. FLECKS | | | | | | | | | | | | | | | 55.17 | 58.22 | | 3.03 | | 2.10 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 58.22 | 61.26 | | 3.05 | | 1.61 | | | |
| C | 70 | 54.11 | 55.77 | 1.66 | | QCM | | QTZ SER MU CHL SCH; WEAKLY | | | | | | | | | | | | | | | 61.26 | 64.31 | | 3.01 | | 2.09 | | | |
| | | | | | | | | SPECKLED; FAIR EPI ALT CLOTS | | | | | | | | | | | | | | | 64.31 | 67.36 | | 3.14 | | 1.81 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 67.36 | 70.41 | | 3.01 | | 1.65 | | | |
| C | 70 | 55.77 | 60.12 | 4.35 | | AND | | MD GN W. CAR; UNIT BECOMES | | | | | | | | | | | | | | | 70.41 | 73.46 | | 3.04 | | 2.36 | | | |
| | | | | | | | | FOLIATED TOWARDS FW. + INTER | | | | | | | | | | | | | | | 73.46 | 76.50 | | 3.00 | | 1.41 | | | |
| | | | | | | | | FO WITH STREAKS + CLOTS OF EPI | | | | | | | | | | | | | | | 76.50 | 79.55 | | 3.03 | | 1.73 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 79.55 | 82.60 | | 2.89 | | 0.94 | | | |
| C | 50 | 60.12 | 63.31 | 3.19 | | QMC | FN | GN QTZ MU CHL SCH WITH TR. DISS | | | | | | | | | | | | | | | 82.60 | 85.65 | | 3.02 | | 1.82 | | | |
| | | | | | | | | PY+ Mg + MOD. CLOTS OF EPI ALT | | | | | | | | | | | | | | | 85.65 | 88.69 | | 3.03 | | 1.98 | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| LITHOLOGY | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | 61.26-63.31 | | | | | | | | | | | | | | | 88.69 | 91.74 | | 3.05 | | 1.77 | | | |
| | | | | | | | | 20cm INT. OF SPECKLED QTZ | | | | | | | | | | | | | | | 91.74 | 94.79 | | 3.05 | | 2.57 | | | |
| | | | | | | | | MU SER CHL SCH + FO GN QTZ | | | | | | | | | | | | | | | 94.79 | 97.84 | | 3.05 | | 1.87 | | | |
| | | | | | | | | MU CHL SCH; GN SCH IS | | | | | | | | | | | | | | | 97.84 | 100.89 | | 3.05 | | 2.46 | | | |
| | | | | | | | | ST DISS WITH Mg IN MINOR | | | | | | | | | | | | | | | 100.89 | 103.94 | | 3.01 | | 2.07 | | | |
| | | | | | | | | FLECKS; ST DISS PY THROUGH | | | | | | | | | | | | | | | 103.94 | 106.98 | | 3.04 | | 2.40 | | | |
| | | | | | | | | BOTH UNITS; SPECKLED UNITS IS | | | | | | | | | | | | | | | 106.98 | 110.03 | | 3.05 | | 2.55 | | | |
| | | | | | | | | HEAVILY FOLDED; FO SHALLOW | | | | | | | | | | | | | | | 110.03 | 113.08 | | 3.03 | | 2.47 | | | |
| | | | | | | | | JUST BEFORE FOLD NOSE AT 61.25; | | | | | | | | | | | | | | | 113.08 | 116.13 | | 3.01 | | 2.51 | | | |
| | | | | | | | | SPECKLED UNIT ST EPI ALT | | | | | | | | | | | | | | | 116.13 | 119.18 | | 3.03 | | 2.70 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 119.18 | 122.22 | | 3.05 | | 2.11 | | | |
| C | 70 | 63.31 | 66.96 | 3.65 | | QMS | | GY SPECKLED QTZ MU SER SCH | | | | | | | | | | | | | | | 122.22 | 125.27 | | 3.02 | | 2.62 | | | |
| | | | | | | | | WITH INTER FO BANDS OF | | | | | | | | | | | | | | | 125.27 | 128.32 | | 2.83 | | 1.28 | | | |
| | | | | | | | | GY GN QTZ PHYRIC MU SER | | | | | | | | | | | | | | | 128.32 | 131.37 | | 3.03 | | 1.78 | | | |
| | | | | | | | | CHL SCH; TR FLECKS OF Mg | | | | | | | | | | | | | | | 131.37 | 134.42 | | 3.05 | | 1.92 | | | |
| | | | | | | | | WITHIN QTZ PHYRIC; BOTH | | | | | | | | | | | | | | | 134.42 | 137.46 | | 3.05 | | 1.98 | | | |
| | | | | | | | | UNITS WITH ST DISS' PY; | | | | | | | | | | | | | | | 137.46 | 140.51 | | 2.88 | | 1.92 | | | |
| | | | | | | | | GY QTZ WITHIN SPECKLED UNIT | | | | | | | | | | | | | | | 140.51 | 143.56 | | 3.05 | | 2.69 | | | |
| | | | | | | | | IS GY + MA + APPEARS RHY? | | | | | | | | | | | | | | | 143.56 | 146.60 | | 3.02 | | 1.54 | | | |
| | | | | | | | | ST. CAR | | | | | | | | | | | | | | | 146.60 | 149.66 | | 3.05 | | 1.04 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 149.66 | 152.70 | | 3.03 | | 1.44 | | | |
| C | 75 | 66.96 | 68.66 | 1.70 | | | | GY RHY QTZ SPECKLED QTZ | | | | | | | | | | | | | | | 152.70 | 155.75 | | 3.05 | | 0.42 | | | |
| F0 | 65 | | | | | | | MU; ST FOLDED APPEARS | | | | | | | | | | | | | | | 155.75 | 158.80 | | 3.02 | | 2.37 | | | |
| | | | | | | | | GNE MOD CAR; OCC SHORT | | | | | | | | | | | | | | | 158.80 | 161.95 | | 3.05 | | 2.35 | | | |
| F0 | 45 | | | | | | | < 20 CM BANDS OF GN CHL | | | | | | | | | | | | | | | 161.95 | 164.80 | | 3.05 | | 2.67 | | | |
| | | | | | | | | MU QTZ PHYRIC SCH; ST DISS | | | | | | | | | | | | | | | 164.80 | 167.94 | | 2.97 | | 2.67 | | | |
| F0 | 65 | | | | | | | PY IN BOTH; MOD ROTTED PY | | | | | | | | | | | | | | | 167.94 | 170.99 | | 3.00 | | 2.61 | | | |
| | | | | | | | | IN SPECKLED UNIT | | | | | | | | | | | | | | | 170.99 | 174.04 | | 2.99 | | 2.40 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 174.04 | 177.08 | | 3.05 | | 2.63 | | | |
| C | 70 | 68.66 | 70.78 | 2.12 | | | | GN FOLDED QTZ PHYRIC GRANULAR | | | | | | | | | | | | | | | 177.08 | 180.14 | | 1.97 | | 2.66 | | | |
| | | | | | | | | CHL Mu SCH; FOLD AXIS OF FO'S | | | | | | | | | | | | | | | 180.14 | 183.18 | | 2.94 | | 1.58 | | | |
| | | | | | | | | IS DOWN THE C/A TR DISS PY; | | | | | | | | | | | | | | | 183.18 | 186.23 | | 2.92 | | 2.30 | | | |
| C | 53 | | | | | | | FOLDS ARE SINUSODIAL; CORE IS | | | | | | | | | | | | | | | 186.23 | 189.28 | | 3.04 | | 2.42 | | | |
| | | | | | | | | RUSTY + BROKEN; CAR ON FR'S | | | | | | | | | | | | | | | 189.28 | 192.33 | | 3.05 | | 2.35 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 192.33 | 195.38 | | 3.05 | | 2.44 | | | |
| C | 60 | 70.78 | 73.34 | 2.56 | | | | GY FR'D QTZ RHY; FR FILLING | | | | | | 70.40 | 72.82 | 2.42 | G004061 | 0.005 | 1 | 30 | <20 | 90 | 195.38 | 198.43 | | 3.05 | | 2.74 | | | |
| | | | | | | | | CHL EXTENSIVE THROUGHOUT | | | | | | 72.82 | 74.85 | 2.03 | G004062 | <0.005 | <1 | 30 | <20 | 80 | 198.43 | 201.47 | | 3.05 | | 1.86 | | | |
| C | 40 | | | | | | | FR HOSTED SEAMS OF TR CAR | | | | | | | | | | | | | | | 201.47 | 204.52 | | 2.91 | | 2.54 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 204.52 | 207.57 | | 2.98 | | 2.04 | | | |
| C | 40 | 73.34 | 77.50 | 4.16 | | | FN | GN QTZ PHYRIC MU CHL SCH; | | | | | | 74.85 | 77.50 | 2.65 | G004063 | 0.006 | 1 | 50 | <20 | 70 | 207.57 | 210.62 | | 2.04 | | 2.72 | | | |
| F0 | 28 | | | | | | | TR PY ST CAR; UNIT FO'S ARE | | | | | | | | | | | | | | | 210.62 | 213.67 | | 2.97 | | 1.82 | | | |
| | | | | | | | | SHALLOW AFTER RHY HOSTING FOLD | | | | | | | | | | | | | | | 213.67 | 216.71 | | 3.05 | | 1.22 | | | |
| F0 | 10 | | | | | | | NOSES @ 75.56; FAIR INTER FO Mg | | | | | | | | | | | | | | | 216.71 | 218.54 | | 1.57 | | 1.14 | | | |
| | | | | | | | | 73.46-74.26 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SIL SCH SHALLOWS TO 15 DEG. | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 15 | | | | | | | PATCHES OF BLK + WH GNE | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 35 | | | | | | | SPECKLED QTZ MY CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 30 | 77.50 | 79.40 | 1.90 | | | | CONTACT GRADED INTO SIL RHY? | | | | | | 77.50 | 79.40 | 1.90 | G004064 | <0.005 | 1 | 20 | 20 | 80 | | | | | | | | | |
| | | | | | | | | CHL CLOTTED RHY WITH MASSES | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 20 | | | | | | | OF PY + Mg OCCURNG WITHIN | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 20 | | | | | | | CHL CLOTS; UNIT IS SPOTTED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GRADING INTO QTZ PHYRIC MU | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL SCH AND THEN SHALLOWING OUT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITH GNE APPEARANCE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 79.12 | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | Blocks From (m) | To (m) | Intvl. (m) | GEOTECHNICAL REC (m) | REC Percent | RQD (m) | RQD Percent | Weathering | Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FN | GNE CAR QTZ SER CHL SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CLOTTED CHL PY Mg SHALLOWS TO | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | C/A 5-10 DEG. AND HOSTS FOLD | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | NOSE; ST CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 50 | 79.40 | 81.16 | 1.76 | | | FN | CHL QTZ PHYRIC MU SER SCH | | | | | | 79.40 | 81.40 | 2.00 | G004065 | <0.005 | 1 | 30 | <20 | 110 | | | | | | | | |
| | | | | | | | | MD GN WITH TR Mg + PY; FO ARE | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 40 | | | | | | | SHALLOW AND KINK BANDED; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 24 | | | | | | | FOLD NOSE @ 80.43 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OCC SHORT INT. OF CHL CLOTTED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ SER MU SCH OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BEFORE + AFTER FOLD NOSE | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 81.16 | 84.57 | 3.41 | | | | GY GN CHL CLOTTED STRIPED QTZ MU | | | | | | 81.40 | 82.20 | 0.80 | G004066 | <0.005 | <1 | 20 | 30 | 80 | | | | | | | | |
| | | | | | | | | CHL SCH; CONTACT SHARP; QTZ IS | | | | | | 82.20 | 83.64 | 1.44 | G004067 | <0.005 | <1 | 20 | 20 | 70 | | | | | | | | |
| F0 | 72 | | | | | | | GY WH AND LAYERED WITH CHL BTWN | | | | | | 83.64 | 85.39 | 1.75 | G004068 | <0.005 | <1 | 10 | <20 | 30 | | | | | | | | |
| | | | | | | | | CONTACTS FORMING SEAMS; TR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PY + CP WITHIN CHL FO; QTZ IS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | KINK BANDED; OCC. FOLD | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | NOSES OCCURING WITHIN F0 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | ST CAR DK GN Mg CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OCC BANDS OF SER MU QTZ SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITH TR PY; CP; Mg | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 56 | 84.57 | 95.09 | 10.52 | | | FN | GY GN THINNLY LA CHL CLOTTED | | | | | | 85.39 | 86.15 | 0.76 | G004069 | 0.006 | 3 | 10 | <20 | 30 | | | | | | | | |
| F0 | 26 | | | | | | | SER MU CHL QTZ SCH; ST CAR, TR | | | | | | 86.15 | 87.17 | 1.02 | G004125 | 0.009 | 2 | 30 | 30 | 80 | | | | | | | | |
| F0 | 0 | | | | | | | PY CP; Mg; FOLD NOSE @ 86.38 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | NOSE SIGNIFIES SHIFT IN MIN. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 86.38-87.23 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GN GY FO CHL MU SER SCH WITH | | | | | | 87.17 | 88.43 | 1.26 | G004070 | 0.021 | 1.5 | 205 | 161 | 1260 | | | | | | | | |
| | | | | | | | | 5-10% FLECKS OF COARSE INTER | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FO PY AND TR FLECKS OF CP + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Mg; STRONG DISS. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 88.43-92.16 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | 5<% P; TWO SHORT INTERVALS | | | | | | 88.43 | 90.23 | 1.80 | G004071 | 0.008 | 0.4 | 56 | 38 | 342 | | | | | | | | |
| | | | | | | | | 11 CM WIDE WITH 10% PY + | | | | | | 90.23 | 90.75 | 0.52 | G004072 | 0.038 | 1.1 | 139 | 440 | 2960 | | | | | | | | |
| | | | | | | | | TR GA? OCCURS IN V. THINNLY LA | | | | | | 90.75 | 92.16 | 1.41 | G004073 | <0.005 | <0.2 | 9 | 15 | 120 | | | | | | | | |
| | | | | | | | | SER QTZ SCH; ST. KINK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BAND @ 92.16 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 92.16-92.90 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | STRONG KINK BANDING; COARSE | | | | | | 92.16 | 92.90 | 0.74 | G004074 | 0.143 | 8.6 | 1250 | 548 | 3020 | | | | | | | | |
| F0 | 70 | | | | | | | MM WIDE COARSE PY OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITHIN CHL SER SEAMS BTWN | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | BANDS OF GY SER ALT; CP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OCCURING WITHIN SEAMS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TR FLECKS OF PY OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITHIN LA; PY 7-10% OF INTERVAL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 92.90-93.53 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | AND | | GN AND WITH KINK BANDED | | | | | | 92.90 | 93.53 | 0.63 | G004075 | 0.011 | 0.4 | 67 | 25 | 218 | | | | | | | | |
| | | | | | | | | WH SUC. QTZ + MOD. CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 93.53-94.30 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 77 | | | | | | FN | 15 CM OF ST KINK BANDED QTZ | | | | | | 93.53 | 94.30 | 0.77 | G004076 | 0.32 | 10.9 | 8830 | 172 | 1410 | | | | | | | | |
| | | | | | | | | HOSTING FOLD NOSE; QTZ BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | INTER FO WITH SER CHL SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FILAMENT OF GA + CP WITHIN QTZ | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| LITHOLOGY | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | BAND; SHARP FW CONTACT | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | INTO 15 CM OF MA PY WITHIN | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL SER SCH FINALLY GRADING INTO | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL QTZ PHYRIC GRANULAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL MUSCH; QTZ IS WH SUC | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 94.30-95.09 | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 65 | | | | | | | 15% SX QTZ PHYRIC CHL SER SCH; CP OCCURS ON PERIPHERY OF PY | | | CP | PY | Mg | 94.30 | 95.09 | 0.79 | G004077 | | | | | | | | | | | | | | | |
| | | | | | | | | GRAINS; CP + PY OCCUR WITHIN Mg | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GRAINS; CP LARGEST COMPONENT | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FOLLOWED BY Mg + PY; ST. MAG. | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Mg OCCURS AS GRAINS + FLECKS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FW 10 CM BLEACHED WH + GN | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SILICA CHL EXL V. THINNLY LA. WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GRAINS OF PY + Mg | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 95.09 | 97.32 | 2.23 | | MXSX | | 90 % SX WITH FILAMENTS OF GN | | | | | | 95.09 | 96.17 | 1.08 | G004078 | 1.145 | 43.9 | 3800 | 1630 | 2.63% | | | | | | | | | | |
| | | | | | | | | CHL SER; VISIBLE CP APPROX 10% | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CONC. WITHIN BANDS + AS GRAINS | | | | | | BLANK | | | G004079 | <0.005 | 0.2 | 63 | 3 | 269 | | | | | | | | | | |
| | | | | | | | | WITHIN + BTWN PY; MOD. CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SHARP LOWER CONTACT @ 74 | | | | | | 96.17 | 97.32 | 1.15 | G004080 | 0.576 | 51 | 2350 | 9290 | 6.74% | | | | | | | | | | |
| C | 74 | 97.32 | 98.64 | 1.32 | | | | 50% COARSE MA PY + 10% VISIBLE CP; PY OCCURS IN COARSE GRAINED | | | | | | 97.32 | 97.94 | 0.62 | G004081 | 0.7 | 27.6 | 2980 | 1.37 | 5.54 | | | | | | | | | | |
| | | | | | | | | BANDS BTWN FO; MOD. CAR; SX | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 72 | | | | | | | MIN. THE SAME; TR. FLECKS OF | | | | | | 97.94 | 98.64 | 0.70 | G004082 | 0.014 | 1.2 | 157 | 328 | 1600 | | | | | | | | | | |
| | | | | | | | | HOST GN GRANULAR CAR CHL SER SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ GRAINS ARE PHYRIC WH SUC. FW | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CONTACT MARKED BY SX BAND 3 MM | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WIDE (SX DROPPING OUT) ; CHL IS Mg | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | 97.80 | 98.61 | | | | | WH + GN STRIPPED QTZ EX HL; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BANDS ARE THINLY FOL + LAYERED | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WITH PY CP+Mg; Mg IS MOD.; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SX IN CHL WISPS; WISPS ORIENTED | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | ROUGHLY 60; WH CHL MU | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 98.64 | 100.05 | 1.41 | | | | 60% COARSE MA PY + 10% VISIBLE | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CP; MOD CAR; TR FLECKS OF Mg; | | | | | | 98.64 | 99.10 | 0.46 | G004083 | 0.983 | 23.5 | 2170 | 6060 | 3.62% | | | | | | | | | | |
| | | | | | | | | HOST GN GRANULAR WH QTZ PHYRIC | | | | | | | | | | | | | | | | | | | | | | | | | |
| C M | 70 | | | | | | | CHL SER MU SCH; GRAINS ARE WH + SUC; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CP OCC. OUTSIDE PY; MX SX BANDS 70 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 99.10-99.55 | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | WH + GN STRIPPED QTZ EX HL; BANDS | | | | | | 99.10 | 99.55 | 0.45 | G004084 | 0.29 | 2.9 | 93 | 1980 | 5490 | | | | | | | | | | |
| F0 | 65 | | | | | | | ARE WISPS + THINNLY FO ORIENTED 65 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CONTACT MARKED BY 1cm QTZ | | | | | | 99.55 | 100.05 | 0.50 | G004085 | 0.468 | 38 | 4240 | 7380 | 4.06% | | | | | | | | | | |
| | | | | | | | | BAND; MOD. Mg | | | | | | BLANK | | | G004086 | <0.005 | 0.2 | 13 | 20 | 136 | | | | | | | | | | |
| C | 75 | 100.05 | 103.48 | 3.43 | | | | GY V. THINNLY LA SER CHL QTZ (15%) | | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | PHYRIC SCH WITH W-F STRONGLY | | | | | | 100.05 | 101.35 | 1.30 | G004087 | 0.259 | 9.1 | 4930 | 259 | 1400 | | | | | | | | | | |
| F0 | 80 | | | | | | | DISS CP, PY+ Mg; 5 MA BANDS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OF COARSE PY @ 102.80 PRECEDED | | | | | | 101.35 | 102.80 | 1.45 | G004088 | 0.485 | 9.7 | 4580 | 227 | 1420 | | | | | | | | | | |
| | | | | | | | | BY 20 CM OF GY SER SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FAIR DISS COARSE PY + CP; SX | | | | | | 102.80 | 103.48 | 0.68 | G004089 | 2.37 | 24.5 | 8460 | 702 | 3340 | | | | | | | | | | |
| | | | | | | | | CONTENT THINS OUT; FW 5 CM OF WH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QZ; SIL CAP? | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 103.48 | 106.86 | 3.38 | | | | GY GN QTZ (LAYERED) MU CHL | | | | | | 103.48 | 104.42 | 0.94 | G004090 | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | LITHOLOGY To (m) | LITHOLOGY Interval (m) | LITHOLOGY Type | LITHOLOGY Unit | LITHOLOGY Texture | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | SAMPLES To (m) | SAMPLES Interval (m) | SAMPLES Sample | SAMPLES Au (ppm) | SAMPLES Ag (ppm) | SAMPLES Cu (ppm) | SAMPLES Pb (ppm) | SAMPLES Zn (ppm) | Blocks From (m) | Blocks To (m) | Blocks Intvl. (m) | GEOTECHNICAL REC (m) | GEOTECHNICAL REC Percent | GEOTECHNICAL RQD (m) | GEOTECHNICAL RQD Percent | GEOTECHNICAL Weathering | GEOTECHNICAL Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F0 | 65 | | | | | | | SER SCH; TR DISS PY Mg | | | | | | 104.42 | 106.86 | 2.44 | G004091 | 0.005 | 1 | <10 | <20 | 50 | | | | | | | | | |
| | | | | | | | | CP | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 106.86 | 115.59 | 8.73 | | | | GY QTZ MU SER CHL SCH; THINNLY | | | | | | 106.86 | 108.35 | 1.49 | G004092 | <0.005 | <1 | <10 | <20 | 50 | | | | | | | | | |
| F0 | 70 | | | | | | | LA; TR Mg, PY; FO ARE KINK BANDED | | | | | | 108.35 | 108.95 | 0.60 | G004093 | 0.005 | <1 | 10 | 20 | 60 | | | | | | | | | |
| | | | | | | | | ALONG FO AXIS KINKS STOP @ 113.08 | | | | | | 108.95 | 109.63 | 0.68 | G004153 | <0.005 | <1 | <10 | <20 | 40 | | | | | | | | | |
| | | | | | | | | F0 TURN PARALLEL | | | | | | 109.63 | 110.32 | 0.69 | G004094 | <0.005 | 1 | <10 | <20 | 60 | | | | | | | | | |
| | | | | | | | | 113.08-115.59 | | | | | | 112.95 | 114.70 | 1.75 | G004095 | 0.023 | <1 | 50 | <20 | 70 | | | | | | | | | |
| F0 | 36 | | | | | | | 3-5% DISS PY + 2<%Mg INTER F0 IN | | | | | | 114.70 | 115.58 | 0.88 | G004096 | 0.016 | 2 | 50 | 20 | 100 | | | | | | | | | |
| F0 | 55 | | | | | | | SER MU SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 112.52-112.64 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | MA WH BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 115.59 | 117.60 | 2.01 | | | | UNIT BECOMES FINER GRAINED | | | | | | 115.58 | 117.60 | 2.02 | G004097 | <0.005 | <1 | 10 | 20 | 60 | | | | | | | | | |
| F0 | 45 | | | | | | | AND MORE MA; F0 TEXTURE ALMOST | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | LOST; UNIT BECOMES QTZ PHYRIC; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ PHYRIC MU SER CHL SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TR DISS PY, Mg; CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | MARKED BY KINKED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 117.60-118.93 | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | UNIT IS INTERFO WITH BANDS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QT IT; NO CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 117.60 | 122.00 | 4.40 | | | | GN + WH NEARLY QTZ PHYRIC | | | | | | 120.03 | 121.00 | 0.97 | G004098 | 0.023 | 1 | 60 | 30 | 160 | | | | | | | | | |
| | | | | | | | | CHL MU SER SCH WITH DISS FAIR | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 55 | | | | | | | GRAINS OF Py + TR CP; UNIT IS | | | | | | 121.00 | 122.00 | 1.00 | G004099 | 0.013 | <1 | 140 | 20 | 140 | | | | | | | | | |
| | | | | | | | | BANDED w CAR; SHORT INTERVALS | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | OF GY FINELY LA QTZ SER SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL IS DK GN; KINK BANDED CAR; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ SER AT STEEPER ANGLE; DUETO | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | DIFF'S IN CAMP? V. WEAK Mg | | | | | | | | | | | | | | | | | | | | | | | |
| C | 68 | 122.00 | 122.36 | 0.36 | | | | FEALT ORANGE + GY QT IT | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 122.36 | 126.20 | 3.84 | | | | GN + GY STRONGLY KINKED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 28 | | | | | | | MU SER CHL SCH WITH TR Mg + | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | PY; UNIT IS INTERFO WITH | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 76 | | | | | | | BANDS OF FE ALT QT IT; MOD | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 55 | | | | | | | INTER FO WITH CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 125.47-126.20 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | | | | | | | UNIT BECOMES INTER FO WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | STRONGLY FOLIATED (PARASITIC) | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ EYE FRAGMENTAL QTZ MU | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SCH NO CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 126.20 | 128.50 | 2.30 | | | | GY QTIT WITH INTERMITTENT | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 65 | | | | | | | BANDS OF QTZ EYE FRAGMENTAL | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 128.50 | 131.15 | 2.65 | | | | BLK + WH TO GN FOLDED + SPOTTED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CHL QTZ CAR BI FRAGMENTAL; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BANDS + WISPS OF CAR + QTZ; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | STRONG CAR' CONTACTS IRREG. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ IS OPALESCENT TO WH SUC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | AND ANULAR; ST CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | MOD BL + BANDS OF QTZ; | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | LITHOLOGY To (m) | LITHOLOGY Interval (m) | LITHOLOGY Type | LITHOLOGY Unit | LITHOLOGY Texture | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | SAMPLES To (m) | SAMPLES Interval (m) | SAMPLES Sample | SAMPLES Au (ppm) | SAMPLES Ag (ppm) | SAMPLES Cu (ppm) | SAMPLES Pb (ppm) | SAMPLES Zn (ppm) | Blocks From (m) | Blocks To (m) | Blocks Intvl. (m) | GEOTECHNICAL REC (m) | GEOTECHNICAL REC Percent | GEOTECHNICAL RQD (m) | GEOTECHNICAL RQD Percent | GEOTECHNICAL Weathering | GEOTECHNICAL Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 70 | 131.15 | 139.63 | 8.48 | | | | GY GN QTZ SER MU CHL SCH | | | | | | 135.89 | 136.96 | 1.07 | G004100 | <0.005 | <1 | <10 | <20 | 50 | | | | | | | | | |
| | | | | | | | | ST FO CAR WITH MINOR KINKS | | | | | | 136.96 | 137.50 | 0.54 | G004101 | 0.007 | <1 | 40 | 30 | 180 | | | | | | | | | |
| F0 | | | | | | | | COARSE GRAINS TR PY; OCC. | | | | | | 137.50 | 139.63 | 2.13 | G004102 | 0.006 | 1 | 30 | 30 | 110 | | | | | | | | | |
| | | | | | | | | BANDS OF WH QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 136.94 - 137.64 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | | | | | | | | GN FINELY LA CHL MU SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 3% DISS PY AND TR Mg + TR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | COARSE PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 137.66-139.10 | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | GNE SPECKLED QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | FORMING NOSE FOLD | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 139.10-139.63 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ BAND NOSE FOLD FORMING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | X PATTERN; SCH BTWN FOLDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FO 63 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 136.94 --> 139.63 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | UNT BECOMES MORE CHL | | | | | | | | | | | | | | | | | | | | | | | |
| C | 35 | 139.63 | 144.76 | 5.13 | | | | LAYERED QTZ PHYRIC CHL M U SER SCH | | | | | | 139.63 | 140.26 | 0.63 | G004103 | <0.005 | <1 | 20 | 20 | 150 | | | | | | | | | |
| F0 | 70 | | | | | | | INCR QTZ; CHL CONTENT; ST. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CAR; LATHES OF HBL BETWEEN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ BANDS; ST. CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 140.26-141.75 | | | | | | 140.26 | 141.07 | 0.81 | G004104 | 0.156 | 15 | 3750 | 680 | 2930 | | | | | | | | | |
| | | | | | | | | 15% MIN. TO ST. DISS. PY; | | | | | | 141.07 | 141.75 | 0.68 | G004105 | 0.077 | 4 | 1910 | 90 | 1370 | | | | | | | | | |
| F0 | 73 | | | | | | | PARAGENESIS SAME AS PREVIOUS; | | | | | | 141.75 | 143.44 | 1.69 | G004106 | 0.006 | <1 | 100 | 20 | 260 | | | | | | | | | |
| | | | | | | | | PY ASSOC WITH MU BAND HOSTING | | | | | | 143.44 | 144.76 | 1.32 | G004107 | <0.005 | 1 | 20 | <20 | 90 | | | | | | | | | |
| | | | | | | | | WEAK FLECKS Mg; TR VISIBLE CP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | ST KINKED CAR; CHL IS MD GN | | | | | | | | | | | | | | | | | | | | | | | |
| C | 72 | 144.76 | 152.08 | 7.32 | | | FN | V. THINNLY LA PHYRIC CHL MU QTZ SCH | | | | | | 144.76 | 146.35 | 1.59 | G004108 | 0.007 | <1 | 90 | <20 | 90 | | | | | | | | | |
| F0 | 72 | | | | | | | WITH 5% DISS FLECKS OF PY; TR | | | | | | BLANK | | | G004109 | <0.005 | <1 | 10 | <20 | <20 | | | | | | | | | |
| | | | | | | | | FLECKS OF DISS Mg; ST CAR | | | | | | 146.35 | 148.03 | 1.68 | G004110 | 0.008 | 1 | 30 | <20 | 100 | | | | | | | | | |
| | | | | | | | | LOWER CONTACT TURBULENT | | | | | | 148.03 | 149.33 | 1.30 | G004111 | <0.005 | 1 | 10 | <20 | 70 | | | | | | | | | |
| | | | | | | | | 148.02-149.06 | | | | | | 149.33 | 152.08 | 2.75 | G004112 | <0.005 | <1 | 20 | <20 | 40 | | | | | | | | | |
| F0 | 70 | | | | | | | UNIT LOSES PY AND IS MORE SILICEOUS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | AND PITTED; DRY PULSE; NOSE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | FOLD @ END OF INTERVAL | | | | | | | | | | | | | | | | | | | | | | | |
| | | 152.08 | 165.42 | 13.34 | | | | STRIPED; GNE LOOKING WH + GN + GY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | EXHL QTZ CHL MU SER SCH | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | QTZ IS LAYERED; HW CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | MARKED BY "S" FOLDS + ISOLATED | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 75 | | | | | | | BL OF COARSE PY FROM FACIES CHANGE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | V. FINELY DISS Mg WITHIN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | EXHL; THOUGH NOT ST MAG.; OCC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CLOTS OF EPI ALT SEDS + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BLEBS OF COARSE CUBIC PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 161.01-161.85 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | UNIT FO SHALLOW TO 35 DEG. BEFORE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | STEEPENING TO 62 @ 161.85 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 74 | 165.42 | 168.04 | 2.62 | | | | GY + GN QTZ SER MU CHL SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | TR DISS Mg + PY; WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CAR + OCC. BANDS OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PARALLEL TO F0; INTERMITTENT BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OF CHC MY SCH WITH COARSE | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | Blocks From (m) | To (m) | Intvl. (m) | GEOTECHNICAL REC (m) | REC Percent | RQD (m) | RQD Percent | Weathering | Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | GRAINS OF PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 74 | 168.04 | 174.06 | 6.02 | | | | GN GY QTZ CHL MU SER SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 80 | | | | | | | F0 ARE MOD. KINKED; MOD. CAR | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 90 | | | | | | | UNIT HOSTS W-F PY AS COARSE | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 78 | | | | | | | GRAINS + SHORT INTERVALS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | MA DK GN CHL WITH TR DISS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Mg; UNIT IS INTERLA. WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BANDS OF WH QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 174.06 | 179.18 | 5.12 | | | FN | DK GY-BLK FRAGMENTAL QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 65 | | | | | | | EYE AUGEN SCH; MOD PY + | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 63 | | | | | | | TR Mg MOD. CAR; BIOTITE CHL | | | | | | | | | | | | | | | | | | | | | | | |
| C | 71 | | | | | | | QTZ PHYRIC SCH; FOLD NOSE @ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | CONTACT; TR Mg + MOD. PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 179.18 | 182.25 | 3.07 | | | | FRAGMENTED BLK WH + GY FOLDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ + BLK MU SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | STRONG KINK BANDING + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | SIL FRAGMENTATION; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 181.67-182.25 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 90 | | | | | | | CRUSHED GR GOUGE + FR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | OF QTZ; GR PHYL? | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 182.25 | 184.79 | 2.54 | | | | SIL SER MU QTZ CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | | | | | | | | WITH BANDS + BL OF WH LMST; | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 184.79 | 189.62 | 4.83 | | | | CONTACT MARKED BY MARBLE; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | GN CAR F.G QTZ PHYRIC PYRITIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTZ CHL MU SCH WITH TR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | DISS. Mg; ST. CAR ALMOST | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | MA; ALMOST AND | | | | | | | | | | | | | | | | | | | | | | | |
| C | 90 | | | | | | | 186.23-186.97 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WH MARBLE LMST | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 189.62 | 192.93 | 3.31 | | | | WH BANDED QTIT + LMST WITH | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 72 | | | | | | | OCC. BANDS OF DR GY | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | ARGILLIC QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 192.93 | 197.74 | 4.81 | | | | DK GY TO BLK ARGILLIC QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| BD | | | | | | | | 193.74 - 194.58 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WH BANDED QTIT + LMST | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 197.74 | 201.47 | 3.73 | | | | DK GY BLK ARGILLIC QTIT WITH | | | | | | 199.31 | 200.35 | 1.04 | G004113 | <0.005 | <1 | 40 | <20 | 60 | | | | | | | | | |
| | | | | | | | | MOD. FO BANDS + WISPS OF | | | | | | 200.35 | 200.92 | 0.57 | G004114 | <0.005 | <1 | 30 | <20 | 80 | | | | | | | | | |
| BD | 65 | | | | | | | CHL + MU; OCC. SHORT INTERVALS | | | | | | 200.92 | 201.47 | 0.55 | G004115 | <0.005 | 1 | 20 | <20 | 50 | | | | | | | | | |
| | | | | | | | | OF SPECKLED CHL MU SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | 20 CM OF DK GN HYDRO CHL @ | | | | | | END OF SAMPLING | | | | | | | | | | | | | | | | | |
| | | | | | | | | 201 WITH A BAND OF PO; ST. CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 201.47 | 206.00 | 4.53 | | | | DK GY - PURPLE SIL ARGILLIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | QTIT; SHORT INTERVALS OF | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 71 | | | | | | | QTZ PHYRIC CHL SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| C | 74 | 206.00 | 211.02 | 5.02 | | | | DK PURPLE GN + WH FOLDED GNE SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | (SEE SHUTDOWN ROCK FOR MOR-07-01) | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-06

| Struct. | | LITHOLOGY | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | HOST INTER F0 AUGENS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PINK-PURPLE (HEM?) ALT SEDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | UNIT IS STRONGLY FOLDED; OCC. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | NOSE FOLDS ST. CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 68 | 211.02 | 213.00 | 1.98 | | | | DK GY - PURPLE SIL ARGILLIC | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 64 | | | | | | | QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 213.00 | 218.54 | 5.54 | | | | GY SIL QTIT; V. HARD; OCC. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | BANDS OF CHL HOSTING TRACE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | WEAK PY IN HW; FW ALL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | HARD QTI T | | | | | | | | | | | | | | | | | | | | | | | |
| | | E.O.H | 218.54 | | | | | E.O.H | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-07

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 662318 | 6663873 | 1270 | 215.5 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS 300

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 60 | brunton | | | | |
| 215.5 | 355 | 57.3 | acid | | | | |
| | | | | | | | |
| | | | | | | | |

Core size: btw
Casing depth: 10' (m) in/out

Drilling dates: June 19 - June 22 2008

Logged by: M. Nunez

Target: _____

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
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**SAMPLES**

Numbers: G004058-G004116
G004116-G004118, G004126-G004147
Total:
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 8.28 | | | AND | | | V.F.C MD GN CAR AND | | | | | | | | | | | | | | | 0.00 | 3.35 | 3.35 | 0.20 | 5.97 | 0.00 | 0 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 3.35 | 6.40 | 3.05 | 3.02 | 99 | 0.93 | 30.5 | | |
| C | 70 | 8.28 | 9.14 | | | QCM | | | SPECKLED GY GN QTZ CHL | | | | | | | | | | | | | | | 6.40 | 9.45 | 3.05 | 3.00 | 98.4 | 0.72 | 23.6 | | |
| | | | | | | | | | MU SCH WITH TR ROTTED | | | | | | | | | | | | | | | 9.45 | 12.49 | 3.04 | 3.05 | 100 | 2.20 | 72.4 | | |
| F0 | 60 | | | | | | | | PY; V. WEAKLY MAG; WEAK | | | | | | | | | | | | | | | 12.49 | 15.54 | 3.05 | 3.02 | 99 | 1.41 | 46.2 | | |
| | | | | | | | | | EPI ALT; CONTACT SHARP | | | | | | | | | | | | | | | 15.54 | 18.59 | 3.05 | 3.05 | 100 | 2.11 | 69.2 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 18.59 | 21.64 | 3.05 | 3.05 | 100 | 2.32 | 76.1 | | |
| C | 84 | 9.14 | 12.44 | | | | | | CAR AND WITH FOLDS + | | | | | | | | | | | | | | | 21.64 | 24.69 | 3.05 | 2.91 | 95.4 | 2.35 | 77 | | |
| | | | | | | | | | SWIRLS OF CAR; OCC BANDS + | | | | | | | | | | | | | | | 24.69 | 27.74 | 3.05 | 3.05 | 100 | 2.91 | 95.4 | | |
| | | | | | | | | | SWIRLS OF QTZ | | | | | | | | | | | | | | | 27.74 | 30.78 | 3.04 | 3.04 | 100 | 2.14 | 70.4 | | |
| C | 80 | | | | | | | | 11.02-11.84 | | | | | | | | | | | | | | | 30.78 | 33.83 | 3.05 | 2.99 | 98 | 2.55 | 83.6 | | |
| | | | | | | | | | SPECKLED GY GN EPI ALT QTZ CHL MU | | | | | | | | | | | | | | | 33.83 | 36.88 | 3.05 | 2.88 | 94.4 | 1.51 | 49.5 | | |
| | | | | | | | | | SCH | | | | | | | | | | | | | | | 36.88 | 39.93 | 3.05 | 3.01 | 98.7 | 2.44 | 80 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 39.93 | 42.98 | 3.05 | 3.05 | 100 | 2.13 | 69.8 | | |
| C | 80 | 12.44 | 14.90 | | | | | | V.F.G QTZ PHYRIC QTZ CHL | | | | | | | | | | | | | | | 42.98 | 46.02 | 3.04 | 2.90 | 95.4 | 0.86 | 28.3 | | |
| | | | | | | | | | SCH; ST MAG WITH DISS. | | | | | | | | | | | | | | | 46.02 | 49.07 | 3.05 | 3.01 | 98.7 | 2.23 | 73.1 | | |
| F0 | 70 | | | | | | | | FLECKS OF MG; TR ROTTED | | | | | | | | | | | | | | | 49.07 | 52.12 | 3.05 | 3.04 | 99.7 | 1.22 | 40 | | |
| | | | | | | | | | PY; HW 15 CM OF SPECKLED QTZ | | | | | | | | | | | | | | | 52.12 | 55.17 | 3.05 | 3.05 | 100 | 0.80 | 26.2 | | |
| | | | | | | | | | CHL MU SCH; HW CONTACT IS WEAKLY | | | | | | | | | | | | | | | 55.17 | 58.22 | 3.05 | 3.04 | 99.7 | 1.38 | 45.2 | | |
| | | | | | | | | | FOLDED KINK BANDED WITH CAR | | | | | | | | | | | | | | | 58.22 | 61.26 | 3.04 | 3.02 | 99.3 | 1.08 | 35.5 | | |
| | | | | | | | | | THROUGHOUT + MOD EPI ALT BL | | | | | | | | | | | | | | | 61.26 | 64.31 | 3.05 | 3.05 | 100 | 1.19 | 39 | | |
| | | | | | | | | | PATCHES BTWN FO'S | | | | | | | | | | | | | | | 64.31 | 67.36 | 3.05 | 2.91 | 95.4 | 1.84 | 60.3 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 67.36 | 70.41 | 3.05 | 2.97 | 97.4 | 1.65 | 54.1 | | |
| C | 50 | 14.90 | 19.38 | | | | | | ANDESITE; ST CAR V.F.G | | | | | | | | | | | | | | | 70.41 | 73.46 | 3.05 | 3.05 | 100 | 0.81 | 26.6 | | |
| | | | | | | | | | WITH SHORT INTERVALS OF | | | | | | | | | | | | | | | 73.46 | 76.50 | 3.04 | 3.01 | 99 | 0.79 | 26 | | |
| | | | | | | | | | QCM + PHYRIC QCM | | | | | | | | | | | | | | | 76.50 | 79.55 | 3.05 | 3.05 | 100 | 0.24 | 7.87 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 79.55 | 82.60 | 3.05 | 3.05 | 100 | 0.34 | 11.1 | | |
| C | 70 | 19.38 | 25.50 | | | | | | YELLOW | | | | | | | | | | | | | | | 82.60 | 85.65 | 3.05 | 3.05 | 100 | 0.12 | 3.93 | | |
| | | | | | | | | | EPI ALT CLASTS + WISPS GIVING A | | | | | | | | | | | | | | | 85.65 | 88.67 | 3.02 | 3.02 | 100 | 0.80 | 26.5 | | |
| | | | | | | | | | SPOTTED APPEARANCE; NO CAR; TR PY | | | | | | | | | | | | | | | 88.67 | 91.72 | 3.05 | 3.04 | 99.7 | 1.69 | 55.4 | | |
| C | 65 | | | | | | | | 22.37-23.27 | | | | | | | | | | | | | | | 91.72 | 94.77 | 3.05 | 3.00 | 98.4 | 1.76 | 57.7 | | |
| | | | | | | | | | GY SIL RHY WITH STREAKS OF CHL + | | | | | | | | | | | | | | | 94.77 | 97.84 | 3.05 | 3.02 | 99 | 1.61 | 52.8 | | |
| | | | | | | | | | EPI ALT WEAKLY SPECKLED | | | | | | | | | | | | | | | 97.84 | 100.89 | 3.05 | 3.05 | 100 | 2.64 | 86.6 | | |
| C | 10 | | | | | | | | 23.27.23.47 | | | | | | | | | | | | | | | 100.89 | 103.94 | 3.05 | 3.05 | 100 | 1.82 | 59.7 | | |
| | | | | | | | | | ANDESITE; STRONG CAR; V.F.G | | | | | | | | | | | | | | | 103.94 | 106.98 | 3.04 | 2.95 | 97 | 1.83 | 60.2 | | |
| | | | | | | | | | NO STRUCTURE; MA | | | | | | | | | | | | | | | 106.98 | 110.03 | 3.05 | 3.00 | 98.4 | 0.67 | 22 | | |
| | | | | | | | | | 23.47-23.87 | | | | | | | | | | | | | | | 110.03 | 113.08 | 3.05 | 3.05 | 100 | 1.73 | 56.7 | | |
| | | | | | | | | | WEAKLY SPECKLED RHY WITH | | | | | | | | | | | | | | | 113.08 | 116.13 | 3.05 | 3.04 | 99.7 | 2.68 | 87.9 | | |
| | | | | | | | | | WISPS OF EPI ALT; FW CONTACT | | | | | | | | | | | | | | | 116.13 | 119.18 | 3.05 | 2.99 | 98 | 2.39 | 78.4 | | |
| | | | | | | | | | MARKED BY BAND OF WH QTZ | | | | | | | | | | | | | | | 119.18 | 122.22 | 3.04 | 3.01 | 99 | 2.43 | 79.9 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 122.22 | 125.27 | 3.05 | 2.94 | 96.4 | 2.48 | 81.3 | | |
| C | 70 | 25.50 | 26.62 | | | | | | V.F.G ANDESITE; ST. CAR | | | | | | | | | | | | | | | 125.27 | 128.32 | 3.05 | 3.05 | 100 | 2.47 | 81 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 128.32 | 131.37 | 3.05 | 3.05 | 100 | 1.93 | 63.3 | | |
| C | 65 | 26.62 | 32.08 | | | | | | MD GN QTZ PHYRIC CHL SCH WITH | | | | | | | | | | | | | | | 131.37 | 134.42 | 3.05 | 3.04 | 99.7 | 1.82 | 59.7 | | |
| | | | | | | | | | YELLOW EPIALT CLASTS + WISPS | | | | | | | | | | | | | | | 134.42 | 137.46 | 3.04 | 3.05 | 100 | 1.14 | 37.5 | | |
| | | | | | | | | | GIVING A SPOTTED APPEARANCE; | | | | | | | | | | | | | | | 137.46 | 140.51 | 3.05 | 2.98 | 97.7 | 2.32 | 76.1 | | |
| F0 | 70 | | | | | | | | NO CAR; UNIT GRADES INTO | | | | | | | | | | | | | | | 140.51 | 143.56 | 3.05 | 3.05 | 100 | 1.74 | 57 | | |
| | | | | | | | | | GY GN SPECKLED QTZ CHL | | | | | | | | | | | | | | | 143.56 | 146.60 | 3.04 | 3.05 | 100 | 1.40 | 46.1 | | |
| | | | | | | | | | SCH; TR PY | | | | | | | | | | | | | | | 146.60 | 149.65 | 3.05 | 3.01 | 98.7 | 1.74 | 57 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 149.65 | 152.70 | 3.05 | 3.05 | 100 | 2.62 | 85.9 | | |
| C | 90 | 32.08 | 34.01 | | | | | | ANDESITE DYKE; ST. CAR | | | | | | | | | | | | | | | 152.70 | 155.75 | 3.05 | 2.68 | 87.9 | 1.53 | 50.2 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 155.75 | 158.80 | 3.05 | 3.05 | 100 | 2.29 | 75.1 | | |
| C | 55 | 34.01 | 43.54 | | | | | | GY GN SPECKLED QTZ CHL MU SCH | | | | | | | | | | | | | | | 158.80 | 161.85 | 3.05 | 3.00 | 98.4 | 2.66 | 87.2 | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | WITH WISPS + MINOR CLOTS | | | | | | | | | | | | | | | 161.85 | 164.69 | 2.84 | 2.99 | 105 | 2.73 | 96.1 | | |
| | | | | | | | | | OF EPI; TR PY; PY IS WEAKLY | | | | | | | | | | | | | | | 164.69 | 167.94 | 3.25 | 3.04 | 93.5 | 2.88 | 88.6 | | |
| | | | | | | | | | OXIDIZED; 26 CM QTZ BAND AT 42.03 | | | | | | | | | | | | | | | 167.94 | 170.99 | 3.05 | 2.98 | 97.7 | 2.85 | 93.4 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 170.99 | 174.04 | 3.05 | 3.05 | 100 | 2.06 | 67.5 | | |
| C | 80 | 43.54 | 60.23 | | | | | | ANDESITE; ST. CAR | | | | | | | | | | | | | | | 174.04 | 177.09 | 3.05 | 3.05 | 100 | 1.71 | 56.1 | | |
| | | | | | | | | | 44.45-45.52 | | | | | | | | | | | | | | | 177.09 | 180.14 | 3.05 | 3.04 | 99.7 | 2.56 | 83.9 | | |
| C | 70 | | | | | | | | SPECKLED GY GN QTZ CHL MU SCH; | | | | | | | | | | | | | | | 180.14 | 183.18 | 3.05 | 3.05 | 100 | 1.22 | 40 | | |
| F0 | 70 | | | | | | | | MOD. HEM ALT + FR'D | | | | | | | | | | | | | | | 183.18 | 186.23 | 3.05 | 2.78 | 91.1 | 1.98 | 64.9 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 186.23 | 189.28 | 3.05 | 3.00 | 98.4 | 2.13 | 69.8 | | |
| C | 30 | 60.23 | 72.19 | | | | | | CHL | | | | | | | | | | | | | | | 189.28 | 192.33 | 3.05 | 3.00 | 98.4 | 2.48 | 81.3 | | |
| | | | | | | | | | MU SCH; MATRIX IS SIL AND F0 | | | | | | | | | | | | | | | 192.33 | 195.98 | 3.05 | 3.02 | 99 | 2.67 | 87.5 | | |
| F0 | 40 | | | | | | | | V. SHALLOW; TR PY + MG OCCURING | | | | | | | | | | | | | | | 195.98 | 198.52 | 3.05 | 3.05 | 100 | 2.55 | 83.6 | | |
| | | | | | | | | | AS FLECKS; MOD. SPECKLED | | | | | | | | | | | | | | | 198.52 | 201.47 | 3.05 | 3.02 | 99 | 2.57 | 84.3 | | |
| F0 | 25 | | | | | | | | EPI ALT WITH FAIR HEM | | | | | | | | | | | | | | | 201.47 | 204.52 | 3.05 | 3.05 | 100 | 2.63 | 86.2 | | |
| | | | | | | | | | ALT ON FR. SURFACES; NON CAR; | | | | | | | | | | | | | | | 204.52 | 207.57 | 3.05 | 3.00 | 98.4 | 2.63 | 86.2 | | |
| BD | 55 | | | | | | | | SHALLOW HW CONTACT WITH CAR + | | | | | | | | | | | | | | | 207.57 | 210.62 | 3.05 | 3.05 | 100 | 2.79 | 91.5 | | |
| | | | | | | | | | CHL CLAY; W. MAG.; MD GN + YELLOW; | | | | | | | | | | | | | | | 210.62 | 213.66 | 3.05 | 3.00 | 98.4 | 1.97 | 64.6 | | |
| | | | | | | | | | EPI CLASTS ARE OCC. AUGENED | | | | | | | | | | | | | | | 213.66 | 215.89 | 3.05 | 2.23 | 73.1 | 1.56 | 51.1 | | |
| | | | | | | | | | WITHIN EPI ALT INTERF0 ENVELOPES; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 65.35M - 68.16 M | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MA MD GN NON CAR QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 37 | | | | | | | | CLASTIC MU SCH; V. WEAK EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 50 | 72.19 | 77.60 | | | | | | SPOTTED + FR'D CHL MU SCH/RHY; W. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR; UNIT IS SIL ALT + WEAKLY EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH CLOTS; UNIT IS MOSTLY GY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH SOME GN + MOD CHL ALT; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC BL OF PY CAR ONLY ON FR'S | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT ST BROKEN UP; FW 20CM OF AND | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 77.60 | 82.20 | | | | | | SPECKLED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL SER SCH; W-F HEM ALT ON FR | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 67 | | | | | | | | SURFACES OCCURING AS PINK CY + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MG + PY; PY ROTTING OUT + MG IS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WEAKLY MAG.; CONTACT SHARP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 82.20 | 85.29 | | | AND | | | WEAKLY CAR AND WITH OCC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FR AND INFILLING CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 85.29 | 86.00 | | | | | | SPECKLED GY GN WITH BLOTCHES OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PINK HEM ALT QTZ CHL MU SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 80 | | | | | | | | ALT. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 73 | 86.00 | 87.63 | | | | | | MD GN CAR AND; CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURS IN BANDS + BL'S; RARE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC. CLASTIC WH GRANULAR QTZ; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT GRADES INTO SPECKLED SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 78 | 87.63 | 88.54 | | | | | | SPECKLED MD GN + YELLOW GY QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL MU SCH; OCC. CLASTS OF | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 72 | | | | | | | | AUGENED EPI ALT CLASTS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MIDDLE 20 CM WEAKLY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CL ALT; TR PY + V. WEAK MG | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 20 | 88.54 | 90.04 | SED | | | | | PRECEDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BY AND; FIRST 44 CM FOLDED + KINKED | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | WITH FOLD NOSE @ CONTACT; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY; V. WEAK CAR; NO VISIBLE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MG; LOOKS LIKE BANDED QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 90.04 | 91.51 | | | | | | GY BEDDED QTIT; OCC. BANDS OF CHL | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 80 | | | | | | | | ALT WITH CLASTS OF EPI ALT SEDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST. SIL. ALT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 91.51 | 95.16 | | | | | | GY GN SPECKLED QTZ SER MU | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 72 | | | | | | | | SCH WITH OCC. CLOTS + WISPS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF EPI ALT SED; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 50 | | | | | | | | INTERFO WITH MD GN CLASTIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL MU CAR SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 61 | 95.16 | 96.49 | | | | | | MD GN CLASTIC QTZ CHL MU CAR | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 68 | | | | | | | | OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AS ROUNDED GRAINS; TR PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC BANDS OF EPI ALT OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AS F0 + BL OF GNE BL + WH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDED QTZ CHL SCH V. WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS OF MG | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 96.49 | 99.61 | | | | | | DK GY TO BLK + WH SPECKLED GNE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ MU CHL SCH; F0 KINKED + | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 45 | | | | | | | | FOLDED; MOD. MG + TR. PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MG OCCURS AS FLECKS WITHIN CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLES; WEAK BANDS OF EPI | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALT; KINKS ORIENTED 20 DEG. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TO C/A | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 97.68-98.44 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLASTIC CAR QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH FOLD NOSES + KINKS OF CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE @ CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 99.61 | 101.11 | | | | | | CLASTIC CAR QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH FOLD NOSES + KINKS OF CAR; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 65 | | | | | | | | FOLD NOSES OF CAR SPACED OUT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALONG LENGTH OF INTERVAL; OCC. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLASTS OF QTZ 5 MM WIDE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HW/FW MARKED BY QTZ BAND | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 101.11 | 112.76 | | | | | | BLK GN+ WH FOLDED _ SPECKLED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GNE QTZ MU CHL SCH; MOD | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 50 | | | | | | | | BAND WITH CLASTIC CAR CHL QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MU SCH; SPECKLED SCH NON CAR | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 42 | | | | | | | | TR-W DISS PY + MG OCCURING AS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS; OCC. BANDS + BL OF EPI; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ TAKES OF LAYERED RHY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPEARANCE | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 68 | 112.76 | 114.27 | | | | | | CLASTIC QTZ PHYRIC; QTZ CHL MU | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER SCH; TR. DIS PY; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | | MOD CAR WITH BL OF QTZ; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SILVERY BLUE GN; HW CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MARKED BY QTZ FLOODING + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS; UNIT HAS REG GY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLIATED APPEARANCE | | | | | | | | | | | | | | | | | | | | | | | |
| C | 62 | 114.27 | 116.11 | | | | | | SPECKLED GY QTZ SER MU CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; NON CAR; NON CLASTIC; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT HAS FOLDED TURBULENT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPEARANCE | | | | | | | | | | | | | | | | | | | | | | | |
| C | 62 | 116.11 | 125.47 | | | | | | SILVERY BLUE GN GY QTZ CHL MU | | | | | | 116.02 | 117.82 | 1.80 | G004058 | 0.007 | 1 | 40 | <20 | 80 | | | | | | | | | |
| | | | | | | | | | SER SCH; MOD. CAR; 3-7% PYRITIC | | | | | | 117.82 | 119.60 | 1.78 | G004059 | 0.006 | <1 | 50 | 30 | 70 | | | | | | | | | |
| F0 | 52 | | | | | | | | ; V. THINNLY LA WITH CLASTIC | | | | | | 119.60 | 121.35 | 1.75 | G004060 | 0.005 | 1 | 40 | <20 | 70 | | | | | | | | | |
| | | | | | | | | | CAR + MOD. QTZ PHYRES | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 121.35-123.21 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH BECOMES INTER BANDED WITH | | | | | | 121.35 | 123.21 | 1.86 | G004116 | 0.012 | <1 | 270 | 40 | 300 | | | | | | | | | |
| F0 | 55 | | | | | | | | GY F0 MU SER SCH AND UNIT | | | | | | 123.21 | 124.83 | 1.62 | G004117 | 0.011 | <1 | 210 | <20 | 310 | | | | | | | | | |
| C | 60 | | | | | | | | BECOMES MORE PYRITIC; RARE | | | | | | 124.83 | 125.47 | 0.64 | G004118 | 0.357 | 7 | 9930 | 120 | 1560 | | | | | | | | | |
| | | | | | | | | | CP; MG DROPS OUT ON MARGINS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ON MU SCH WITHIN CHL + IS ASSOC. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH HIGHER CONC. OF PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 124.83-125.47 | | | | | | | | | | | | | | | | | | | | | | | |
| MX | 45 | | | | | | | | BANDS 3-10 CM WIDE OF MAG. SOLID | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY WITH ST. DISS MARGINS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CP + MG OCCURING ON FRINGES OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | COARSE PY MASSES; 10 CM SOLID @ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 125.37; CP APPARENT AS BC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | IN ASSOC. WITH QUARTZ BL; | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 125.47 | 126.97 | | | | | | INTER BEDDED SPECKLED + FOLDED | | | | | | 125.47 | 126.97 | 1.50 | G004119 | | | | | | | | | | | | | | |
| | | | | | | | | | GNE BLK + WH + GN QTZ MU | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 63 | | | | | | | | CHL SCH WITH BANDS OF | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | CLASTIC CAR SILVER GN QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | | MU SER SCH AND SILVER | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MU SER SCH WITH ST. DISS PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY DROP OUT AT CONTACTS BTWN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL CLASTIC + GNE SPECKLED SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALTHOUGH IS LIMITED WITHIN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SILVER MU SER SCH ; MOD-ST MG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ASSOC WITH CHL CLASTIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS; 7-10% SULFIDE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOR INTERVAL; 1-2% VISIBLE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CP | | | | | | | | | | | | | | | | | | | | | | | |
| C | 72 | 126.97 | 127.97 | | | | | | MU SER CHL SCH WITH | | | | | | 126.97 | 127.97 | 1.00 | G004120 | | | | | | | | | | | | | | |
| | | | | | | | | | SOLID PY + 5% VISIBLE | | | | | | BLANK | | | G004121 | | | | | | | | | | | | | | |
| | | | | | | | | | CP; FW CONSISTS OF 5 CM | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF SILVER MU SER SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HOSTING ST DISS PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC. BANDS OF CLASTIC QTZ | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 70 | 127.97 | 129.66 | | | | | | F0 MU SER CHL QTZ | | | | | | 127.97 | 129.66 | 1.69 | G004122 | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; SILVERY GN WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 2% DISS PY; UNIT HAS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LAYERED QTZ APPEARANCE; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RHY QTZ? NO N MAG; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALMOST ROPEY TEXTURE; OCC | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WISPS OF CHL WEAKLY SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 129.66 | 130.61 | | | | | | 129.66-130.61 | | | | | | 129.66 | 130.61 | 0.95 | G004123 | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT BECOMES INTERFO | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH SWIRLS + BANDS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL + BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST DISS WITH COARSE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY + WEAK BL OF CP | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NON MAG; QTZ IS CLEAR OPAL | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 130.61 | 132.48 | | | | | | SPECKLED BK + WH GNE | | | | | | 130.61 | 131.31 | 0.70 | G004124 | | | | | | | | | | | | | | |
| | | | | | | | | | STRIPPED QTZ MU SER SCH; | | | | | | 131.37 | 132.48 | 1.11 | G004126 | 0.021 | <1 | 130 | 60 | 550 | | | | | | | | | |
| | | | | | | | | | UNIT IS WEAKLY CLAY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALT; MOD INTER F0 WITH MU | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND OCC. BL OF OPAL QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | 132.48 | 142.31 | | | | | | GY GN CLASTIC CAR CHL QTZ | | | | | | 132.48 | 133.00 | 0.52 | G004127 | 0.377 | 19 | 4600 | 690 | 3850 | | | | | | | | | |
| | | | | | | | | | MU SER SCH 5-7% | | | | | | 133.00 | 134.62 | 1.62 | G004128 | 0.016 | <1 | 240 | 30 | 110 | | | | | | | | | |
| F0 | 68 | | | | | | | | MIN WITH COARSE PY HOSTING | | | | | | 134.62 | 135.84 | 1.22 | G004129 | 0.131 | 7 | 1410 | 270 | 1080 | | | | | | | | | |
| | | | | | | | | | TR CP MOD MG; OCC BL | | | | | | 135.84 | 136.42 | 0.58 | G004130 | 0.024 | <1 | 200 | 50 | 270 | | | | | | | | | |
| F0 | | | | | | | | | OF QTZ; 15 CM SOLID PY @ | | | | | | 136.42 | 137.00 | 0.58 | G004131 | 0.669 | 33 | 1990 | 2150 | 7060 | | | | | | | | | |
| | | | | | | | | | CONTACT 132.48; | | | | | | BLANK | | | G004132 | <0.005 | <1 | 10 | <20 | 40 | | | | | | | | | |
| F0 | | | | | | | | | 133.00-135.84 | | | | | | 137.00 | 137.79 | 0.79 | G004133 | 0.081 | 3 | 2290 | 150 | 580 | | | | | | | | | |
| | | | | | | | | | UNIT BECOMES V.F GRAINED | | | | | | 137.79 | 138.36 | 0.57 | G004134 | 0.533 | 25 | 3210 | 1880 | 12550 | | | | | | | | | |
| MX | 68 | | | | | | | | 134.62-134.72 | | | | | | 138.36 | 139.68 | 1.32 | G004135 | 0.024 | <1 | 290 | 50 | 160 | | | | | | | | | |
| | | | | | | | | | MA VITEROUS QTZ | | | | | | 139.68 | 140.34 | 0.66 | G004136 | 0.012 | <1 | 220 | 40 | 140 | | | | | | | | | |
| | | | | | | | | | | | | | | | 140.34 | 141.35 | 1.01 | G004137 | 0.078 | 3 | 5450 | 140 | 570 | | | | | | | | | |
| | | | | | | | | | 136.42-138.36 | | | | | | 141.35 | 142.31 | 0.96 | G004138 | <0.005 | <1 | 60 | 40 | 150 | | | | | | | | | |
| | | | | | | | | | UNIT 10-15% MIN. WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | | COARSE GRANULAR PY; CP + MG | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING ON FRINGES OF PY | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 50 | | | | | | | | GRAINS; MG ALWAYS AS COARSE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS WITH PY CP OCC. | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING WITHIN GRAINS; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 35 CM COARSE INTERVAL @ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | 138.00 M | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 141.35-142.31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MU CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MIN. DROPS OFF + UNIT | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 62 | | | | | | | | BECOMES INTERFO WITH BANDS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF CAR AND OCC. SHORT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | INTERVALS OF GNE SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BK + WH STRIPPED M QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 142.31 | 143.00 | | | | | | GY STRIPPED QTZ SER MU | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 50 | | | | | | | | SCH; TRY PY W. CLAY ALT ON | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | FR. SURFACES | | | | | | | | | | | | | | | | | | | | | | | |
| C | 52 | 143.00 | 144.52 | | | | | | SUGARY QTZ CLASTIC/LAYERED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL MU SCH; QTZ IS ROPEY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS MD GN AND WEAKLY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR WITH TR PY + MG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT WEAKLY FOLDED WITH NOSE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDS WITHIN QTZ BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 144.52 | 147.50 | | | | | | GY SPECKLED QTZ SER MU | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SCH; UNIT IS WELL LA; | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 70 | | | | | | | | TR RARE DISS PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW 40 CM BECOMES BANDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH ROPEY GN CLASTIC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL MU SCH+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SINUSOIDAL CAR; MOD. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR MG ASSOC WITH PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 68 | 147.50 | 152.06 | | | | | | GY SPECKLED + ROPEY QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER MU CHL SCH; UNIT | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 72 | | | | | | | | BECOMES FOLDED WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NOSE FOLDS; F0 SHALLOW | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SIGNIFICANTLY; WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR FLECKS OF MG | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 149.68-150.07 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 52 | | | | | | | | UNIT BECOMES INTER F0 WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL CAR CLASTIC QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | | CHL MU SCH; MU MOD. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDED; MOD. CAR TR PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR MG; OCC. BL OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLEAR OPAL QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 152.06 | 158.13 | | | | | | GN CAR QTZ CLASTIC QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 55 | | | | | | | | MU SER SCH; TR-W PY OCCURING | | | | | | | | | | | | | | | | | | | | | | | |
| C | 54 | | | | | | | | AS CUBES + TR. MG OCC. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LENSES OF CLEAR GY OPALESCENT | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 65 | | | | | | | | QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 3 SHORT INTERVALS < 10 CM OF BLK+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WH STRIPPED + SPECKLED ROPEY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 158.13 | 158.98 | | | | | | GY UNALT BEDDED QTIT; OCC | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 85 | | | | | | | | THIN BANDS OF CHL + PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 62 | 158.98 | | 165.8 | | | | | GY GN MU SER QTZ CHL SCH; TR | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 65 | | | | | | | | PY WITH PATCHES OF COARSE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GRANULAR PY OCCURING IN FR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NEAR QTZ BANDS; TR CAR; | | | | | | | | | | | | | | | | | | | | | | | |
| FA | 30 | | | | | | | | NON MAG F0 MILDLY KINKED + | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 55 | | | | | | | | BANDS FORM FOLD QTZ IS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALSO KINKED | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 165.80 | 169.00 | | | | | | GY WH + GN QTZ SER CHL SCH; | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | UNIT IS SILVERY WH + HOSTS | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 60 | | | | | | | | NUMEROUS FOLD NOSES; WEAK | | | | | | | | | | | | | | | | | | | | | | | | |
| FA | 30 | | | | | | | | TR PY; CONTACT IS GRADATIONAL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 169.00 | 187.00 | | | | | | GY GN QTZ MU SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY; NO MG. MINOR CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| F0 | 62 | | | | | | | | INTERBANDED WITH BARREN | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY QTIT; QTIT IS LA + LAYERED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 173.59-174.10 | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | FE ALT BANDED QTIT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 174.10-186.91 | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 62 | | | | | | | | UNIT IS INTERBEDDED WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RUNS OF SILTSTONE + QTIT; | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | CHL IS FAIR TO WEAK + UNIT | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 72 | | | | | | | | HAS A FAIR DULL INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SED APPEARANCE; CONTACTS ARE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHARP + REGULAR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 175.48-176.23 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTIT;QTIT OCCURS IN WEAKLY FE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALT BANDS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | | | | | | | | 177.59-185.09 | | | | | | | | | | | | | | | | | | | | | | | | |
| LA | 70 | | | | | | | | INTERMITTENT SHORT PULSES OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BLK GRAPHITIC SILTSTONE HOSTING | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | COARSE GRAINS OF PY WITHIN LA; | | | | | | | | | | | | | | | | | | | | | | | | |
| LA | 68 | | | | | | | | INTERVALS NO MORE THAN 10-20CM | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LONG+SPACED 0.5-1M APART | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | 185.09-187.00 | | | | | | | | | | | | | | | | | | | | | | | | |
| LA | 62 | | | | | | | | GY GN QTZ CHL SER SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LENSES OF QTZ + TR PY; TR DISS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY THROUGHOUT ; V.F.G. + FINELY LA | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NO CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 187.00 | 189.05 | | | | | | GY QTIT WITH INTERBEDDED FINE | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | QTZ CHL SER SCH; TR CAR AT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 52 | 189.05 | 200.82 | | | | | | FO QTZ CHL SER MU SCH WITH OCC. | | | | | | 198.99 | 200.21 | 1.22 | G004139 | 0.016 | <1 | 100 | <20 | 80 | | | | | | | | | | |
| FO | 60 | | | | | | | | BANDS OF QTZ + TR DISS. COARSE | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | CUBIC PY; SCH IS KINKED + WELL FO; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | RARE BANDS OF PINK HEM.OCCUR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | @ 196.61; UNIT IS MOD. CAR; KINKS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ORIENTED 65 DEG. TO C/A | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 200.82 | 203.68 | | | | | | DK-GY-BLK FO QTZ PHYRIC FRAG.; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BLK QTZ PHYRIC MU SER SCH W. GR; | | | | | | 200.21 | 200.82 | 0.61 | G004140 | 0.014 | <1 | 70 | <20 | 50 | | | | | | | | | | |
| FO | 20 | | | | | | | | QTZ OCCURS AS OPALESCENT TEAR | | | | | | 200.82 | 202.47 | 1.65 | G004141 | 0.005 | <1 | 60 | <20 | 70 | | | | | | | | | | |
| | | | | | | | | | DROPS QTZ EYES 5-7% PY+ TRACE | | | | | | 202.47 | 204.39 | 1.92 | G004142 | 0.008 | <1 | 80 | <20 | 120 | | | | | | | | | | |
| FO | 42 | | | | | | | | FLECKS OF Mg; MOD. CAR AS BL+LA; | | | | | | BLANK | | | G004143 | <0.005 | <1 | <10 | <20 | 20 | | | | | | | | | | |
| | | | | | | | | | UNIT GRADES INTO DK GN SCH; OCC. | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS OF QTIT; 1% CP | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 203.68 | 211.22 | | | | | | DK GY-BLK-GN WEAKLY CHL ALT QTZ | | | | | | 204.39 | 205.51 | 1.12 | G004144 | 0.017 | <1 | 90 | <20 | 60 | | | | | | | | | | |
| | | | | | | | | | MU SER CHL SCH; KINKED+W. FO | | | | | | 205.51 | 206.82 | 1.31 | G004145 | 0.018 | 2 | 70 | <20 | 120 | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-07

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 50 | | | | | | | | WITH 5% PY + APPROX. 1% FINE DISS. | | | | | | 206.82 | 208.25 | 1.43 | G004146 | 0.014 | 1 | 80 | <20 | 90 | | | | | | | | | |
| | | | | | | | | | CP+ Mg; UNIT GRADES IN AND OUT | | | | | | 208.25 | 210.15 | 1.90 | G004147 | 0.006 | <1 | 10 | <20 | 60 | | | | | | | | | |
| FO | 75 | | | | | | | | OF FRAG.;MIN. ASSOC WITH BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF SER ALT; OCC. FOLD NOSES | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITHIN SCH @ 206.50M | | | | | | | | | | | | | | | | | | | | | | | |
| C | 82 | 211.22 | 215.50 | | | | | | GY QTIT; HW IS 20CM OF PURPLE | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 80 | | | | | | | | FOLDED GNE; QTZ CHL HEM? SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERVAL IS INTERBEDDED WIITH GY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTIT + FO QTZ MU SER CHL SCH+DK | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY METASILTSTONE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 214.12-215.50 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DK GY-BLK SIL.ARG,SILTSTONE WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LA CHL; COARSE PY AND TR Mg | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DROPPING OUT @ QTIT CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | E.O.H 215.50M | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PERTY: MOR**

**HOLE:** MOR-08-08

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 662427 | 6663873 | 1245 | 230.13 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS-300

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 58 | brunton | | | | |
| 230.13 | 355 | 59.65 | acid | | | | |
| | | | | | | | |
| | | | | | | | |

Core size: BTW
Casing depth: 7' (m) in/out

Drilling dates: June 24,2008- June 30, 2008

Logged by: M.Nunez

Target: _____

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004154-G004170

Total:
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-08

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 5.55 | | | | | | MD GN CAR AND | | | | | | | | | | | | | | | 169.16 | 172.27 | 3.11 | 2.98 | 95.8 | 2.52 | | | |
| | | | | | | | | | 3.63-4.00 | | | | | | | | | | | | | | | 172.27 | 175.26 | 2.99 | 3.05 | 102 | 2.18 | | | |
| C | 55 | | | | | | | | BLOTCHS OF EPI ALT + WEAK | | | | | | | | | | | | | | | 175.26 | 178.37 | 3.11 | 3.05 | 98.1 | 2.87 | | | |
| | | | | | | | | | MINOR BL OF PY | | | | | | | | | | | | | | | 178.37 | 181.36 | 2.99 | 3.01 | 101 | 1.60 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 181.36 | 184.40 | 3.04 | 3.05 | 100 | 1.13 | | | |
| C | 50 | 5.55 | 9.04 | | | | | | GY GN SPECKLED + EPI SPOTTED | | | | | | | | | | | | | | | 184.40 | 187.45 | 3.05 | 3.01 | 98.7 | 1.38 | | | |
| F0 | 55 | | | | | | | | QTZ MU CHL SCH WITH TR | | | | | | | | | | | | | | | 187.45 | 190.50 | 3.05 | 2.92 | 95.7 | 1.85 | | | |
| C | 50 | | | | | | | | ROTTED CUBIC PY WITH | | | | | | | | | | | | | | | 190.50 | 193.55 | 3.05 | 2.91 | 95.4 | 2.09 | | | |
| | | | | | | | | | BANDS OF INTERBEDDED AND | | | | | | | | | | | | | | | 193.55 | 196.57 | 3.02 | 3.01 | 99.7 | 2.17 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 196.57 | 199.64 | 3.07 | 3.05 | 99.3 | 2.75 | | | |
| C | 60 | 9.04 | 10.29 | | | | | | MD GN CAR AND; OCC | | | | | | | | | | | | | | | 199.64 | 202.69 | 3.05 | 2.99 | 98 | 2.51 | | | |
| | | | | | | | | | SWIRLS + BL OF CAR | | | | | | | | | | | | | | | 202.69 | 205.74 | 3.05 | 3.04 | 99.7 | 2.39 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 205.74 | 208.79 | 3.05 | 2.97 | 97.4 | 2.45 | | | |
| C | 65 | 10.29 | 11.63 | | | | | | GN WEAKLY SPECKLED QTZ | | | | | | | | | | | | | | | 208.79 | 211.84 | 3.05 | 3.00 | 98.4 | 1.35 | | | |
| | | | | | | | | | CHL SCH; QTZ IS ROUNDED + GRITTY; | | | | | | | | | | | | | | | 211.84 | 214.88 | 3.04 | 2.94 | 96.7 | 2.35 | | | |
| F0 | 60 | | | | | | | | WISPS + BL OF EPI ALT; TR CAR; FW | | | | | | | | | | | | | | | 214.88 | 217.93 | 3.05 | 3.05 | 100 | 2.12 | | | |
| | | | | | | | | | CONTACT BLEACHED GN + MARKED | | | | | | | | | | | | | | | 217.93 | 220.98 | 3.05 | 3.02 | 99 | 2.16 | | | |
| | | | | | | | | | BY QTZ BAND 3 CM WIDE | | | | | | | | | | | | | | | 220.98 | 224.03 | 3.05 | 3.05 | 100 | 2.75 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 224.03 | 227.08 | 3.05 | 3.05 | 100 | 2.59 | | | |
| C | 88 | 11.63 | 17.88 | | | | | | MD GN CAR AND; 15 CM OF SIL @ 14.88 | | | | | | | | | | | | | | | 227.08 | 230.13 | 3.05 | 3.05 | 100 | 2.75 | | | |
| | | | | | | | | | 13.96-14.52 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | SPECKLED GY GN EPI ALT; NO CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 17.88 | 25.78 | | | | | | GY GN SPECKLED + EPI SPOTTED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | QTZ CHL EPI SCH; NON CAR; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HW CONTACT IRREGULAR BUT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ROUGHLY 55 DEG | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 25.78 | 29.96 | | | | | | MD GN CAR AND OCC BL + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WISPS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| KC | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 29.96 | 35.55 | | | | | | MD GN SPECKLED EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL MUSCH + INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR MD GN AND ; UNITS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCURRING AT APPROX 0.5m | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERVALS WITH OCC. BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF WHITE QTZ FORMING CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BOUNDARY; CONTACTS ARE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD. EPI ALT + OCC. HOST | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR COARSE PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 35.55 | 37.80 | | | | | | MD GN CAR AND; OCC. BL + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WISPS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | 37.80 | 49.22 | | | | | | MD GN+RED SPECKLED EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 74 | | | | | | | | QTZ CHL MUSCH; DEEP RED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HEMON FRACTURES | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 40.25-42.15 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OXIDIZED + HEM RUBBLE | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 49.22 | 75.50 | | | | | | MD GN CAR AND; UNIT IS | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 61 | | | | | | | | WEAKLY FO WITH LOCAL | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | SECTIONS OF WEAK CHL EPI | | | | | | | | | | | | | | | | | | | | | | | |
| C | 77 | | | | | | | | ALT SPECKLED QTZ CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | UNIT VERY WELL INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | | From (m) | To (m) | Intvl. (m) | REC | | RQD | | Weathering | Hardness |
| Type | Attitude | | | | | | | | | | | | | | | | | | | | | | | | | | | (m) | Percent | (m) | Percent | | |
| C | 67 | | | | | | | | OCCURING AT 0.5 m INTERVALS | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | + UP TO 1 m IN LENGTH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 55 | | | | | | | | EPI ALT INCR TOWARDS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 42 | | | | | | | | 63.20 m ; OCC BL OF PY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | | | | | | | | CONTACTS ARE SHARP | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 45 | | | | | | | | 72.95-73.30 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 52 | | | | | | | | UNIT BECOMES CRUSHED WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHALLOW C/A ANGLES + | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HEM CHL ON FR SURFACES 15 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DEG. TO C/A | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 70.12-72.10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 50 | | | | | | | | SPECKLED GN GNE QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | MUSCH WITH MOD EPI ALT + | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 33 | 74.50 | 79.73 | | | | | | TIGHTLY INTERBEDDED SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | LTGN EPI ALT QTZ CHL MUSCH + | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 43 | | | | | | | | MD GN CAR QTZ CHL MU SCH; SCHISTS | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 40 | | | | | | | | WISPS + SWIRLS OF CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | UNIT CONTACTS ARE SHARP; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | V. RARE OCC ROTTED CUBES OF PY; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BEDS ARE ALT YELLOW + GN | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPROX EVERY 10-30 cm; OCC. | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BADS OF PY + MG OCC PARALLEL | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TO FO; SPECKLED SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TIGHTLY FOLDED AT HW | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 64 | 79.73 | 88.38 | | | | | | SPECKLED WELL FO QTZ SER | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SCH WITH W-MOD | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | EPI ALT; FO HOSTS BANDS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND FLECKS OF PY AND | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CORRELATES TO INCR SER | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | | | | | | | | 82.27-82.87 | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 35 | | | | | | | | TIGHTLY FO DK GN CAR AND? | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 32 | | | | | | | | QTZ CHL MU SER SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 88.38 | 94.91 | | | | | | TIGHTLY FO + INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED NON CAR EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 66 | | | | | | | | QTZ CHL SER SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CR PY ASSOC WITH CHL | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | GRAINS UNIT IS MD-DK | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GN BANDED + YELLOW; INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 71 | | | | | | | | WITH MD GN CAR QTZ CHL SER MU | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; V.F. GRAINED + WELL | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FO; FW FO 75 | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | | | | | | | | 92.36-93.9 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY FO QTZ SER CHL SCH WITH ST | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 25 | | | | | | | | FO AND TR PY; HW MARKED | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BY 5cm QTZ FLOOD FOLLOWED | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | BY 26cm OF ST EPI ALT GNE | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL SER SPECKLED SCH; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE INTERSECTION? | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 52 | 94.14 | 100.52 | | | | | | EPI + CHL ALT SPECKLED SER CHL SCH; | | | | | | 99.15 | 100.48 | 1.33 | G00415 | <0.005 | <1 | 20 | <20 | 70 | | | | | | | | | |
| | | | | | | | | | TR PY; YELLOW GN IN COLOUR; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR CAR; GNE; UNIT IS KINKED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 67 | | | | | | | | WITH FOLD NOSE @ 96.01m | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PRECEDED BY A BAND OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING ROUGHLY 70 DEG. TO C/A | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 96.89-98.79 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | KINKED + FOLDED GRI TTY QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | CAR CHL SER SCH WITH PATCHES | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | | | | | | | | AND BL OF SPECKLED QSCS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW IS A 4cm BAND OF QTZ; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACT MARKED BY THIN BAND | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF PY + V.W. CP AT HW; W PY + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TRACE CP THROUGHOUT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MIN 3% | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 100.52 | 104.36 | | | | | | DK GY CAR NON MAG QTZ CHL | | | | | | 100.48 | 104.16 | 3.68 | G00415 | 0.007 | <1 | 80 | <20 | 120 | | | | | | | | | |
| | | | | | | | | | (MAGN) SER SCH WITH THIN | | | | | | BLANK | | | G00415 | <0.005 | <1 | <10 | <20 | 20 | | | | | | | | | |
| FO | 55 | | | | | | | | FO PY + CP; QTZ IS CLOUDED + | | | | | | 104.16 | 105.16 | 1.00 | G00415 | 0.006 | <1 | 150 | <20 | 80 | | | | | | | | | |
| | | | | | | | | | PHYRIC/LAYED (VOLCANIC) + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CP FORMS ON RIMS OF PY; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS 3-5% MIN. WITH | | | | | | | | | | | | | c | | | | | | | | | | |
| | | | | | | | | | 1% CP; FW CONTACT MARKED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BY 15 cm OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | 104.36 | 105.62 | | | | | | GN+ YW WEAKLY SPOTTED SPECKLED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ SER CHL SCH; SPOTS APPEAR | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 58 | | | | | | | | CLASTIC + INTER FO FORMING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ROUNDED LENSES (SAU FD'S) | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W. CAR, TR PY; FW BECOMES | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST KINK LEADING INTO GY QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 105.62 | 108.28 | | | | | | GY CLOUDED AND WELL BEDDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Q TIT; WEAK OCC. BANDS OF | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 65 | | | | | | | | HEM; FAIRLY MASSIVE WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTER FO CHL | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 108.28 | 111.25 | STRUC | | | | | GN+ YW SPECKLED EPI ALT QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER CHL SCH; FO START STEEP | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | THEN SHALLOW TO 15 DEG. + NEAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PARALLEL AROUND A FOLD | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 15 | | | | | | | | NOSE @ 109.90; SCH IS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTER FO WITH CAR CHL QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 45 | | | | | | | | SER SCH + SHORT INTERVALS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF Q TIT; OCC BOUDINAGED EPI | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLASTS OF SED IN SCH; W- | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD CAR OVERALL | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 111.25 | 113.66 | STRUC | | | | | GY GN CLOUDED QTIT + BL OF | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 55 | | | | | | | | BULL QTZ; 30cm BULL QTZ @ 112.70m | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTIT SHALLOWS TO FOLD NOSE@ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 112.40 FOLLOWED BY BULL QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BAND @ 112.70; FW BACK | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | TO STANDARD C/A ANGLE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AFTER QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 113.66 | 115.45 | | | | | | INTERBEDDED SPECKLED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 78 | | | | | | | | YW GN QTZ CHL SER SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 85 | | | | | | | | AND CAR SWIRLED, KINKED+ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | FOLD BANDED CHL SER MU | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | | SCH UNIT ALTERNATES AT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 78 | | | | | | | | 24-40 cm INTERVALS; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHARP CONTACTS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 115.45 | 117.95 | | | | | | ST BEDDED QTIT WITH INTER FO | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL + SHORT INTERVALS OF | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | SPECKELED QTZ CHL SER | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; OCC SHORT INTER OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR KINK QTZ CHL MUSCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 25 | 117.95 | 119.15 | | | | | | CAR GN CHL SER MU QTZ SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST FOLDED + KINKED MD GN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHALLOW C/A + N0SE FOLDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING HALFWAY; BL OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED SCH OCCURING WITHIN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FO; OCC BEDS OF QTIT 40 DEG. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TO C/A; NOSE FOLD @ 119.15 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 119.15 | 130.40 | | | | | | GY GN INTERBEDDED SPECKLED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 80 | | | | | | | | CHL SER EPI ALT SCH CAR MD GN GY | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 80 | | | | | | | | CHL QTZ SER SCH + QTIT; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACT ARE SHARP + UNIT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALTERNATE APPROX. EVERY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 30-40cm. SER ALT BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HOST TR PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 130.40 | 132.40 | | | | | | GY SPECKLED QTZ CHL BIO MU | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 73 | | | | | | | | SCH WITH TR PY; QTZ IS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WH + CLOUDY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 132.40 | 136.95 | | | | | | GY GN FO CAR CHL MU QTZ SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | VERY FINELY FO, ALMOST MA; TR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY; GRADES INTO LENSES OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR +BL OF EPI ALT SEDS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 72 | 136.95 | 137.95 | | | | | | GY GN SPOTTED WITH EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 73 | | | | | | | | CLASTS; QTZ CHL SER SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLASTS ARE ROUNDED+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTER FO; TR FR. FILLING PY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 137.95 | 141.05 | | | | | | GY GN FO CAR QTZ CHL BIO MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | QTZ IS DOM. GIVING GY COLOUR; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY + MG | | | | | | | | | | | | | | | | | | | | | | | |
| C | 72 | 141.05 | 147.05 | | | | | | SUGARY THINNLY FO QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | CHL MU BIO SCH; QTZ DOM. SUGARY GY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH OCC. LENSES OF BULL QTZ; FO | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | GO FROM STEEP TO SINUSOIDAL | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ; MOD. CAR; SIMILAR TO PREVIOUS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | THOUGH < 1 % SULFIDE CONTENT; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC SHORT INTERVALS OF CHL CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ SCH; | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 144.61-147.05 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR CHL CONTENT INCR; 3-5 % | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS OF PY + MG | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 147.05 | 148.03 | | | | | | GY SPECKLED GNE QTZ | | | | | | 147.05 | 148.03 | 0.98 | G00415 | <0.005 | 2 | 10 | <20 | 50 | | | | | | | | | | | |
| C | 74 | 148.03 | 158.48 | | | | | | FINELY LA CAR QTZ CHL SER BIO | | | | | | 148.03 | 150.22 | 2.19 | G00415 | 0.006 | <1 | 20 | 40 | 100 | | | | | | | | | | | |
| | | | | | | | | | SCH WITH OCC. BANDS OF QTZ | | | | | | 150.22 | 151.83 | 1.61 | G00416 | 0.005 | 2 | 100 | 40 | 80 | | | | | | | | | | | |
| FO | 72 | | | | | | | | AND WEAK FLECKS OF PY + MG + | | | | | | 151.83 | 152.68 | 0.85 | G00416 | 0.152 | 2 | 1430 | 70 | 1870 | | | | | | | | | | | |
| | | | | | | | | | TR CP; CONTACT SHARP' | | | | | | 152.68 | 153.56 | 0.88 | G00416 | 0.007 | 2 | 110 | 40 | 120 | | | | | | | | | | | |
| FO | 75 | | | | | | | | UNIT PHASES IN + OUT OF | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER QTZ SCH + HOSTS SHORT | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERVALS OF MA PY+ MG | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AS WELL AS SPECKLED GNE | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; OVERALL COLOUR IS GY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GN; UNIT MIN CONSISTENT WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PRODUCTIVE PHASE OF MIN | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | | 152.02-152.39 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHORT MA BANDS OF COARSE PY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH CP ON RIMS + FLECKS OF MG | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 85 | | | | | | | | 153.64- 154.39 | | | | | | 153.56 | 155.40 | 1.84 | G00416 | 0.275 | 22 | 1890 | 3480 | 17850 | | | | | | | | | | | |
| | | | | | | | | | SHORT MA BANDS OF MIN SAME | | | | | | BLANK | | | G00416 | 0.007 | <1 | <10 | <20 | 40 | | | | | | | | | | | |
| | | | | | | | | | AS ABOVE | | | | | | 155.40 | 156.43 | 1.03 | G00416 | 0.144 | 4 | 3930 | 70 | 410 | | | | | | | | | | | |
| | | | | | | | | | 155.40-158.48 | | | | | | 156.43 | 158.48 | 2.05 | G00416 | 0.008 | <1 | 700 | <20 | 120 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 158.48 | 159.70 | 1.22 | G00416 | <0.005 | 3 | 50 | <20 | 80 | | | | | | | | | | | |
| C | 75 | 158.48 | 158.70 | | | | | | GY SPECKLED W. CL ALT | | | | | | 159.70 | 160.51 | 0.81 | G00416 | <0.005 | <1 | 70 | <20 | 120 | | | | | | | | | | | |
| KO | 75 | | | | | | | | SER CHL QTZ SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 158.70 | 163.39 | | | | | | GN FINELY LA CAR CHL SER SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | 3-5% SULFIDE; MINOR CP + TR Mg | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | 160.02-160.51 | | | | | | 160.51 | 163.39 | 2.88 | G00416 | <0.005 | <1 | 10 | <20 | 110 | | | | | | | | | | | |
| FO | 70 | | | | | | | | GY SPECKLED QTZ SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | | 161.48-161.51 | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | GY SPECKLED QTZ SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 163.39 | 169.27 | | | | | | GY GNE SPECKLED QTZ CHL SCH (ORTHOGNE) | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST FOLDED + KINKED WITH INTERVALS | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 62 | | | | | | | | OF CAR CHL SCH; CAR | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 164.62-165.44 | | | | | | 163.39 | 164.74 | 1.35 | G00417 | <0.005 | <1 | <10 | <20 | 40 | | | | | | | | | | | |
| FO | 15 | | | | | | | | BULL QTZ WITH BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 167.72-168.00 | | | | | | END OF SAMPLING | | | | | | | | | | | | | | | | | | | |
| FO | 45 | | | | | | | | WEAK PINK HEM ALT | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 169.27 | 177.08 | | | | | | QTZ SER CHL SCH; 2-3% | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 67 | | | | | | | | DISS PY TR Mg + < 1% CP; | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | WEAKLY CAR GY GN; OCC. INTER | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BEDDED QTIT + BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 177.08 | 179.03 | | | | | | BIO SER QTZ CHL SCH; ST | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | CAR; TR. PY FW 20cm OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BULL QTZ; SHARP CONTACTS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 85 | 179.03 | 185.29 | | | | | | FOLDED + BANDED QTZ SER CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | SCH; TR PY; UNIT IS ST | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDED WITH INTERFO QTZ + QTIT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 180.64-181.94 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CRUSHED WEADLY CL ALT FOLD QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER CHL SCH; TR PY; MOD. CHL CL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 181.94-185.29 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT ST. FOLDED WITH BANDS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ; UNIT WEAKLY BRECCIATED @ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW; OCC BANDS OF PY | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 30 | 185.29 | 186.73 | | | | | | DK GY TO DEEP MARROON + | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | | | | | | | | | SILVERY QTZ BIO MUSCH; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PO; WEAKLY INTERBEDDED QTIT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD. CAR; FO ARE SINUOUS; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE @ HW CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 186.73 | 195.40 | | | | | | SUGARY BANDED QTZ SER MU | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SCH WITH INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | META SLT + THINNLY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FO PY + PO; VERY WEAKLY MAG. | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 23 | | | | | | | | NON CAR; UNIT IS GY GN + | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | REGULARLY BANDED | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 85 | 195.40 | 210.18 | | | | | | FO BIO QTZ SER CAR SCH; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | (FRAGMENTAL?) QTZ OCCURS | | | | | | | | | | | | | | | | | | | | | | | | |
| KO | 75 | | | | | | | | IN LAPILLI LENSES + EYES; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY; UNIT IS DEEP PURPLE | | | | | | | | | | | | | | | | | | | | | | | | |
| KO | 80 | | | | | | | | WH+ GN | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 83 | 210.18 | 220.91 | | | | | | CAR QTIT WITH FR FILLING | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR; OCC BANDS OF FO | | | | | | | | | | | | | | | | | | | | | | | | |
| KO | 65 | | | | | | | | BIO QTZ SER CAR SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 85 | 220.91 | 221.13 | | | | | | WH MA MARBLE LMST | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 221.13 | 223.87 | | | | | | INTERBEDDED GY SLT + WH | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 75 | | | | | | | | LMST; FW CONSISTS OF 10 cm | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF GN MG CHL SER SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 90 | 223.87 | 225.77 | | | | | | Ma WH LMST; OCC FR FILLING | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 75 | | | | | | | | CHL + BANDS OF SLT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | 225.77 | 230.12 | | | | | | GY INTER BEDDED SLT; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 80 | | | | | | | | QTIT SPECKLED SCH + | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL LAPILLI FRAGMENTAL WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | < 1% Mg; SLT FORMS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DOM COMPONENT | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-08

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | E.O.H 230.12 | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-09

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 661826 | 6663793 | 1295 | 242.93 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS 300

Core size: BTW
Casing depth: 5' (m) in/out

Drilling dates: July 2 - July 4, 2008

Logged by: M. Nunez

Target: _____

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 58 | 58 | | | | |
| 242.93 | 355 | 58 | 57.3 | | | | |
| | | | | | | | |
| | | | | | | | |

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004171-G004184

Total: 15
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-09

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 75 | 0.00 | 5.10 | | | | | | MG-FG MD GN CHL CAR MU | | | | | | | | | | | | | | | 0.00 | 2.13 | 2.13 | 0.49 | 23 | 0.00 | 0 | | |
| | | | | | | | | | QTZ SCH (AND?); HOSTS | | | | | | | | | | | | | | | 2.13 | 5.18 | 3.05 | 3.00 | 98 | 0.52 | 17 | | |
| | | | | | | | | | SINUSOIDAL FOLDED CAR + | | | | | | | | | | | | | | | 5.18 | 8.23 | 3.05 | 3.05 | 100 | 2.20 | 72 | | |
| | | | | | | | | | QTZ | | | | | | | | | | | | | | | 8.23 | 11.28 | 3.05 | 3.05 | 100 | 2.01 | 66 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 11.28 | 14.53 | 3.25 | 3.01 | 93 | 1.77 | 54 | | |
| C | 72 | 5.10 | 7.20 | | | | | | SPECKLED QTZ CHL MU SCH | | | | | | | | | | | | | | | 14.53 | 17.37 | 2.84 | 2.98 | 105 | 1.31 | 46 | | |
| FO | 77 | | | | | | | | | | | | | | | | | | | | | | | 17.37 | 20.42 | 3.05 | 3.05 | 100 | 1.96 | 64 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 20.42 | 23.47 | 3.05 | 3.04 | 100 | 2.10 | 69 | | |
| C | 84 | 7.20 | 8.53 | | | AND | | | MD Grained MD GN CAR AND? CHL SCH; | | | | | | | | | | | | | | | 23.47 | 26.52 | 3.05 | 3.05 | 100 | 2.17 | 71 | | |
| FO | 70 | | | | | | | | CAR GIVES SPOTTED APPEARANCE | | | | | | | | | | | | | | | 26.52 | 29.57 | 3.05 | 2.98 | 98 | 2.04 | 67 | | |
| | | | | | | | | | CONTACT MARKED BY 3 cm QTZ | | | | | | | | | | | | | | | 29.57 | 32.61 | 3.04 | 3.01 | 99 | 2.55 | 84 | | |
| | | | | | | | | | BAND | | | | | | | | | | | | | | | 32.61 | 35.66 | 3.05 | 3.04 | 100 | 2.37 | 78 | | |
| C | 85 | 8.53 | 18.85 | | | | | | SPECKLED QTZ CHL MU SCH | | | | | | | | | | | | | | | 35.66 | 38.71 | 3.05 | 3.05 | 100 | 2.22 | 73 | | |
| FO | 85 | | | | | | | | WITH WEAK - MOD. CLOTS | | | | | | | | | | | | | | | 38.71 | 41.76 | 3.05 | 3.05 | 100 | 2.58 | 85 | | |
| | | | | | | | | | OF EPI ALT SEDS; TR PY | | | | | | | | | | | | | | | 41.76 | 44.81 | 3.05 | 3.03 | 99 | 2.73 | 90 | | |
| C | 75 | | | | | | | | 14.47-14.95 | | | | | | | | | | | | | | | 44.81 | 47.85 | 3.04 | 2.96 | 97 | 2.34 | 77 | | |
| FO | 70 | | | | | | | | CAR AND | | | | | | | | | | | | | | | 47.85 | 50.90 | 3.05 | 3.04 | 100 | 2.79 | 91 | | |
| C | 80 | | | | | | | | 16.17-16.90 | | | | | | | | | | | | | | | 50.90 | 53.95 | 3.05 | 3.02 | 99 | 2.54 | 83 | | |
| FO | 77 | | | | | | | | CAR AND | | | | | | | | | | | | | | | 53.95 | 57.00 | 3.05 | 3.03 | 99 | 2.40 | 79 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 57.00 | 60.10 | 3.10 | 2.94 | 95 | 1.95 | 63 | | |
| C | 30 | 18.85 | 20.28 | | | AND | | | CAR AND; CAR FORMING | | | | | | | | | | | | | | | 60.10 | 63.09 | 2.99 | 3.04 | 102 | 2.55 | 85 | | |
| FO | 20 | | | | | | | | FOLD NOSES; TR PY ; FO | | | | | | | | | | | | | | | 63.09 | 66.14 | 3.05 | 3.04 | 100 | 2.67 | 88 | | |
| | | | | | | | | | STEEPEN TOWARDS FW; TR | | | | | | | | | | | | | | | 66.14 | 69.19 | 3.05 | 3.05 | 100 | 2.92 | 96 | | |
| FO | 62 | | | | | | | | CUBIC PY | | | | | | | | | | | | | | | 69.19 | 72.24 | 3.05 | 3.00 | 98 | 2.60 | 85 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 72.24 | 75.29 | 3.05 | 3.05 | 100 | 2.78 | 91 | | |
| C | 85 | 20.28 | 25.64 | | | | | | SPECKLED QTZ CHL MU | | | | | | | | | | | | | | | 75.29 | 78.33 | 3.04 | 3.05 | 100 | 2.55 | 84 | | |
| FO | 75 | | | | | | | | SCH WITH CLOTS OF EPI ALT SED | | | | | | | | | | | | | | | 78.33 | 81.38 | 3.05 | 3.05 | 100 | 2.49 | 82 | | |
| C | 87 | | | | | | | | 20.60-20.98 | | | | | | | | | | | | | | | 81.38 | 84.43 | 3.05 | 3.05 | 100 | 2.57 | 84 | | |
| | | | | | | | | | CAR SPOTTED AND | | | | | | | | | | | | | | | 84.43 | 87.48 | 3.05 | 3.04 | 100 | 2.25 | 74 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 87.48 | 90.53 | 3.05 | 3.06 | 100 | 2.52 | 83 | | |
| C | 70 | 25.64 | 27.18 | | | AND | | | MD GN CAR AND | | | | | | | | | | | | | | | 90.53 | 93.57 | 3.04 | 3.05 | 100 | 2.02 | 66 | | |
| FO | 56 | | | | | | | | | | | | | | | | | | | | | | | 93.57 | 96.62 | 3.05 | 3.05 | 100 | 2.95 | 97 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 96.62 | 99.67 | 3.05 | 3.05 | 100 | 2.78 | 91 | | |
| C | 75 | 27.18 | 30.11 | | | | | | SPECKLED QTZ CHL MU SCH WITH | | | | | | | | | | | | | | | 99.67 | 102.72 | 3.05 | 3.07 | 101 | 2.26 | 74 | | |
| FO | 75 | | | | | | | | CLOTS OF EPI; TR CAR ON FR'S | | | | | | | | | | | | | | | 102.72 | 105.77 | 3.05 | 3.05 | 100 | 2.31 | 76 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 105.77 | 108.81 | 3.04 | 3.05 | 100 | 2.48 | 82 | | |
| C | 62 | 30.11 | 34.32 | | | AND | | | MD GN CAR AND WITH | | | | | | | | | | | | | | | 108.81 | 111.86 | 3.05 | 3.04 | 100 | 2.70 | 89 | | |
| FO | 60 | | | | | | | | SHORT INTERVALS SPECKLED | | | | | | | | | | | | | | | 111.86 | 114.91 | 3.05 | 3.05 | 100 | 2.77 | 91 | | |
| | | | | | | | | | QTZ MU CHL SCH (ORTHO GNE) | | | | | | | | | | | | | | | 114.91 | 117.96 | 3.05 | 3.05 | 100 | 2.89 | 95 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 117.96 | 121.01 | 3.05 | 3.02 | 99 | 2.49 | 82 | | |
| C | 50 | 34.32 | 36.14 | | | | | | SPECKLED QTZ CHL MU SCH WITH | | | | | | | | | | | | | | | 121.01 | 124.05 | 3.04 | 3.01 | 99 | 2.62 | 86 | | |
| FO | 35 | | | | | | | | CLOTS OF EPI; TR PY OCCURING | | | | | | | | | | | | | | | 124.05 | 127.10 | 3.05 | 3.05 | 100 | 2.54 | 83 | | |
| | | | | | | | | | BETWEEN FO | | | | | | | | | | | | | | | 127.10 | 130.15 | 3.05 | 2.95 | 97 | 2.63 | 86 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 130.15 | 133.20 | 3.05 | 3.03 | 99 | 2.23 | 73 | | |
| C | 50 | 36.14 | 37.50 | | | AND | | | CAR FO AND | | | | | | | | | | | | | | | 133.20 | 136.25 | 3.05 | 2.99 | 98 | 1.48 | 49 | | |
| FO | 60 | | | | | | | | | | | | | | | | | | | | | | | 136.25 | 139.29 | 3.04 | 3.00 | 99 | 1.86 | 61 | | |
| C | 50 | 37.50 | 44.91 | | | | | | SPECKLED MOD. EPI ALT QTZ | | | | | | | | | | | | | | | 139.29 | 142.34 | 3.05 | 3.02 | 99 | 2.55 | 84 | | |
| CO | 55 | | | | | | | | CHL EPI SCH; TR Mg FLECKS + | | | | | | | | | | | | | | | 142.34 | 145.39 | 3.05 | 2.85 | 93 | 2.59 | 85 | | |
| | | | | | | | | | TR PY; W-MOD EPI ALT CLOTS | | | | | | | | | | | | | | | 145.39 | 148.44 | 3.05 | 3.05 | 100 | 2.20 | 72 | | |
| | | | | | | | | | 41.30-41.76 | | | | | | | | | | | | | | | 148.44 | 151.49 | 3.05 | 3.05 | 100 | 2.59 | 85 | | |
| | | | | | | | | | V.FG MD GN Ma CAR AND WITH TR Mg | | | | | | | | | | | | | | | 151.49 | 154.53 | 3.04 | 3.05 | 100 | 2.69 | 88 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 154.53 | 157.58 | 3.05 | 3.04 | 100 | 2.29 | 75 | | |

**PROPERTY:** MOR **HOLE:** MOR-08-09

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 70 | 44.91 | 53.50 | | | | | | INTERBEDDED EPI ALT CHL | | | | | | | | | | | | | | | 157.58 | 160.63 | 3.05 | 3.05 | 100 | 2.63 | 86 | | |
| | | | | | | | | | MU SCH + SPECKLED QTZ | | | | | | | | | | | | | | | 160.63 | 163.68 | 3.05 | 3.02 | 99 | 2.93 | 96 | | |
| FO | 80 | | | | | | | | CHL MU SCh; UNIT OVERALL | | | | | | | | | | | | | | | 163.68 | 166.73 | 3.05 | 3.01 | 99 | 2.79 | 91 | | |
| | | | | | | | | | IS DARK GN + YELLOW | | | | | | | | | | | | | | | 166.73 | 169.77 | 3.04 | 3.05 | 100 | 2.23 | 73 | | |
| C | 50 | | | | | | | | GN; HW MARKED BY | | | | | | | | | | | | | | | 169.77 | 172.82 | 3.05 | 2.88 | 94 | 2.34 | 77 | | |
| | | | | | | | | | NOSE FOLD FOLLOWED BY | | | | | | | | | | | | | | | 172.82 | 175.87 | 3.05 | 3.05 | 100 | 2.56 | 84 | | |
| FO | 55 | | | | | | | | 50cm OF SINUOUS FOLDED CAR | | | | | | | | | | | | | | | 175.87 | 178.92 | 3.05 | 3.04 | 100 | 2.86 | 94 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 178.92 | 181.97 | 3.05 | 3.06 | 100 | 2.33 | 76 | | |
| C | 52 | 53.50 | 57.84 | | | | | | INTERBEDDED QTZ EYE CHL | | | | | | | | | | | | | | | 181.97 | 185.01 | 3.04 | 3.01 | 99 | 1.99 | 65 | | |
| | | | | | | | | | TUFF (QTZ CHL MU CLASTIC) WITH | | | | | | | | | | | | | | | 185.01 | 188.06 | 3.05 | 2.92 | 96 | 0.38 | 12 | | |
| FO | 50 | | | | | | | | SPECKLED BLK + WH QTZ CHL | | | | | | | | | | | | | | | 188.06 | 191.11 | 3.05 | 2.97 | 97 | 0.42 | 14 | | |
| | | | | | | | | | MU/ BIO SCH; OVERALL UNIT | | | | | | | | | | | | | | | 191.11 | 194.16 | 3.05 | 3.05 | 100 | 2.76 | 90 | | |
| | | | | | | | | | APPEARS BLK/WH | | | | | | | | | | | | | | | 194.16 | 197.21 | 3.05 | 2.92 | 96 | 2.77 | 91 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 197.21 | 200.25 | 3.04 | 3.05 | 100 | 1.32 | 43 | | |
| C | 52 | 57.84 | 62.46 | | | | | | SPECKLED BLK + WH QTZ CHL | | | | | | | | | | | | | | | 200.25 | 203.30 | 3.05 | 3.05 | 100 | 1.25 | 41 | | |
| | | | | | | | | | MU/BIO SCH; MOD CAR WITHIN | | | | | | | | | | | | | | | 203.30 | 206.35 | 3.05 | 3.05 | 100 | 2.39 | 78 | | |
| FO | 75 | | | | | | | | FR'S; TR Mg | | | | | | | | | | | | | | | 206.35 | 209.40 | 3.05 | 3.02 | 99 | 2.00 | 66 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 209.40 | 212.45 | 3.05 | 3.01 | 99 | 2.25 | 74 | | |
| C | 74 | 62.46 | 70.22 | | | | | | INTERBEDDED YELLOW + GN | | | | | | | | | | | | | | | 212.45 | 215.49 | 3.04 | 3.05 | 100 | 2.44 | 80 | | |
| FO | 75 | | | | | | | | SPECKLED QTZ CHL MU SCH + | | | | | | | | | | | | | | | 215.49 | 218.54 | 3.05 | 3.01 | 99 | 2.55 | 84 | | |
| | | | | | | | | | CAR CHL SCH; UNITS ALTERNATE | | | | | | | | | | | | | | | 218.54 | 221.59 | 3.05 | 3.05 | 100 | 1.39 | 46 | | |
| FO | 74 | | | | | | | | AT 20 cm INTERVALS; MOD. | | | | | | | | | | | | | | | 221.59 | 224.64 | 3.05 | 2.95 | 97 | 1.14 | 37 | | |
| | | | | | | | | | EPI ALT ACROSS ALL UNITs | | | | | | | | | | | | | | | 224.64 | 227.69 | 3.05 | 3.01 | 99 | 2.41 | 79 | | |
| | | | | | | | | | + TR PY +Mg WITH IN SPECKLED | | | | | | | | | | | | | | | 227.69 | 230.73 | 3.04 | 3.05 | 100 | 0.55 | 18 | | |
| | | | | | | | | | SEDS; SEDS WITH SER ALT | | | | | | | | | | | | | | | 230.73 | 233.78 | 3.05 | 2.99 | 98 | 1.82 | 60 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 233.78 | 236.83 | 3.05 | 2.99 | 98 | 0.85 | 28 | | |
| C | 65 | 70.22 | 81.58 | | SED | | | | 70.22-81.58 | | | | | | | | | | | | | | | 236.83 | 239.88 | 3.05 | 3.05 | 100 | 2.03 | 67 | | |
| FO | 80 | | | | | | | | INTERVALS BETWEEN UNITS INCR. | | | | | | | | | | | | | | | 239.88 | 242.93 | 3.05 | 3.01 | 99 | 2.66 | 87 | | |
| C | 66 | | | | | | | | TO A METER IN THICKNESS; WEAK | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | CAR + OCC. BL OF QTZ; LOTS OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT SEDS THROUGHOUT; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OVERALL- SED SEQUENCE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDNOSE @ 72.00 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR- W PY WITHIN EPI/CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALTERED SEDS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 81.58 | 94.17 | | | | | | GY GN + YW SPECKLED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER CHL EPI SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 82 | | | | | | | | INTERVALS OF CHL SCH HOSTING | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W CAR + TR FLECKS OF Mg | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | AND PY; UNIT IS SPOTTED WITH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT CLASTS BTWN CHL FO; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR-W CUBIC PY; NON CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC. BANDS OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 94.17 | 114.84 | | | | | | INTERBEDDED PULSES OF | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | SPECKLED EPI SPOTTED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | | CHL SER SCH + CAR BANDED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | CHL SCH; PULSES SEPARATED BY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 73 | | | | | | | | BL + BANDS OF QTZ; CAR TR | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | PY + W Mg ASSOC. WITH CHL BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 114.84 | 116.12 | | | | | | GN CAR SPECKLED QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | SCH + BANDED GN CHL SCH; | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-09

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 60 | | | | | | | | MOD. CAR THROUGHOUT INTERVAL; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | CLOSELY INTERBEDDED; BANDS + | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERBEDDED QTIT + W. PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 116.12 | 117.90 | | | | | | YW- MD GN SPECKLED QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | SER WITH BANDS + CLOTS OF EPI; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 117.90 | 124.05 | | | | | | INTERBEDDED QTIT MD GN CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | CHL SCH+ OCC BANDS OF EPI | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | | | | | | | | SPECKLED QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 121.21- 122.21 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W-F FLECKS + BANDS OF PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 122.21-124.05 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DOM COMPONENT CAR CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 124.05 | 134.31 | | | | | | GY GN QTZ SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH OCC BANDS OF CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | CHL SCH AND SPECKLED EPI | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; ST CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 134.31 | 138.36 | | | | | | MD GN BANDED CAR CHL QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | SCH CONTACT IS IRREG. | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH EPI ALT CLASTS | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 25 | | | | | | | | FORMING BOUNDARY; ROUNDED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLASTS + LENSES OF QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BTWN CHL LA; NO DISCERNABLE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SX ; LA @ HW SHALLOW NEAR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE @ 135.31m | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST KINK BANDING BEFORE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND AFTER FOLD NOSE | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 138.36 | 139.99 | | | | | | MD GY GN QTZ SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | WITH INTERFO BANDS OF CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | AND ROUNDED INTERFO CLASTS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 61 | 139.99 | 163.80 | | | | | | MD GN +WH BANDED CAR | | | | | | 161.76 | 162.65 | | G00417 | <0.005 | <1 | 10 | <20 | 120 | | | | | | | | | | |
| FO | 75 | | | | | | | | CHL SCH WITH OCC. LENSES | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 52 | | | | | | | | OF QTZ + SHORT INTERVALS | | | | | | 162.65 | 163.80 | | G00417 | <0.005 | <1 | 210 | <20 | 200 | | | | | | | | | | |
| FO | 32 | | | | | | | | OF SPECKLED WEAKLY EPI | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | ALT QTZ SER CHL SCH; FOLD | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | NOSE AT 146.46 FA APPROX 15 DEG. | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 52 | | | | | | | | CAR IS BANDED TO CLOTTED; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 162.65-163.80 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 2-3% PY + TR Mg < 1 % CP | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 62 | 163.80 | 166.05 | | | | | | GY SPECKLED QTZ CHL CAR | | | | | | 163.80 | 166.03 | 2.23 | G00417 | <0.005 | <1 | 30 | <20 | 80 | | | | | | | | | | |
| FO | 70 | | | | | | | | MU SCH; TR Mg + TR PY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTz RHY?; CHL IS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTTED AND THINLY CA | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-09

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 72 | 166.03 | 172.01 | | | | | | MD GN CAR CHL QTZ MU SCH | | | | | | 166.03 | 169.00 | 2.97 | G00417 | 0.01 | <1 | 30 | <20 | 130 | | | | | | | | | |
| FO | 71 | | | | | | | | GRADING TO SER QTZ SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FAIR- WEAK DISS PY + Mg | | | | | | 169.00 | 171.25 | 2.25 | G00417 | 0.01 | <1 | 160 | <20 | 100 | | | | | | | | | |
| | | | | | | | | | 3-5 %; UNIT GRADES IN + OUT | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF SPECKLED SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDNOSE AT 169.39 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 171.25-172.01 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER SCH 5% DISS PY + Mg | | | | | | BLANK | | | G00417 | <0.005 | <1 | 20 | <20 | 20 | | | | | | | | | |
| C | 50 | 172.01 | 172.91 | | | | | | GY SPECKLED QTZ CHL SER | | | | | | 171.25 | 172.10 | 0.85 | G00417 | 0.03 | <1 | 200 | <20 | 180 | | | | | | | | | |
| FO | 20 | | | | | | | | SCH; LA EPI ACT W COARSE | | | | | | 172.10 | 172.91 | 0.81 | G00417 | <0.005 | <1 | 10 | 50 | 60 | | | | | | | | | |
| | | | | | | | | | TRACE PY; FOLD NOSE AT 172.62 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 172.91 | 173.48 | | | | | | MD GN CAR PYRITIC CHL QTZ | | | | | | 172.91 | 174.55 | 1.64 | G00417 | 0.01 | <1 | 100 | 30 | 160 | | | | | | | | | |
| FO | 65 | | | | | | | | MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 173.48 | 174.55 | | | | | | SPECKLED QTZ SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | WITH EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 62 | 174.55 | 185.72 | | | | | | QTZ CHL MU SWER SCH WIT OCC. BL | | | | | | 174.55 | 177.40 | 2.85 | G00418 | 0.02 | <1 | 390 | <20 | 170 | | | | | | | | | |
| FO | 65 | | | | | | | | QTZ; MDGN PYRITIC 5 % DISS PY TR | | | | | | 177.40 | 180.40 | 3.00 | G00418 | 0.01 | <1 | 340 | <20 | 90 | | | | | | | | | |
| FO | 70 | | | | | | | | Mg;CP MOD. CAR; | | | | | | 180.40 | 183.40 | 3.00 | G00418 | 0.03 | <1 | 40 | <20 | 100 | | | | | | | | | |
| FO | 70 | | | | | | | | 174.55- 178.92 | | | | | | 183.40 | 185.72 | 2.32 | G00418 | 0.01 | <1 | 40 | <20 | 110 | | | | | | | | | |
| | | | | | | | | | 5% DISS PY TR Mg+ CP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MOD CAR; QTZ PHYRIC TUFF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH BL+ BANDED CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | 185.72 | 192.63 | | | | | | FOLDED KINKED + CRUSHED QTZ | | | | | | 185.72 | 188.71 | 2.99 | G00418 | 0.01 | <1 | 50 | <20 | 70 | | | | | | | | | |
| FO | 67 | | | | | | | | CHL MU CAR SCH+ SPECKLED | | | | | | END OF SAMPLING | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GNE SCH; SPECKLED SCH DOM; | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 59 | | | | | | | | WEAK CUBIC PY; MOD. CAR CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GOUGE ON FR SURFACES FOLD | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NOSE AT CONTACT + HALF WAY | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 72 | | | | | | | | THROUGH INTERVAL | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | 188.81- 192.63 | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 72 | | | | | | | | REGULARLY BANDED UNFOLDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 192.63 | 195.77 | | | | | | GY BANDED QTZ SER SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | LOOKS like SED 3 % DISS FLECKS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Mg FOLD NOSE AT 194.92 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 195.77 | 199.34 | | | | | | WEAKLY FOLDED CHL CAR QTZ SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | WITH WEAK TR Mg (AND?); | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HARD TO DISCERN FO AMOST MA; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHARP CONTRAST | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 199.34 | 204.22 | | | | | | INTERBEDDED GY QTIT AND FO | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | QTZ SER CHL SCH; TR PY+ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | OCC. TR CP; 5 cm QTZ @ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 85 | 204.22 | 228.33 | | | | | | BLK + WH BIO CAR QTZ EYE | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-09

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 70 | | | | | | | | FRAG. ; TR PY @ CONTACT; | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | OCC. BANDS OF INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 228.33 | 237.03 | | | | | | INTERMIXED QTZ SER SCH, | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTIT, CHL SCH + MARBLE; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNITS ARE FR'D + RECEMENTED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH MARBLE + GOUGE + CHL | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | 230.77- 231.84 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MARBLE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | 237.03 | 238.28 | | | | | | GY QTIT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 238.28- 242.43 | | | | | | | MARBLE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EOH 242.93 | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-10

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 661885 | 6664113 | 1292 | 108.81 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS-300

Core size: BTW
Casing depth: 7' (m) in/out

Drilling dates: July 5- July 6, 2008

Logged by: M. Nunez

Target: _____

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 85 | Brunton | | | | |
| 108.81 | 355 | 81 | Acid | | | | |
| | | | | | | | |
| | | | | | | | |

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004185-G0041200
G004206-G004212
Total: 22
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-10

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 5.47 | | | | | | KINKED AND FOLDED SER QTZ CHL | | | | | | | | | | | | | | | 0.00 | 5.18 | 5.18 | 3.05 | 100 | 1.70 | 33 | | |
| FO | 52 | | | | | | | | SCH W TR PY; WEAK HEM ALT+ | | | | | | | | | | | | | | | 5.18 | 8.23 | 3.05 | 2.65 | 86.9 | 0.81 | 27 | | |
| | | | | | | | | | OXIDIZED CY ON FR'S | | | | | | | | | | | | | | | 8.23 | 11.23 | 3.00 | 3.05 | 102 | 1.68 | 56 | | |
| | | | | | | | | | FW 10cm SOLID FR'D QTZ | | | | | | | | | | | | | | | 11.23 | 14.33 | 3.10 | 3.05 | 98.4 | 1.21 | 39 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 14.33 | 17.37 | 3.04 | 3.05 | 100 | 2.56 | 84 | | |
| C | 45 | 5.47 | 7.35 | | | | | | GNE STRIPED QTZ MU CHL | | | | | | | | | | | | | | | 17.37 | 20.42 | 3.05 | 3.05 | 100 | 2.39 | 78 | | |
| FO | 80 | | | | | | | | SCH; BLK+WH;TR PY+Mg; CORE HAS | | | | | | | | | | | | | | | 20.42 | 23.47 | 3.05 | 3.05 | 100 | 2.61 | 86 | | |
| C | 60 | | | | | | | | LAYERED ROPY APPEARANCE | | | | | | | | | | | | | | | 23.47 | 26.52 | 3.05 | 2.75 | 90.2 | 1.10 | 36 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 26.52 | 29.57 | 3.05 | 2.70 | 88.5 | 0.61 | 20 | | |
| C | 45 | 7.36 | 9.11 | | | | | | CHL CAR QTZ SCH; TR Mg | | | | | | | | | | | | | | | 29.57 | 32.61 | 3.04 | 2.98 | 98 | 0.81 | 27 | | |
| | | | | | | | | | OCC. LENSES OF QTZ | | | | | | | | | | | | | | | 32.61 | 35.66 | 3.05 | 2.95 | 96.7 | 1.37 | 45 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 35.66 | 38.71 | 3.05 | 3.02 | 99 | 0.23 | 8 | | |
| C | 50 | 9.11 | 11.00 | | | | | | KINKED+ ROPY GY WH SER | | | | | | | | | | | | | | | 38.71 | 41.76 | 3.05 | 3.05 | 100 | 1.87 | 61 | | |
| F0 | 32 | | | | | | | | QTZ SCH; W PY ALONG FO PLANES | | | | | | | | | | | | | | | 41.76 | 44.81 | 3.05 | 3.00 | 98.4 | 1.49 | 49 | | |
| FO | 45 | | | | | | | | FOLD NOSE STRUCTURES?; | | | | | | | | | | | | | | | 44.81 | 47.85 | 3.04 | 3.01 | 99 | 1.80 | 59 | | |
| FO | 25 | | | | | | | | FOLD NOSE AT HW | | | | | | | | | | | | | | | 47.85 | 50.90 | 3.05 | 3.03 | 99.3 | 2.04 | 67 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 50.90 | 53.95 | 3.05 | 2.90 | 95.1 | 2.41 | 79 | | |
| C | 70 | 11.00 | 12.45 | | | | | | QTZ SER CHL CAR SCH | | | | | | | | | | | | | | | 53.95 | 57.00 | 3.05 | 2.81 | 92.1 | 1.51 | 50 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 57.00 | 60.05 | 3.05 | 3.05 | 100 | 1.63 | 53 | | |
| FO | 20 | | | | | | | | 11.65- 12.40 | | | | | | | | | | | | | | | 60.05 | 63.09 | 3.04 | 3.05 | 100 | 1.29 | 42 | | |
| FO | 50 | | | | | | | | FOLDED + ROPEY QTZ CHL | | | | | | | | | | | | | | | 63.09 | 66.14 | 3.05 | 2.79 | 91.5 | 0.94 | 31 | | |
| | | | | | | | | | CLOTTED SCH | | | | | | | | | | | | | | | 66.14 | 69.19 | 3.05 | 3.05 | 100 | 1.20 | 39 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 69.19 | 72.23 | 3.04 | 2.56 | 84.2 | 0.82 | 27 | | |
| C | 20 | 12.45 | 15.70 | | | | | | SPECKLED QTZ CHL SCH WITH | | | | | | | | | | | | | | | 72.23 | 75.29 | 3.06 | 3.05 | 99.7 | 1.86 | 61 | | |
| FO | 72 | | | | | | | | TR PY; UNIT DOM. QTZ | | | | | | | | | | | | | | | 75.29 | 78.33 | 3.04 | 2.57 | 84.5 | 0.74 | 24 | | |
| | | | | | | | | | STRIPED APPEARANCE | | | | | | | | | | | | | | | 78.33 | 81.38 | 3.05 | 3.05 | 100 | 0.51 | 17 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 81.38 | 84.43 | 3.05 | 3.04 | 99.7 | 1.26 | 41 | | |
| | | 15.70 | 21.04 | | | | | | QTZ CHL SER MU SCH; | | | | | | 15.70 | 18.41 | 2.71 | G004185 | 0.009 | 1 | 100 | 90 | 290 | 84.43 | 87.48 | 3.05 | 3.00 | 98.4 | 1.60 | 52 | | |
| | | | | | | | | | SER OCCURS AS INTRO LENSES | | | | | | 18.41 | 19.04 | 0.63 | G004186 | 0.099 | 8 | 870 | 830 | 5540 | 87.48 | 90.53 | 3.05 | 2.92 | 95.7 | 2.21 | 72 | | |
| FO | 71 | | | | | | | | WITH PY CP + TR Mg; | | | | | | 19.04 | 20.08 | 1.04 | G004187 | <0.005 | <1 | 10 | 50 | 140 | 90.53 | 93.57 | 3.04 | 2.94 | 96.7 | 2.27 | 75 | | |
| | | | | | | | | | OCC BANDS ON EPI | | | | | | 20.08 | 21.04 | 0.96 | G004188 | 0.06 | 2 | 1160 | 130 | 1680 | 93.57 | 96.62 | 3.05 | 3.05 | 100 | 2.22 | 73 | | |
| | | | | | | | | | SPECKLED QTZ CHL SCH; | | | | | | | | | | | | | | | 96.62 | 99.67 | 3.05 | 3.02 | 99 | 2.32 | 76 | | |
| FO | 74 | | | | | | | | MOD. CAR; WELL FO | | | | | | | | | | | | | | | 99.67 | 102.72 | 3.05 | 3.02 | 99 | 1.66 | 54 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 102.72 | 105.77 | 3.05 | 3.03 | 99.3 | 2.43 | 80 | | |
| | | | | | | | | | 18.41- 19.04 | | | | | | | | | | | | | | | 105.77 | 108.81 | 3.04 | 0.63 | 20.7 | 0.10 | 3 | | |
| C | 75 | | | | | | | | 10 cm MA COARSE PY WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RIMING CP OCCURING WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | ROPEY FOLDED QTZ CHL SER | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MU SCH; NO CAR; PY WEAKLY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LAMINAR WITH COARSE MASSES | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | | | | | | | | | 20.08-21.04 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ROPEY FOLDED QTZ CHL MU | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER SCH WITH BANDS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | | | | | | | | SPECKLED SCH; BANDS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | COARSE MIN PY FORM CONTACTS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERVAL 5 % MIN.; TR Mg | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 45 | 21.04 | 29.84 | | | | | | CAR CHL CAR QTZ PHYRIC (TUFF) | | | | | | 21.04 | 23.88 | 2.84 | G004189 | 0.039 | 1 | 1120 | 40 | 100 | | | | | | | | | | |
| FB | 75 | | | | | | | | SCH; UNIT 10- 12 % MIN | | | | | | BLANK | | | G004190 | <0.005 | <1 | 10 | <20 | 30 | | | | | | | | | | |
| SX | 80 | | | | | | | | WITH DISS COARSE PY; | | | | | | 23.88 | 24.75 | 0.87 | G004191 | 0.008 | 3 | 140 | 30 | 110 | | | | | | | | | | |
| | | | | | | | | | W. DISS COARSE Mg | | | | | | 24.75 | 26.04 | 1.29 | G004192 | 0.06 | 3 | 1580 | 130 | 2210 | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE @ 22.84 | | | | | | 26.04 | 26.86 | 0.82 | G004193 | 0.006 | <1 | 30 | 40 | 180 | | | | | | | | | | |
| | | | | | | | | | | | | | | | 26.86 | 29.26 | 2.40 | G004194 | 0.092 | 3 | 1630 | 250 | 1880 | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-10

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 21.04 | 33.48 | | | | | | 24.75- 26.04 | | | | | | 29.26 | 29.84 | 0.58 | G004195 | 1.165 | 28 | 10300 | 1020 | 6130 | | | | | | | | | | |
| FO | 75 | | | | | | | | INTERBEDDED STRIPPED QTZ | | | | | | 29.84 | 30.80 | 0.96 | G004196 | 0.015 | <1 | 550 | 20 | 200 | | | | | | | | | | |
| | | | | | | | | | CHL SPECKLED SCH + CAR | | | | | | 30.80 | 33.48 | 2.68 | G004197 | 0.016 | 1 | 340 | 40 | 270 | | | | | | | | | | |
| FA | 70 | | | | | | | | QTZ CHL SCH WITH 5 cm | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BAND OF MA PY; TR PY+ | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | Mg FORMING A CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BOUNDARY; CY FORMING ON | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BOUNDARIES MOD. RUBBLIZED; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED SCH SHOWS KINKS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | 26.04- 26.56 | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | SPECKLED WH + GN QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SER SCH; UNIT HAS LAYERED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ APPEARANCE; GNE | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | 26.56-29.84 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RUN IS 10-12 % MIN WITH MA PATCHES | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | 5 cm WIDE WITH COARSE PY; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR Mg AND VARIABLY WEAK CP; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 15 cm PATCH @ 29.52 | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | | | | | | | | 29.84- 30.41 | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 82 | | | | | | | | SPECKLED GNE QTZ CHL SER SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 64 | | | | | | | | FW CONTACT IRREG + KINKED | | | | | | | | | | | | | | | | | | | | | | | | |
| FA | 30 | | | | | | | | 30.41- 33.48 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 3-5 % MIN WITH PY; TR Mg | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 33.48 | 46.56 | | | | | | SPECKLED GNE (TUFF?) WH GY + | | | | | | 33.48 | 34.71 | 1.23 | G004198 | <0.005 | <1 | 20 | <20 | 50 | | | | | | | | | | |
| FO | 80 | | | | | | | | GN QTZ CHL SCH; CHL FORM | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 77 | | | | | | | | THIN LA; QTZ IS GY OPALECENT | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | AND SUCROSIC WITH INTEFO | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 78 | | | | | | | | CLOTS OF CHL; UNIT HOSTS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC BANDS OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 77 | 46.56 | 48.76 | | | | | | FOLDED AND ROPEY QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 62 | | | | | | | | SER SCH WITH INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | QTIT; TR PY ALONG | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | LITHOLOGIC CONTACTS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 36 | 48.76 | 63.73 | | | | | | QTZ FRAG BIO MU SCH; TR-W | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | Mg; ST CAR; HW CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 73 | | | | | | | | MARKED BY BAND OF QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FO'S STEEPEN DOWN SECTION | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 63.73 | 67.35 | | | | | | INTERBEDDED QTIT AND PURPLE | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | GN FOLD GNE CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 67.35 | 72.74 | | | | | | LMST MARBLE WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BANDS OF QTIT + PYRITIC | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 25 | 72.71 | 92.04 | | | | | | MD GN-Dk GN CAR CHL MU | | | | | | 72.70 | 75.00 | 2.30 | G004199 | <0.005 | <1 | 50 | <20 | 70 | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-10

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 62 | | | | | | | | SCH WITH WISPS+ BL OF CAR | | | | | | 75.00 | 78.00 | 3.00 | G004200 | <0.005 | <1 | 30 | <20 | 90 | | | | | | | | | |
| FO | 45 | | | | | | | | OCC INTERFO BANDS OF Dk GN- BLK | | | | | | 79.23 | 80.15 | 0.92 | G004206 | <0.005 | <1 | 20 | <20 | 100 | | | | | | | | | |
| C | 60 | | | | | | | | QTZ EYE FRAG; 2-3% MIN WITH | | | | | | 80.38 | 82.50 | 2.12 | G004207 | <0.005 | 1 | 20 | <20 | 90 | | | | | | | | | |
| FO | 64 | | | | | | | | PY AND INTERBEDDED MARBLE | | | | | | BLANK | | | G004208 | <0.005 | 1 | 20 | <20 | <20 | | | | | | | | | |
| C | 35 | | | | | | | | BANDS AT 20 cm INTERVALS | | | | | | 85.73 | 86.49 | 0.76 | G004209 | 0.006 | <1 | 30 | <20 | 80 | | | | | | | | | |
| FO | 60 | | | | | | | | ; SHARP CONTACTS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LOCAL SECTIONS OF V. WEAK | | | | | | 90.12 | 92.04 | 1.92 | G004210 | <0.005 | <1 | 30 | <20 | 120 | | | | | | | | | |
| | | | | | | | | | Mg ASSOC WITH PY. | | | | | | 92.04 | 93.80 | 1.76 | G004211 | <0.005 | <1 | 40 | <20 | 120 | | | | | | | | | |
| | | | | | | | | | 78.00- 79.23 | | | | | | 93.80 | 95.62 | 1.82 | G004212 | <0.005 | <1 | 20 | <20 | 100 | | | | | | | | | |
| C | 60 | | | | | | | | MARBLE; MA WH LMST | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 80.15- 80.38 | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | | | | | | | | MARBLE; MA WH LMST | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 82.50- 85.73 | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | | | | | | | | MARBLE; MA WH LMST | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 86.49- 90.12 | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | MARBLE; MA WH LMST | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 92.04 | 95.62 | | | | | | DK GN- BLK CHL ALT QTZ CHL | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | SCH WITH MOD CAR; MOD. FLECKS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF Mg + 3-5 % PY; CAR | | | | | | | | | | | | | | | | | | | | | | |
| FO | 35 | | | | | | | | OCCURS IN FLECKS + WISPS; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLD NOSE AT 95.00 m | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 95.62 | 98.73 | | | | | | INTERBEDDED QTIT + LMST | | | | | | | | | | | | | | | | | | | | | | |
| FO | 63 | | | | | | | | 97.52- 98.00 | | | | | | | | | | | | | | | | | | | | | | |
| FO | 78 | | | | | | | | CHL CAR SCH 60 DEG. TO C/A | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 82 | 98.73 | 108.81 | | | | | | PURPLE GN + GY INTERBEDDED | | | | | | | | | | | | | | | | | | | | | | |
| BD | 72 | | | | | | | | QTIT + FOLDED GNE BIO SER CHL | | | | | | | | | | | | | | | | | | | | | | |
| BD | 72 | | | | | | | | SCH; OCC LA OF SILTSTONE; CHL | | | | | | | | | | | | | | | | | | | | | | |
| CO | 75 | | | | | | | | ALT BANDS HOST GARNET PHENOS? | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERFO; TR DISS PO V. RARE | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TR DISS CP. | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | E.O.H 108.81 | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-11

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 662122 | 6663816 | 1326 | 249.02 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS-300

Core size: BTW
Casing depth: 5' (m) in/out

Drilling dates: July 6 -July 11, 2008

Logged by: M.Nunez

Target: _____

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 355 | 60 | Brunton | | | | |
| 249.02 | 355 | 59.7 | Acid | | | | |
| | | | | | | | |
| | | | | | | | |

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004213-G004230

Total: 18
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-11

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 28.73 | 28.73 | | | | | INTERBEDDED CAR CHL SCH | | | | | | | | | | | | | | | 0.00 | 5.18 | 5.18 | 3.80 | 73.4 | 1.57 | 30 | | |
| C | 78 | | | | | | | | AND SPECKLED QTZ CHL | | | | | | | | | | | | | | | 5.18 | 8.23 | 3.05 | 2.87 | 94.1 | 2.53 | 83 | | |
| FO | 80 | | | | | | | | EPI ALT SCH; UNIT CONTACTS | | | | | | | | | | | | | | | 8.23 | 11.28 | 3.05 | 2.99 | 98 | 2.49 | 82 | | |
| C | 75 | | | | | | | | VERY SHARP; SEQUENCE | | | | | | | | | | | | | | | 11.28 | 14.33 | 3.05 | 2.98 | 97.7 | 2.56 | 84 | | |
| FO | 77 | | | | | | | | IS WELL BEDDED + REGULAR; | | | | | | | | | | | | | | | 14.33 | 17.37 | 3.04 | 3.01 | 99 | 2.66 | 88 | | |
| | | | | | | | | | OCC. PARRALLEL FO BANDS | | | | | | | | | | | | | | | 17.37 | 20.42 | 3.05 | 2.99 | 98 | 2.58 | 85 | | |
| | | | | | | | | | OF QTZ; TR W. PY; SPECKLED | | | | | | | | | | | | | | | 20.42 | 23.47 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| | | | | | | | | | SCH HOSTS MOD. CLOTS OF EPI | | | | | | | | | | | | | | | 23.47 | 26.52 | 3.05 | 2.97 | 97.4 | 2.97 | 97 | | |
| | | | | | | | | | ALT SEDS | | | | | | | | | | | | | | | 26.52 | 29.57 | 3.05 | 2.77 | 90.8 | 2.77 | 91 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 29.57 | 32.61 | 3.04 | 2.58 | 84.9 | 2.58 | 85 | | |
| C | 55 | 28.73 | 88.33 | 59.60 | | | | | SPECKLED EPI ALT + CHL | | | | | | | | | | | | | | | 32.61 | 35.66 | 3.05 | 2.72 | 89.2 | 2.72 | 89 | | |
| FO | | | | | | | | | ALT QTZ CHL SCH; MOD BL + | | | | | | | | | | | | | | | 35.66 | 38.71 | 3.05 | 3.05 | 100 | 2.19 | 72 | | |
| FO | 54 | | | | | | | | WISPS OF EPI ALT SEDS; | | | | | | | | | | | | | | | 38.71 | 41.76 | 3.05 | 3.05 | 100 | 2.03 | 67 | | |
| FO | 37 | | | | | | | | OCC FR FILLING HEM ALT; | | | | | | | | | | | | | | | 41.76 | 44.81 | 3.05 | 3.03 | 99.3 | 2.38 | 78 | | |
| FO | 47 | | | | | | | | FO SHALLOW TO 20 DEG. BEFORE FW | | | | | | | | | | | | | | | 44.81 | 47.85 | 3.04 | 3.05 | 100 | 1.82 | 60 | | |
| FO | 34 | | | | | | | | 18.36- 19.00 | | | | | | | | | | | | | | | 47.85 | 50.90 | 3.05 | 3.04 | 99.7 | 2.65 | 87 | | |
| FO | 30 | | | | | | | | SOLID QTZ; FO PRE + POST | | | | | | | | | | | | | | | 50.90 | 53.95 | 3.05 | 3.05 | 100 | 2.61 | 86 | | |
| FO | 58 | | | | | | | | FAIRLY SHALLOW; NOSE FOLD? | | | | | | | | | | | | | | | 53.95 | 57.00 | 3.05 | 3.05 | 100 | 2.80 | 92 | | |
| FO | 20 | | | | | | | | | | | | | | | | | | | | | | | 57.00 | 60.05 | 3.05 | 2.92 | 95.7 | 2.51 | 82 | | |
| C | 56 | 38.33 | 39.51 | 1.18 | | | | | FR'D WH QTZ WITH BL OF CHL | | | | | | | | | | | | | | | 60.05 | 63.09 | 3.04 | 3.04 | 100 | 2.41 | 79 | | |
| | | | | | | | | | SCH; FOLD HINGE? | | | | | | | | | | | | | | | 63.09 | 66.14 | 3.05 | 3.04 | 99.7 | 2.33 | 76 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 66.14 | 69.19 | 3.05 | 3.05 | 100 | 2.95 | 97 | | |
| C | 42 | 39.51 | 46.03 | 6.52 | | | | | SPECKLED QTZ CHL EPI SCH; | | | | | | | | | | | | | | | 69.19 | 72.24 | 3.05 | 3.05 | 100 | 2.98 | 98 | | |
| FO | 55 | | | | | | | | MOD BL + WISPS OF EPI ALT SEDS | | | | | | | | | | | | | | | 72.24 | 75.29 | 3.05 | 3.05 | 100 | 2.55 | 84 | | |
| C | 55 | | | | | | | | FOLD NOSE AT 40.50 | | | | | | | | | | | | | | | 75.29 | 78.33 | 3.04 | 3.05 | 100 | 2.99 | 98 | | |
| FO | 65 | | | | | | | | 42.21- 45.80 | | | | | | | | | | | | | | | 78.33 | 81.38 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| FO | 47 | | | | | | | | SEDS INTERBEDDED WITH CAR | | | | | | | | | | | | | | | 81.38 | 84.43 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| FO | 50 | | | | | | | | CHL SCH AND BECOME ST KINKED | | | | | | | | | | | | | | | 84.43 | 87.48 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| | | | | | | | | | AND FOLDED; CONTACTS SHARP BUT | | | | | | | | | | | | | | | 87.48 | 90.53 | 3.05 | 3.06 | 100 | 3.05 | 100 | | |
| | | | | | | | | | LA SINUSOIDALLY, MOD BL OF QTZ | | | | | | | | | | | | | | | 90.53 | 93.57 | 3.04 | 3.05 | 100 | 2.78 | 91 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 93.57 | 96.62 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| FO | | 46.03 | 72.58 | 26.55 | | | | | SPECKLED QTZ CHL EPI ALT SCH; | | | | | | | | | | | | | | | 96.62 | 102.72 | 6.10 | 6.10 | 100 | 2.56 | 42 | | |
| FO | 45 | | | | | | | | NON CAR; SCH IS LOCALLY | | | | | | | | | | | | | | | 102.72 | 105.77 | 3.05 | 3.05 | 100 | 2.13 | 70 | | |
| FO | 62 | | | | | | | | INTERFO WITH CAR CHL SCH | | | | | | | | | | | | | | | 105.77 | 108.81 | 3.04 | 3.05 | 100 | 2.53 | 83 | | |
| FO | 72 | | | | | | | | BUT OVERALL UNIT IS NON CAR | | | | | | | | | | | | | | | 108.81 | 111.86 | 3.05 | 2.97 | 97.4 | 2.79 | 91 | | |
| FO | 60 | | | | | | | | RARE OCC. FLECKS + CUBES OF | | | | | | | | | | | | | | | 111.86 | 114.91 | 3.05 | 3.05 | 100 | 2.86 | 94 | | |
| FO | 75 | | | | | | | | PY + BL OF QTZ; WEAKLY | | | | | | | | | | | | | | | 114.91 | 117.96 | 3.05 | 3.01 | 98.7 | 2.71 | 89 | | |
| FO | 65 | | | | | | | | HEM ALT IN AREAS | | | | | | | | | | | | | | | 117.96 | 121.01 | 3.05 | 3.05 | 100 | 2.91 | 95 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 121.01 | 124.05 | 3.04 | 3.01 | 99 | 2.80 | 92 | | |
| C | 40 | 72.58 | 75.29 | 2.71 | | | | | CAR CHL MU SCH WITH INTERFO | | | | | | | | | | | | | | | 124.05 | 127.10 | 3.05 | 3.05 | 100 | 2.56 | 84 | | |
| | | | | | | | | | SPECKLED QTZ CHL EPI SCH (PALE YWGN) | | | | | | | | | | | | | | | 127.10 | 130.15 | 3.05 | 3.05 | 100 | 2.79 | 91 | | |
| FO | | | | | | | | | INTERVAL CONSISTS OF A SERIES | | | | | | | | | | | | | | | 130.15 | 133.20 | 3.05 | 3.05 | 100 | 2.81 | 92 | | |
| | | | | | | | | | OF REPEATING FOLD NOSES | | | | | | | | | | | | | | | 133.20 | 136.25 | 3.05 | 3.05 | 100 | 2.86 | 94 | | |
| C | | | | | | | | | WITHIN THE SPECKLED SCH + SINU | | | | | | | | | | | | | | | 136.25 | 139.29 | 3.04 | 3.04 | 100 | 2.88 | 95 | | |
| FO | 60 | | | | | | | | SOIDAL FOLDS WITHIN THE CHL | | | | | | | | | | | | | | | 139.29 | 142.34 | 3.05 | 2.99 | 98 | 2.77 | 91 | | |
| C | 60 | | | | | | | | SCH; CHL SCH HOSTS RARE | | | | | | | | | | | | | | | 142.34 | 145.39 | 3.05 | 3.05 | 100 | 2.95 | 97 | | |
| FO | 25 | | | | | | | | TR FLECKS OF Mg; | | | | | | | | | | | | | | | 145.39 | 148.44 | 3.05 | 3.05 | 100 | 2.90 | 95 | | |
| FO | 55 | | | | | | | | FOLD NOSE @ 74.40; 75.09 | | | | | | | | | | | | | | | 148.44 | 151.49 | 3.05 | 3.01 | 98.7 | 2.82 | 92 | | |
| | | | | | | | | | 3 FOLD NOSE IN TIGHT SUCCESSION | | | | | | | | | | | | | | | 151.49 | 154.53 | 3.04 | 3.05 | 100 | 2.49 | 82 | | |
| | | | | | | | | | WITHIN CHL SEDS 72.60-73.35 | | | | | | | | | | | | | | | 154.53 | 157.58 | 3.05 | 3.04 | 99.7 | 2.58 | 85 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 157.58 | 163.68 | 3.05 | 3.01 | 99.7 | 2.37 | 85 | | |
| C | 70 | 75.29 | 80.17 | 4.88 | | | | | CAR CHL MU SCH WITH INTERVALS OF | | | | | | | | | | | | | | | 163.68 | 166.73 | 3.05 | 3.05 | 100 | 2.05 | 67 | | |
| FO | 70 | | | | | | | | EPI ALT QTZ CHL SPECKLED SCH; | | | | | | | | | | | | | | | 166.73 | 169.77 | 3.04 | 3.05 | 100 | 3.04 | 100 | | |

**PROPERTY:** MOR **HOLE:** MOR-08-11

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 70 | | | | | | | | UNIT GRADES IN AND OUT FROM MD-DK | | | | | | | | | | | | | | | 169.77 | 172.82 | 3.05 | 3.05 | 100 | 2.61 | 86 | | |
| FO | 76 | | | | | | | | GN CHL SCH TO PALE GN TO YW GN | | | | | | | | | | | | | | | 172.82 | 175.87 | 3.05 | 3.05 | 100 | 2.99 | 98 | | |
| C | 74 | | | | | | | | SPECKLED SCH + BACK; CONTACTS | | | | | | | | | | | | | | | 175.87 | 178.92 | 3.05 | 3.04 | 99.7 | 2.92 | 96 | | |
| | | | | | | | | | SHARP; SEQUENCE LOOKS SEDIMENTARY | | | | | | | | | | | | | | | 178.92 | 181.97 | 3.05 | 3.06 | 100 | 2.85 | 93 | | |
| | | | | | | | | | SPECKLED SCH HAS SPOTTED | | | | | | | | | | | | | | | 181.97 | 185.01 | 3.04 | 3.04 | 100 | 2.98 | 98 | | |
| | | | | | | | | | APPEARANCE (SAU FD'S?) | | | | | | | | | | | | | | | 185.01 | 188.06 | 3.05 | 3.05 | 100 | 2.91 | 95 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 188.06 | 191.11 | 3.05 | 3.04 | 99.7 | 2.96 | 97 | | |
| C | 70 | 80.17 | 85.70 | 5.53 | | | | | PALE YW GN + MD GN | | | | | | | | | | | | | | | 191.11 | 194.16 | 3.05 | 3.05 | 100 | 2.70 | 89 | | |
| FO | 70 | | | | | | | | SPECKLED QTZ CHL EPI ALT | | | | | | | | | | | | | | | 194.16 | 197.21 | 3.05 | 3.05 | 100 | 2.71 | 89 | | |
| C | 80 | | | | | | | | SCH WITH CLOTS + WISPS OF | | | | | | | | | | | | | | | 197.21 | 200.25 | 3.04 | 3.05 | 100 | 2.55 | 84 | | |
| FO | 75 | | | | | | | | EPI ALT SEDS WITH A SHORT | | | | | | | | | | | | | | | 200.25 | 203.30 | 3.05 | 3.05 | 100 | 2.49 | 82 | | |
| C | 75 | | | | | | | | INTERVAL OF CAR CHL MU SCH @ | | | | | | | | | | | | | | | 203.30 | 206.35 | 3.05 | 3.05 | 100 | 2.84 | 93 | | |
| FO | 70 | | | | | | | | 84.20; CONTACTS SHARP | | | | | | | | | | | | | | | 206.35 | 209.40 | 3.05 | 3.05 | 100 | 2.88 | 94 | | |
| C | 70 | | | | | | | | | | | | | | | | | | | | | | | 209.40 | 212.45 | 3.05 | 3.05 | 100 | 2.90 | 95 | | |
| FO | 75 | | | | | | | | | | | | | | | | | | | | | | | 212.45 | 215.49 | 3.04 | 3.05 | 100 | 2.51 | 83 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 215.49 | 218.54 | 3.05 | 3.02 | 99 | 2.16 | 71 | | |
| C | 70 | 85.70 | 92.40 | 6.70 | | | | | CAR CHL MU SCH WITH RARE | | | | | | | | | | | | | | | 218.54 | 221.59 | 3.05 | 2.99 | 98 | 1.28 | 42 | | |
| FO | 50 | | | | | | | | TR Mg; UNIT IS REGULARLY | | | | | | | | | | | | | | | 221.59 | 224.64 | 3.05 | 2.06 | 67.5 | 1.20 | 39 | | |
| FO | 75 | | | | | | | | BEDDED + SED IN APPEARANCE | | | | | | | | | | | | | | | 224.64 | 227.69 | 3.05 | 3.05 | 100 | 2.60 | 85 | | |
| | | | | | | | | | FOLD NOSE @ 86.98; FO'S ARE 50 | | | | | | | | | | | | | | | 227.69 | 230.73 | 3.04 | 3.05 | 100 | 2.22 | 73 | | |
| \ | | | | | | | | | APROACHING FOLD + RE STEEPEN TO 75; | | | | | | | | | | | | | | | 230.73 | 233.78 | 3.05 | 3.05 | 100 | 2.52 | 83 | | |
| | | | | | | | | | PATCHES OF WEAK PY OCCURING | | | | | | | | | | | | | | | 233.78 | 236.83 | 3.05 | 3.05 | 100 | 3.05 | 100 | | |
| | | | | | | | | | NEAR QTZ BL | | | | | | | | | | | | | | | 236.83 | 239.88 | 3.05 | 3.05 | 100 | 2.64 | 87 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 239.88 | 242.93 | 3.05 | 3.03 | 99.3 | 1.65 | 54 | | |
| C | 75 | 92.40 | 98.14 | 5.74 | | | | | SPECKLED QTZ CHL EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | SCH + INTERBEDDED CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL MU SCH; OVERALL DK GN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 98.14 | 102.37 | 4.23 | | | | | DK GN CAR CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 102.37 | 104.00 | 1.63 | | | | | SPECKLED QTZ CHL EPI ALT | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 104.00 | 107.16 | 3.16 | | | | | MD GN QTZ CHL MU CAR | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH; INTERFO LAYERED QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BTWN CHL ALT LA; OCC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SHORT INTERVALS 5 cm OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED EPI SCH | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 50 | 107.16 | 121.31 | 14.15 | | | | | PALE YW GN SPECKLED + SPOTTED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EPI ALT QTZ CHL EPI SCH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | WITH TR PY AND RARE | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS OF Mg ASSOC WITH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | DK GN CHL BANDS; TR PY | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCCURING AS BL + CLOTS NEAR | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | QTZ AND CHL BL'S | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | 110.71- 112.60 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERMITTENT BL + BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 121.31 | 125.24 | 3.93 | | | | | DK GN CAR CHL MU SCH WITH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | OCC BL + BANDS OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-11

| LITHOLOGY | | | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Struct. | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| C | 75 | 125.24 | 138.08 | 12.84 | | | | | INTERBEDDED QTZ CHL MU CAR SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | AND SPECKLED EPI ALT SER QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | CHL SCH; FOLD NOSE @ 125.86; OCC | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | BANDS OF PY ASSOC WITH QTZ BL | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 55 | 138.00 | 142.77 | 4.77 | | | | | GY WEAKLY EPI ALT PORPHRY; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT HOSTS SPOTS OF EPI ALT FD; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | GROUNDMASS IS MASSIVE + DOM.QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH 5- 10 % FLECKS OF Mg; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | UNIT HAS APPEARANCE OF SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH BUT LACKS INTERNAL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | STRUCTURE; @ HW UNIT IS | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 62 | | | | | | | | INTERFO WITH CHL + CONTACT | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | V. SHALLOW APPROX. 30 DEG. FOR | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 20 cm; FO GRADUALLY STEEPEN | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DOWN SECTION | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 67 | 142.77 | 149.94 | 7.17 | | | | | INTERBEDDED QTZ CHL MU CAR SCH + | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 72 | | | | | | | | CLOTTED QTZ; MU MATRIX IS DOM | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | QTZ WITH THIN LA OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL, GIVING A LAYERED | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPEARANCE; TR Mg + PY + | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPH? ( V. WEAK AND FOUND | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LOCALLY) FOLD NOSE @ 145.32 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CONTACTS VARY FROM 15- 65 DEG. | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 40 | | | | | | | | 148.00-148.71 | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 40 | | | | | | | | GY SMOKY VITREOUS SIL VOLC? | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH FOLIATED CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 32 | | | | | | | | FW CONTACT MARKED BY | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ; TR PO @ FW 41 DEG. | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 41 | 149.44 | 152.70 | 3.26 | | | | | QTZ FLOODED + CLOTTED + FR'D | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL MU SCH WITH TR PO; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WEAK CAR ON FR PLANES; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | LAST 20 cm TO FW CONSIST | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF SMOKY QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 152.70 | 159.03 | 6.33 | | | | | INTERBEDDED CHL CLOTTED SPECKLED | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 63 | | | | | | | | QTZ MU SCH + FO QTZ CHL MU SCH; | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | UNITS ARE MOD. QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | FLOODED WITH TR-W PY + Mg | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | IN THE VICINITY OF QTZ BL; | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW 55 cm W. EPI ALT QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CH EPI ALT SCH; INTERVALS | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | BTWN. BEDS VARY FROM .5-.05m | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | THOUGH DOM. COMPONENT IS SIL | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | QTZ CHL MU SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 159.03 | 173.83 | 14.80 | | | | | WEAKLY EPI ALT SPECKLED QTZ | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | CHL SER SCH; GY MA QTZ CHL VOLC | | | | | | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | (GROUNDMASS GY GN) @ 169.91; + | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-11

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | Blocks From (m) | To (m) | Intvl. (m) | GEOTECHNICAL REC (m) | REC Percent | RQD (m) | RQD Percent | Weathering | Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FO | 60 | | | | | | | | INTERBEDDED CAR QTZ CHL MU | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | SCH; UNIT WEAKLY QTZ FLOODED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | | | | | | | | | AND CRUSHED BTWN 165.06-167 | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 173.83 | 175.85 | 2.02 | | | | | WEAKLY CAR SPECKLED DK GN | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 50 | | | | | | | | AND WEAKLY PYRITIC QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 41 | | | | | | | | EPI SCH; TR FLECKS OF Mg; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT HOST FOLD NOSE @ 175.24m | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW CONTACT 5 cm QTZ MOD. DISS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY + Mg NEAR CONTACT BOUNDARY | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | 175.85 | 181.86 | 6.01 | | | | | DK GN MOD CAR CHL MU/SER | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | SCH WITH 1-2% DISS PY + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TRACE Mg WELL FOLIATED | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH SPOTTED AREAS OF CAR | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 181.86 | 192.04 | 10.18 | | | | | DK GN V. THINNLY LA MU/ SER CHL | | | | | | 181.86 | 183.90 | 2.04 | G004213 | 0.01 | 1 | 10 | <20 | 110 | | | | | | | | | |
| FO | 80 | | | | | | | | SCH WITH 2-3 % PY OCC BL | | | | | | 183.90 | 185.97 | 2.07 | G004214 | 0.01 | <1 | 50 | <20 | 90 | | | | | | | | | |
| | | | | | | | | | AND LENSES OF WH QTZ; | | | | | | 185.97 | 189.06 | 3.09 | G004215 | <0.005 | <1 | 10 | <20 | 80 | | | | | | | | | |
| | | | | | | | | | OCC LENSES OF PY OCCURING | | | | | | 189.06 | 192.04 | 2.98 | G004216 | 0.01 | <1 | 30 | <20 | 120 | | | | | | | | | |
| | | | | | | | | | JUST BEFORE BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 192.04 | 193.84 | 1.80 | | | | | GY PYITIC SER CHL SCH WITH | | | | | | 192.04 | 193.84 | 1.80 | G004217 | 0.01 | <1 | 30 | <20 | 130 | | | | | | | | | |
| | | | | | | | | | BANDS OF SPECKLED CLOTTED | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | QTZ CHL MU SCH; OCC. BANDS | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF CHL MU SCH WITH LA OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | PY; V. TR Mg | | | | | | | | | | | | | | | | | | | | | | | |
| C | 80 | 193.84 | 200.00 | 6.16 | | | | | GY. GN GNE SPECKLED+ CHL | | | | | | 193.84 | 197.00 | 3.16 | G004218 | <0.005 | <1 | 10 | <20 | 100 | | | | | | | | | |
| | | | | | | | | | CLOTTED QTZ CHL SER SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | UNIT IS ST KINKED+ FOLDED | | | | | | 197.00 | 197.76 | 0.76 | G004219 | 0.09 | 2 | 970 | 100 | 730 | | | | | | | | | |
| FO | 50 | | | | | | | | WITH SHORT INTERVALS OF | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | ST DISS PY + Mg WITHIN FO | | | | | | 197.76 | 198.91 | 1.15 | G004220 | 0.07 | 1 | 720 | 80 | 470 | | | | | | | | | |
| | | | | | | | | | SER CHL SCH + BANDS OF QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | PRECEDING FOLDS | | | | | | 198.91 | 200.00 | 1.09 | G004221 | 0.01 | <1 | 90 | 20 | 100 | | | | | | | | | |
| C | 55 | | | | | | | | 198.03-198.23; 198.77- 198.91 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST DISS PY + Mg W WEAK FLECKS CP | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HOSTED IN SER CHL QTZ SCH; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FOLDNOSE @ 194.59 , 199.47 m | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 200.00 | 204.01 | 4.01 | | | | | DK GN W. CAR CHL SER SCH | | | | | | BLANK | | | G004222 | <0.005 | <1 | 20 | <20 | <20 | | | | | | | | | |
| FO | 62 | | | | | | | | WITH 5-7 % DISS SX; | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 3-5 % PY 1-2% Mg. 1 % CP; | | | | | | 200.00 | 202.00 | 2.00 | G004223 | 0.01 | <1 | 500 | 30 | 200 | | | | | | | | | |
| FO | | | | | | | | | OCC CLOTS OF CAR + BL OF | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CAR; CP OCCURS AS WISPS WHILE | | | | | | 202.00 | 204.01 | 2.01 | G004224 | 0.03 | <1 | 2710 | 20 | 130 | | | | | | | | | |
| | | | | | | | | | PY + Mg OCCUR AS FLECKS UPPER+ | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LOWER CONTACTS V. SHALLOW | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | AND MARKED BY NOSE FOLDS | | | | | | | | | | | | | | | | | | | | | | | |
| C | 15 | 204.01 | 205.00 | 0.99 | | | | | UPPER CONTACT MARKED BY CAR CY | | | | | | 204.01 | 205.00 | 0.99 | G004225 | 0.14 | 3 | 5250 | 30 | 260 | | | | | | | | | |
| FO | 57 | | | | | | | | AND GOUGE ALONG FR PLANE; QTZ | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 35 | | | | | | | | SPECKLED CHL GNE SER SCH 2-3 | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | % MIN; 2 MAJOR FR'S @ 15 DEG. + | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 35 DEG. UNIT GRADES INTO | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ST CAR CHL SER SCH; MIN | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | DOM PY WITH LESSER Mg | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-11

| Struct. Type | Struct. Attitude | LITHOLOGY From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | ALT. | | MINERALS | | | SAMPLES From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | Blocks From (m) | To (m) | Intvl. (m) | GEOTECHNICAL REC (m) | REC Percent | RQD (m) | RQD Percent | Weathering | Hardness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 205.00 | 215.71 | 10.71 | | | | | MD-DK GN CAR CHL SER SCH | | | | | | 205.00 | 207.65 | 2.65 | G004226 | 0.01 | <1 | 80 | <20 | 110 | | | | | | | | | |
| FO | 45 | | | | | | | | WITH 3-5 % MIN; DOM PY WITH | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | LESS Mg + CP ALL OCCURING | | | | | | 207.65 | 210.68 | 3.03 | G004227 | 0.01 | <1 | 120 | <20 | 100 | | | | | | | | | |
| FO | 70 | | | | | | | | AS FLECKS; | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | 205- 207.65 | | | | | | BLANK | | | G004228 | <0.005 | <1 | 10 | <20 | <20 | | | | | | | | | |
| FO | 40 | | | | | | | | INTER FO WITH SPECKLED SCH + | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ROPEY QTZ + MU 2-3% MIN | | | | | | 210.68 | 213.65 | 2.97 | G004229 | <0.005 | <1 | 20 | <20 | 100 | | | | | | | | | |
| | | | | | | | | | APPROACHING FW, UNIT IS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERBEDDED WITH SER SCH + QTZ | | | | | | 213.65 | 215.71 | 2.06 | G004230 | 0.01 | <1 | 30 | <20 | 110 | | | | | | | | | |
| | | | | | | | | | | | | | | | END OF SAMPLING | | | | | | | | | | | | | | | | | |
| C | 80 | 215.71 | 221.59 | 5.88 | | | | | BANDED BY QTZ SER/ MU SCH WITH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FLECKS OF Mg (EXHL) + FO | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF CHL; UNIT IS WEAKLY KINKED; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL IS CLOTTED GIVING A | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SPECKLED APPEARANCE; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT APPEARS SEDIMENTARY | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | 217.08- 218.54 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HW MARKED BY 20 cm OF QTZ | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | (EXHAL?) UNIT IS ST CY ALT + | | | | | | | | | | | | | | | | | | | | | | |
| FA | 45 | | | | | | | | FR'D WITH SINUSOIDAL BANDS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF QTZ AND GOUGE FILLED | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FR'S; RIGHT AFTER THIS INTERVAL | | | | | | | | | | | | | | | | | | | | | | |
| BD | 80 | | | | | | | | C/A ANGLES RESTEEPEN | | | | | | | | | | | | | | | | | | | | | | |
| C | 50 | 221.59 | 228.26 | 6.67 | | | | | QTZ SER CHL SCH WITH TR | | | | | | | | | | | | | | | | | | | | | | |
| FO | 55 | | | | | | | | Mg + Cp WITH OOC BL OF QTZ | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | 223.67- 224.64 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | NO RECOVERY; WASHOUT | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HW MARKED BY 17 cm OF QTZ | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 228.26 | 231.02 | 2.76 | | | | | FO BIO MU CHL QTZ SCH; FO ARE | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | KINKED WITH MOD CAR + LENSES | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF GRITTY QTZ; QTZ OCCURS AS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TEAR DROP LENSES + ALTHOUGH IT | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPEARS WEAKLY FRAG. NO TRUE | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FRAGMENTS IN MATRIX | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 231.02 | 238.19 | 7.17 | | | | | SER CHL QTZ SCH WITH OCC. | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | BANDS OF F.G SILT ST + BANDS OF | | | | | | | | | | | | | | | | | | | | | | |
| FO | 60 | | | | | | | | QTIT; FAIR- WEAK PY + WEAK Mg | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 238.20 | 243.30 | V | | | | | LAYERED ROPEY QTZ CHL SER SCH; | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | UNIT IS WEAKLY SPECKLED WITH THINNLY | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTTED CHL; TR PY, Mg + CP @ FW | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 243.30 | 244.98 | | | | | | WH BULL QTZ; MOD FR;D; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLEAN WITH RARE CLOTS OF CHL | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FW/HW CONTACTS MARKED BY QTZ | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | RUBBLE | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 244.98 | 246.31 | | | | | | LAYERED + ROPEY QTZ CHL SER SCH | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | WITH WEAKLY SPECKLED + THINNLY | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-11

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | | | | | | | | CLOTTED CHL; TR PY+ Mg | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 246.31 | 249.02 | | | | | | WH BULL QTZ; MOD FR'D CLEAN | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 65 | | | | | | | | WITH SHORT INTERVALS OF | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | LAYERED ROPEY QTZ CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | E.O.H 249.02 | | | | | | | | | | | | | | | | | | | | | | | | |

**MOR PROJECT**

**PROPERTY:** MOR

**HOLE:** MOR-08-12

| Easting | Northing | Elev. | Depth (m) |
|---|---|---|---|
| 661083 | 6661766 | 1158 | 245.98 |

Contractor: TOP RANK DIAMOND DRILLING
Drill: JKS-300

Core size: BTW
Casing depth: 20' (m) in/out

Drilling dates: July 12- July 22, 2008

Logged by: M.Nunez

Target: _____

**SURVEY**

| Depth (m) | Azimuth | Dip | Method | Depth (m) | Azimuth | Dip | Method |
|---|---|---|---|---|---|---|---|
| collar | 30 | 50 | Brunton | | | | |
| 245.98 | 30 | 53 | Acid | | | | |
| | | | | | | | |
| | | | | | | | |

**SUMMARY**

| From (m) | To (m) | Interval | Unit | Coments |
|---|---|---|---|---|
| | | | | |
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**SAMPLES**

Numbers: G004231-G004250
G005751-G005755
Total: 25
Date sent:

**COMMENTS**

**PROPERTY:** MOR **HOLE:** MOR-08-12

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| | | 0.00 | 22.41 | | | | | | DK-MD GN W. SPECKLED CHL MU | | | | | | 0.00 | 9.88 | 9.88 | G004231 | <0.005 | 0.5 | 101 | 11 | 404 | 0 | 8.23 | 8.2 | 1.5 | 18 | 0.9 | 11 | | |
| FO | 63 | | | | | | | | SER QTZ SCH WITH INTERFO CLOTS | | | | | | 9.88 | 13.30 | 3.42 | G004232 | 0.006 | 0.5 | 286 | 5 | 184 | 8.23 | 11.28 | 3.1 | 3.1 | 100 | 1.7 | 54 | | |
| | | | | | | | | | OF WEAKLY EPI ALT SEDS; UNIT IS | | | | | | 13.30 | 16.25 | 2.95 | G004233 | <0.005 | 0.3 | 68 | 11 | 168 | 11.28 | 14.33 | 3.1 | 3 | 98 | 1.1 | 34 | | |
| FO | 63 | | | | | | | | WEAKLY CAR AND VARIABLY MIN. | | | | | | 16.25 | 18.22 | 1.97 | G004234 | 0.005 | 0.9 | 589 | 21 | 241 | 14.33 | 17.37 | 3 | 3 | 98 | 2.5 | 82 | | |
| | | | | | | | | | WITH LAMINAR BANDS OF PY + TR CP | | | | | | 18.22 | 20.53 | 2.31 | G004235 | <0.005 | 0.7 | 712 | 14 | 114 | 17.37 | 20.42 | 3.1 | 3.1 | 100 | 2 | 66 | | |
| SX | 65 | | | | | | | | WHICH AVRG 1-2 % OVER INTERVAL | | | | | | | | | | | | | | | 20.42 | 23.47 | 3.1 | 3 | 98 | 1.6 | 53 | | |
| | | | | | | | | | BUT WITH LOCAL AREAS BTWN 2-4% | | | | | | | | | | | | | | | 23.47 | 26.52 | 3.1 | 3.1 | 100 | 1.5 | 48 | | |
| | | | | | | | | | MIN. UNIT IS NON. MAG. | | | | | | | | | | | | | | | 26.52 | 29.57 | 3.1 | 3.1 | 100 | 2.4 | 79 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 29.57 | 32.61 | 3 | 3 | 98 | 1.5 | 49 | | |
| C | 70 | 22.41 | 29.07 | | | | | | GY QTZ SER SCH WITH CLOTTED | | | | | | | | | | | | | | | 32.61 | 35.66 | 3.1 | 3 | 99 | 1.7 | 56 | | |
| FO | 70 | | | | | | | | CHL ALONG FO GIVING A SPOTTED | | | | | | | | | | | | | | | 35.66 | 38.71 | 3.1 | 1.5 | 49 | 0.4 | 14 | | |
| FO | 68 | | | | | | | | APPEARANCE; LOCAL AREAS OF | | | | | | | | | | | | | | | 38.71 | 41.76 | 3.1 | 1.5 | 50 | 0.1 | 3.6 | | |
| | | | | | | | | | LA BANDED PY + TR CP | | | | | | | | | | | | | | | 41.76 | 44.81 | 3.1 | 3.1 | 100 | 1.9 | 63 | | |
| C | 50 | | | | | | | | 27.55-28.05 | | | | | | | | | | | | | | | 44.81 | 47.85 | 3 | 3 | 99 | 2.1 | 67 | | |
| | | | | | | | | | 5-7% DISS. COARSE GRAINED | | | | | | | | | | | | | | | 47.85 | 50.9 | 3.1 | 3.1 | 100 | 2.1 | 67 | | |
| | | | | | | | | | WEAKLY LA PY AND TR Mg | | | | | | | | | | | | | | | 50.9 | 53.95 | 3.1 | 3.1 | 100 | 2.8 | 93 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 53.95 | 57 | 3.1 | 3 | 99 | 2.2 | 72 | | |
| C | 60 | 29.07 | 29.79 | | | | | | MD GN GRITTY CAR QTZ CHL SCH | | | | | | | | | | | | | | | 57 | 60.05 | 3.1 | 3.1 | 100 | 1.9 | 61 | | |
| FO | 60 | | | | | | | | (TUFF); ST. CAR | | | | | | | | | | | | | | | 60.05 | 63.09 | 3 | 3 | 99 | 2.4 | 79 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 63.09 | 66.14 | 3.1 | 3.1 | 100 | 1.8 | 59 | | |
| C | 60 | 29.79 | 32.41 | | | | | | GRITTY MU SER QTZ SCH WITH 3% | | | | | | | | | | | | | | | 66.14 | 69.19 | 3.1 | 3.1 | 100 | 2.5 | 81 | | |
| FO | 68 | | | | | | | | FLECKS OF Mg AND TR PY; 8cm | | | | | | | | | | | | | | | 69.19 | 72.24 | 3.1 | 3.1 | 100 | 2.3 | 76 | | |
| C | 65 | | | | | | | | PULS E OF MD GRAINED TUFF CAR | | | | | | | | | | | | | | | 72.24 | 75.29 | 3.1 | 3.1 | 100 | 2.5 | 83 | | |
| | | | | | | | | | QTZ CHL SCH @ 31.80 | | | | | | | | | | | | | | | 75.29 | 78.33 | 3 | 3.1 | 100 | 2.7 | 89 | | |
| | | | | | | | | | 30.00-31.00 | | | | | | | | | | | | | | | 78.33 | 81.38 | 3.1 | 3.1 | 100 | 1.9 | 61 | | |
| | | | | | | | | | RUBBLE; LOW RECOVERY | | | | | | | | | | | | | | | 81.38 | 84.43 | 3.1 | 3 | 99 | 1.8 | 58 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 84.43 | 87.48 | 3.1 | 3 | 98 | 1.8 | 57 | | |
| C | 70 | 32.41 | 33.52 | | | | | | MD GN GRITTY MD GRAINED TUFF | | | | | | | | | | | | | | | 87.48 | 90.53 | 3.1 | 3 | 99 | 1.6 | 53 | | |
| FO | 72 | | | | | | | | CHL CAR SCH | | | | | | | | | | | | | | | 90.53 | 93.57 | 3 | 3.1 | 100 | 2.7 | 88 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 93.57 | 96.62 | 3.1 | 3.1 | 100 | 2.2 | 72 | | |
| C | 70 | 33.52 | 42.39 | | | | | | PALE GY GN SER MU CHL SCH WITH | | | | | | | | | | | | | | | 96.62 | 99.67 | 3.1 | 3.1 | 100 | 2.9 | 96 | | |
| FO | 70 | | | | | | | | BL + WISPS OF INTERFO EPI ALT | | | | | | | | | | | | | | | 99.67 | 102.7 | 3.1 | 6.1 | 200 | 2.6 | 84 | | |
| FO | 70 | | | | | | | | SEDS UNIT IS WEAKLY SPECKLED + | | | | | | | | | | | | | | | 102.7 | 105.8 | 3.1 | 3.1 | 100 | 2.1 | 70 | | |
| | | | | | | | | | HOSTS OCC. PULSES OF MD | | | | | | | | | | | | | | | 105.8 | 108.8 | 3 | 3.1 | 100 | 2.5 | 83 | | |
| | | | | | | | | | GRAINED TUFF CHL CAR SCH; 1-2% | | | | | | | | | | | | | | | 108.8 | 111.9 | 3.1 | 3 | 97 | 2.8 | 91 | | |
| | | | | | | | | | FLECKS OF Mg + TR PY BTWN 34-37m | | | | | | | | | | | | | | | 111.9 | 114.9 | 3.1 | 3.1 | 100 | 2.9 | 94 | | |
| | | | | | | | | | 37.01-41.76 | | | | | | | | | | | | | | | 114.9 | 118 | 3.1 | 3 | 99 | 2.7 | 89 | | |
| | | | | | | | | | V.LOW RECOVERY CORE IS | | | | | | | | | | | | | | | 118 | 121 | 3.1 | 3.1 | 100 | 2.9 | 95 | | |
| | | | | | | | | | CONSISTENT BUT RUBBLIZED + FR'D | | | | | | | | | | | | | | | 121 | 124.1 | 3 | 3 | 99 | 2.8 | 92 | | |
| | | | | | | | | | 41.76-42.39 | | | | | | | | | | | | | | | 124.1 | 127.1 | 3.1 | 3.1 | 100 | 2.6 | 84 | | |
| | | | | | | | | | SCH BECOMES WEAKLY | | | | | | | | | | | | | | | 127.1 | 130.2 | 3.1 | 3.1 | 100 | 2.8 | 91 | | |
| | | | | | | | | | TUFFACEOUS AND INTERFO WITH PY | | | | | | | | | | | | | | | 130.2 | 133.2 | 3 | 3.1 | 100 | 2.8 | 92 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 133.2 | 136.3 | 3.1 | 3.1 | 100 | 2.9 | 94 | | |
| C | 68 | 42,39 | 43.40 | | | AND | | | MD-PALE GN Ma CAR AND; HW CONTACT | | | | | | | | | | | | | | | 136.3 | 139.3 | 3 | 3 | 100 | 2.9 | 95 | | |
| FO | 70 | | | | | | | | MARKED BY 0.5CM BAND OF PY | | | | | | | | | | | | | | | 139.3 | 142.3 | 3.1 | 3 | 98 | 2.8 | 91 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 142.3 | 145.4 | 3 | 3.1 | 100 | 3 | 97 | | |
| C | 77 | 43.40 | 57.40 | | | | | | W.KINKED PALE YW GN SPECKLED | | | | | | | | | | | | | | | 145.4 | 148.4 | 3.1 | 3.1 | 100 | 2.9 | 95 | | |
| FO | 75 | | | | | | | | CHL SER MU CHL SER SCH WITH | | | | | | | | | | | | | | | 148.4 | 151.5 | 3.1 | 3 | 99 | 2.8 | 92 | | |
| | | | | | | | | | MOD. EPI ALT INTERFO SEDS | | | | | | | | | | | | | | | 151.5 | 154.5 | 3 | 3.1 | 100 | 2.5 | 82 | | |

**PROPERTY:** MOR **HOLE:** MOR-08-12

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness | | | |
| | | | | | | | | | ; OCC. BANDS OF CAR +QTZ | | | | | | | | | | | | | | | 154.5 | 157.6 | 3.1 | 3 | 100 | 2.6 | 85 | | | | |
| | | | | | | | | | 48.35-48.92 | | | | | | | | | | | | | | | 157.6 | 160.6 | 3 | 3.1 | 100 | 2.8 | 92 | | | | |
| | | | | | | AND | | | MD GN Ma CAR AND | | | | | | | | | | | | | | | 160.6 | 163.7 | 3.1 | 3 | 99 | 2.4 | 78 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 163.7 | 166.7 | 3 | 3.1 | 100 | 2.1 | 67 | | | | |
| C | 75 | 57.40 | 58.82 | | | | | | GY GN QTIT WITH WEAK CHL IN | | | | | | | | | | | | | | | 166.7 | 169.8 | 3 | 3.1 | 100 | 3 | 100 | | | | |
| FO | 75 | | | | | | | | MATRIX GIVING PALE GN COLOUR | | | | | | | | | | | | | | | 169.8 | 172.8 | 3 | 3.1 | 100 | 2.6 | 86 | | | | |
| FO | 70 | | | | | | | | UNIT IS INTERBEDDED WITH SHORT | | | | | | | | | | | | | | | 172.8 | 175.9 | 3.1 | 3.1 | 100 | 3 | 98 | | | | |
| | | | | | | | | | INTERVALS OF CAR CHL EPI | | | | | | | | | | | | | | | 175.9 | 178.9 | 3 | 3 | 100 | 2.9 | 96 | | | | |
| | | | | | | | | | SPECKLED SCH AND OCC. MASSES | | | | | | | | | | | | | | | 178.9 | 182 | 3.1 | 3.1 | 100 | 2.9 | 93 | | | | |
| | | | | | | | | | OF Mg FLECKS. | | | | | | | | | | | | | | | 182 | 185 | 3 | 3 | 100 | 3 | 98 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 185 | 188.1 | 3.1 | 3.1 | 100 | 2.9 | 95 | | | | |
| C | 70 | 58.82 | 65.45 | | | | | | PALE YW GN SPECKLED QTZ SER | | | | | | | | | | | | | | | 188.1 | 191.1 | 3.1 | 3 | 100 | 3 | 97 | | | | |
| FO | 70 | | | | | | | | CHL SCH WITH LA BL + WISPS OF | | | | | | | | | | | | | | | 191.1 | 194.2 | 3 | 3.1 | 100 | 2.7 | 89 | | | | |
| | | | | | | | | | WEAKLY EPI ALT SEDS | | | | | | | | | | | | | | | 194.2 | 197.2 | 3.1 | 3.1 | 100 | 2.7 | 89 | | | | |
| C | 75 | | | | | | | | 61.31-62.57 | | | | | | | | | | | | | | | 197.2 | 200.3 | 3 | 3.1 | 100 | 2.6 | 84 | | | | |
| | | | | | | | | | MDGN + INTERMIXED WITH F.G. CAR | | | | | | | | | | | | | | | 200.3 | 203.3 | 3.1 | 3.1 | 100 | 2.5 | 82 | | | | |
| | | | | | | | | | QTZ CHL SCH WEAKLY MAG. WITH | | | | | | | | | | | | | | | 203.3 | 206.4 | 3 | 3.1 | 100 | 2.8 | 93 | | | | |
| | | | | | | | | | FLECKS OF Mg; MOD. EPI ALT CLASTS | | | | | | | | | | | | | | | 206.4 | 209.4 | 3.1 | 3.1 | 100 | 2.9 | 94 | | | | |
| | | | | | | | | | + WISPS OF EPI ALT SEDS. | | | | | | | | | | | | | | | 209.4 | 212.5 | 3 | 3.1 | 100 | 2.9 | 95 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 212.5 | 215.5 | 3 | 3.1 | 100 | 2.5 | 83 | | | | |
| C | 80 | 65.45 | 71.42 | | | | | | MD GN CAR CHL QTZ TUFF SCH WITH | | | | | | | | | | | | | | | 215.5 | 218.5 | 3 | 3 | 99 | 2.2 | 71 | | | | |
| FO | 72 | | | | | | | | W-F INTERFO BANDS OF EPI ALT | | | | | | | | | | | | | | | 218.5 | 221.6 | 3.1 | 3 | 98 | 1.3 | 42 | | | | |
| FO | 72 | | | | | | | | SEDS | | | | | | | | | | | | | | | 221.6 | 224.6 | 3 | 2.1 | 68 | 1.2 | 39 | | | | |
| | | | | | | | | | 67.64-69.80 | | | | | | | | | | | | | | | 224.6 | 227.7 | 3.1 | 3.1 | 100 | 2.6 | 85 | | | | |
| | | | | | | | | | LESS CHL ALT; TEXTURE STILL | | | | | | | | | | | | | | | 227.7 | 230.7 | 3 | 3.1 | 100 | 2.2 | 73 | | | | |
| | | | | | | | | | TUFFACEOUS | | | | | | | | | | | | | | | 230.7 | 233.8 | 3.1 | 3.1 | 100 | 2.5 | 83 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 233.8 | 236.8 | 3.1 | 3.1 | 100 | 3.1 | 100 | | | | |
| FO | 70 | 71.42 | 82.22 | | | | | | SPECKLED QTZ EPI CHL MU SER | | | | | | | | | | | | | | | 236.8 | 239.9 | 3 | 3.1 | 100 | 2.6 | 87 | | | | |
| | | | | | | | | | SCH; MOD LA OF EPI ALT; BL +OF EPI | | | | | | | | | | | | | | | 239.9 | 242.9 | 3.1 | 3 | 99 | 1.7 | 54 | | | | |
| | | | | | | | | | 73.66-74.06 | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | | | | | | | | MD GN CAR CHL TUFF SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 68 | | | | | | | | 76.88-77.61 | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 68 | | | | | | | | MD GN CAR CHL TUFF SCH | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 82.22 | 84.17 | | | | | | PALE GN Ma EPI ALT SED; CONTACTS | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | APPROX.BUT TRANSITION SHARPLY | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 84.17 | 92.85 | | | | | | PALE GY+GN WEAKLY EPI ALT QTZ MU | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | SER SPECKLED SCH; W. HEM ON | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | FR'S; TR PY + Mg FROM HW- 91.30 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 91.30-92.80 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS INCR. CHL ALT + CAR. ALT | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH WEAK TUFF. (TRANS) | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 92.80-92.85 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | MD GN CAR QTZ TUFF WITH WEAK | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WISPS AND BL OF EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 92.85 | 93.80 | | | | | | PYRITIC GY + GN SPECKLED EPI ALT. | | | | | | 92.95 | 93.80 | | G004236 | <0.005 | 3 | 290 | <20 | 20 | | | | | | | | | | | |
| FO | 75 | | | | | | | | QTZ MU SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-12

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness | | |
| C | 70 | 93.80 | 98.45 | | | | | | MASSIVE FOLDED PYRRHOTITE PY + | | | | | | 93.80 | 94.89 | | G004237 | 0.007 | <1 | 1640 | <20 | 20 | | | | | | | | | | | | |
| | | | | | | | | | CP HOSTED IN DARK GN TO BLK SIL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 98.45 | 101.30 | | | | | | MD GN CAR CHL GRIT TUFF WITH W-F | | | | | | 94.89 | 95.60 | | G004238 | 0.008 | <1 | 700 | <20 | 40 | | | | | | | | | | | | |
| FO | 60 | | | | | | | | EPI ALT AND RARE BL OF COARSE PY | | | | | | 95.60 | 96.51 | | G004239 | <0.005 | 5 | 450 | <20 | 20 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 96.51 | 97.30 | | G004240 | 0.006 | <1 | 2070 | <20 | <20 | | | | | | | | | | | | |
| C | 66 | 101.30 | 102.01 | | | | | | SPECKLED PALE GN SER CHL SCH | | | | | | BLANK | | | G004241 | <0.005 | <1 | 10 | 30 | <20 | | | | | | | | | | | | |
| FO | 70 | | | | | | | | | | | | | | 97.30 | 98.40 | | G004242 | 0.021 | <1 | 440 | <20 | 20 | | | | | | | | | | | | |
| C | 55 | 102.01 | 102.27 | | | | | | Sma PY OCCURING IN ROUGHLY LA | | | | | | 98.40 | 101.28 | | G004243 | <0.005 | 3 | 390 | <20 | 30 | | | | | | | | | | | | |
| | | | | | | | | | CLOTS WITH CLOTS OF CP + FLECKS | | | | | | 101.28 | 102.03 | | G004244 | <0.005 | <0.2 | 3 | <2 | 7 | | | | | | | | | | | | |
| SX | 62 | | | | | | | | OF Mg HOSTED IN BLS OF SIL CHL | | | | | | 102.03 | 102.51 | | G004245 | 0.007 | <1 | 1250 | <20 | 80 | | | | | | | | | | | | |
| | | | | | | | | | (RHY); SHARP CONTACTS | | | | | | 102.51 | 103.43 | | G004246 | <0.005 | 0.2 | 94 | 5 | 66 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | 103.43 | 104.15 | | G004247 | <0.005 | <0.2 | 81 | 2 | 32 | | | | | | | | | | | | |
| C | 65 | 102.27 | 108.84 | | | | | | MD-GN CAR CHL SER MU QTZ FEL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TUFF; UNIT HAS F.G. MATRIX WITH | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | CLOTS OF WH QTZ + CLOTTED CAR. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W.OCC. FO BANDS OF EPI + TR. PY | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | 104.15-104.70 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS INTERFO WITH BANDS OF WH | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SIL RHY?; FW CONTACT 7cm OF | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CLOTTED EPI + BL OF PY | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 76 | | | | | | | | 106.13-106.65; 107.08-107.81 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 80 | | | | | | | | SPECKLED GY GN CHL SER EPI ALT | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH WITH ST. HEM ALT ON FR'S | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 108.84 | 110.43 | | | | | | PALE GN EPI ALT QTZ CHL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 72 | | | | | | | | SPECKLED SCH WITH FR. FILLING | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HEM. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 110.43 | 119.22 | | | | | | MD GN GRITTY CHL CAR TUFF SCH | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | WITH MOD. BL OF EPI ALT SEDS + | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | OCC. BANDS OF PY AND LENSES OF | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | GY GLASSY QTZ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BD | 60 | 119.22 | 123.40 | | | | | | GY GN SIL QTIT WITH LA CHL + CAR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | TUFF + LA BANDS OF FR FILLING PY; | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SX | 70 | | | | | | | | NON CAR | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 121.75- 122.10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 7% BANDS OF PY + 2% FLECKS OF Mg | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 63 | | | | | | | | 122.88-123.40 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | F.G MD GN CAR CHL TUFF SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W. BL OF PY | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 123.40 | 124.75 | | | | | | GY GN SPECKLED W. EPI ALT SER | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | QTZ WITH CLOTS OF CHL | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 124.75 | 128.18 | | | | | | INTERBEDDED TUFF CAR CHL SCH | | | | | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-12

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 70 | | | | | | | | SPECKLED SER CHL SCH + QTIT; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT GRADES BTWN COMPONENTS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EQUALLY; ST. SIL. OCC. BL OF EPI | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ALT SED. | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 128.18 | 135.55 | | | | | | SPECKLED GY GN SER CHL SCH | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | WITH MOD EPI ALT BL + BANDS | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 135.55 | 142.91 | | | | | | GRITTY CAR CHL QTZ CAR TUFF SCH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH INTERBEDDED GY QTIT+BANDS | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | OF EPI ALT SPECKLED SCH WITH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | OCC. BANDS OF PY AND ASSOC. | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | FLECKS OF Mg; CHL IS V.DK GN AND | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | HOSTS OCC. BL OF PY + TR, Mg | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 142.91 | 151.89 | | | | | | PALE GY GN QTZ SER SPECKLED | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | CHL SCH WITH W-F EPI BL+INTERFO | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | CLOTS; W. HEM. OCCURING ON FR | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SURFACES | | | | | | | | | | | | | | | | | | | | | | |
| FO | 67 | | | | | | | | 146.80-148.62 | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT MOD. FR'D WITH CAR ON FR | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SURFACES | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 151.89 | 160.57 | | | | | | GRITTY CAR CHL QTZ TUFF SCH | | | | | | | | | | | | | | | | | | | | | | |
| PY | 75 | | | | | | | | WITH OCC. BANDS AND BLS OF PY | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | 2-3% PYRITIC | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 160.57 | 163.25 | | | | | | SPECKLED EPI ALT CLOTTED QTZ | | | | | | | | | | | | | | | | | | | | | | |
| FO | 68 | | | | | | | | SER CHL SCH; MOD. BL OF CAR | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | ON FR SURFACES | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PY | 75 | 163.25 | 169.33 | | | | | | GRITTY TUFF CHL CAR TUFF SCH; ST. | | | | | | | | | | | | | | | | | | | | | | |
| FR | 55 | | | | | | | | FR. + W. CHL ALT WITH CAR + PY ON | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | FR PLANES; 2-3% PYRITIC | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 169.33 | 170.45 | | | | | | SPECKLED EPI ALT CLOTTED QTZ | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | SER CHL SCH; WELL FOLIATED | | | | | | | | | | | | | | | | | | | | | | |
| FO | 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 70 | 170.45 | 173.30 | | | | | | MD GN FINELY FOLIATED CAR CHL | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | SCH UNIT IS 5-7% MIN WITH PY + | | | | | | | | | | | | | | | | | | | | | | |
| PY | 70 | | | | | | | | FLECKS OF Mg | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 75 | 173.30 | 188.06 | | | | | | GY SPECKLED CHL QTZ SER/MU SCH | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | WITH FR FILLING CAR; W-F | | | | | | | | | | | | | | | | | | | | | | |
| FO | 70 | | | | | | | | SPECKLED CLOTS OF EPI ALT SEDS; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | W.PY ON FR SURFACES; | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | UNIT IS STRONGLY FR'D BTWN | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 173.30-182.81 | | | | | | | | | | | | | | | | | | | | | | |

**PROPERTY:** MOR **HOLE:** MOR-08-12

| Struct. | | LITHOLOGY | | | | | | | | ALT. | | MINERALS | | | SAMPLES | | | | | | | | | Blocks | | | GEOTECHNICAL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | REC | | RQD | | | |
| Type | Attitude | From (m) | To (m) | Interval (m) | Type | Unit | Texture | Modifier | Notes: | | | | | | From (m) | To (m) | Interval (m) | Sample | Au (ppm) | Ag (ppm) | Cu (ppm) | Pb (ppm) | Zn (ppm) | From (m) | To (m) | Intvl. (m) | (m) | Percent | (m) | Percent | Weathering | Hardness |
| FO | 70 | 188.06 | 226.20 | | | | | | SPOTTED+SPECKLED QTZ SER MU | | | | | | 205.97 | 207.25 | | G004248 | 0.006 | <0.2 | 51 | 2 | 41 | | | | | | | | | | |
| | | | | | | | | | SCH WITH V. WEAK SPOTS OF EPI SED | | | | | | 207.25 | 208.12 | | G004249 | 0.137 | 3.1 | 4500 | 4 | 66 | | | | | | | | | | |
| FO | 70 | | | | | | | | INTERBEDDED WITH MD GN CAR CHL | | | | | | 208.12 | 209.40 | | G004250 | 0.005 | 0.2 | 43 | 10 | 25 | | | | | | | | | | |
| | | | | | | | | | SCH; UNIT IS 3-5% PYRITIC IN LOCAL | | | | | | | | | | | | | | | | | | | | | | | | |
| PY | 80 | | | | | | | | AREAS ALTHOUGH NO ASSOC Mg; | | | | | | 223.45 | 226.20 | | G005751 | 0.006 | <0.2 | 130 | 2 | 44 | | | | | | | | | | |
| | | | | | | | | | 1cm Ma BAND OF PY @ 201.75; UNIT | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | HAS CLOTTED APPEARANCE | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 207.59-208.12 | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | MD GN TUFF CHL CAR SCH WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 7-10% BANDS AND BL OF PY, CP + W. | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | Mg FOR FIRST 34cm WITH | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | REMAINDER BEING UN ALT SCH | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 60 | 226.20 | 232.70 | | | | | | MD GN + GY TUFFACEOUS CAR CHL | | | | | | 226.20 | 229.10 | | G005752 | <0.005 | <0.2 | 351 | <2 | 100 | | | | | | | | | | |
| | | | | | | | | | MU SER SCH APPROX 5% PYRITIC; | | | | | | 229.10 | 232.00 | | G005753 | 0.007 | 0.3 | 759 | 2 | 126 | | | | | | | | | | |
| FO | 74 | | | | | | | | Tr Mg;Py OCCURS AS WISPS + | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | INTERFO BL; NO READILY VISIBLE CP | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 75 | | | | | | | | OR Mg | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | 232.70 | 245.95 | | | | | | SILVERY WELL FOLIATED MU SER | | | | | | 232.00 | 235.00 | | G005754 | <0.005 | 0.3 | 371 | 2 | 126 | | | | | | | | | | |
| | | | | | | | | | CHL SCH; UNIT HOSTS MOD BL+ | | | | | | 235.00 | 237.65 | | G005755 | <0.005 | <0.2 | 93 | 4 | 171 | | | | | | | | | | |
| FO | 70 | | | | | | | | LENSES OF QTZ + Tr Py OCC. LENSES | | | | | | | END OF SAMPLING | | | | | | | | | | | | | | | | |
| | | | | | | | | | OF CAR | | | | | | | | | | | | | | | | | | | | | | | | |
| FO | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | EOH 245.95 | | | | | | | | | | | | | | | | | | | | | | | | |