

Ministry of Energy, Mines & Petroleum Resources
Mining & Minerals Division
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Mapping, geochemical sampling and IP Surveying **TOTAL COST:** \$306,982.42

AUTHOR(S): Stephen Wetherup

SIGNATURE(S): 

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): _____ **YEAR OF WORK:** 2017

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5675142

PROPERTY NAME: JD Property

CLAIM NAME(S) (on which the work was done): 1020210, 521293, 1038681, 521291, 521296, 521328

COMMODITIES SOUGHT: Cu, Mo, Au, Ag

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 094E 001, 126, 234, 168, 065, 171, 170, 169, 187

MINING DIVISION: Omineca

NTS/BCGS: 094 E/6

LATITUDE: 57 ° 26 ' " **LONGITUDE:** 127 ° 09 ' " (at centre of work)

OWNER(S):

1) Victor Erickson

2) Thomas Cameron Scott

MAILING ADDRESS:

3741 West 36th Ave

Vancouver, BC, V6N 2S3

3925 Fourth Ave

Port Alberni, BC, V9Y 4J1

OPERATOR(S) [who paid for the work]:

1) Freeport-McMoran Mineral Properties Canada Inc.

2) _____

MAILING ADDRESS:

Suite 1409-409 Granville Street

Vancouver, BC, V6C 1T2

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Toodoggone formation, Black Lake Intrusive Suite, monzonite dykes, Duncan Member, Metsantan Member, Porphyry Cu-Au-Mo Epithermal Au-Ag, Low-sulphidation, High-sulphidation, quartz-magnetite stockwork

4497, 8058, 8998, 9269, 9372, 9832, 9833, 9895, 10032 (34, 35, 51), 10291, 10297, 10347, 10471, 10473, 10694, 10739, 11843,

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 12966, 12974, 13272, 14209, 14489, 14697, 15183

15185, 15412, 15469, 15983, 15998, 16551, 17257, 17453, 17939, 18015, 18627, 18847, 20671, 23663, 24284, 24930, 25587, 25757, 29311, 30143, 33556, 34762

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	12 km sq.	1020210, 521293, 1038681, 521291,	\$81,762.43
Photo interpretation		521296, 521328	
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			\$203,400.40
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL			
(number of samples analysed for...)			
Soil			
Silt			
Rock	12 samples		\$636.26
Other	38 rocks for Terraspec		\$979.64
DRILLING			
(total metres; number of holes, size)			
Core	relogging		\$20,203.69
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	\$ 306,982.42

ASSESSMENT REPORT

MAPPING AND INDUCED-POLARIZATION SURVEYING, JD PROPERTY

Omineca Mining Division, British Columbia

OPERATOR:



FREEPORT-McMoRAN MINERAL PROPERTIES CANADA INC.
Suite 1409 – 409 Granville Street
Vancouver, British Columbia
V6C 1T2

OWNERS:

Cameron Scott
Victor Erickson

LOCATED:

120 km southeast of the village of Dease Lake, BC
Omineca Mining Division
57° 26' North Lat., 127° 09' West Long.
NTS: 094 E/6

February 19th, 2018

Prepared By:
WETHERUP
GEOLOGICAL
CONSULTING
Stephen Wetherup, B.Sc., P.Geo.

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1.0 INTRODUCTION

Freeport-McMoRan Mineral Properties Canada Inc. (“FMMP”) completed a \$306,982.42, CAD exploration program on the JD Property, owned by Cameron Scott and Victor Erickson, in the summer of 2017. Work consisted of reconnaissance mapping, alteration mapping, geochemical rock sampling, examination of historical drill core, and Induced-Polarization surveying. The results of the program and interpretations derived from the data constitute the basis of this Assessment Report.

2.0 LOCATION AND PROPERTY DESCRIPTION

The JD property is in north-central British Columbia ~50 km NNW of the Kerness copper-gold mine, 460 km north of Prince George, and 130 km southeast of Dease Lake, BC (Figure 2-1). Property co-ordinates for the centre of the claim bloc are 57°26' north Latitude and 127°09' west Longitude on N.T.S. Map No. 94E/6E. The UTM (NAD83) co-ordinates are Zone 9 609700E, 6368200N.

Figure 2-1. Location of the JD Property.



The JD property is comprised of a contiguous bloc of 27 mineral claims of which Cameron Scott (FMC#

124163) and Victor Erickson (FMC# 107810) are equal owners. The property covers an area of 10,491.98.5 hectares or 104.9km². Details of the claims downloaded from the Mineral Titles Online (MTO) website are listed below in Table 2-1. None of the claims have been have been legally surveyed.

Table 2-1. Mineral tenure summary data for the JD Property (January 30th, 2018).

Title Number	Claim Name	Owner	Issue Date	Good To Date	Area (ha)
521291		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	1393.40
521293		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	922.82
521294		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	209.18
521295		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	365.67
521296		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	1045.43
521297		107810 (50%), 124163 (50%)	2005/OCT/17	2023/NOV/15	837.01
521321		107810 (50%), 124163 (50%)	2005/OCT/18	2023/NOV/15	208.97
521328		107810 (50%), 124163 (50%)	2005/OCT/19	2023/NOV/15	592.54
897129	MOOSEHORN 1	107810 (50%), 124163 (50%)	2011/SEP/13	2023/NOV/15	418.44
897149	MOOSEHORN 2	107810 (50%), 124163 (50%)	2011/SEP/13	2023/NOV/15	418.58
897169	MOOSEHORN 3	107810 (50%), 124163 (50%)	2011/SEP/13	2023/NOV/15	436.00
897170	MOOSEHORN 4	107810 (50%), 124163 (50%)	2011/SEP/13	2023/NOV/15	436.13
897171	MOOSEHORN 5	107810 (50%), 124163 (50%)	2011/SEP/13	2023/NOV/15	69.79
904869	JD NW 1	107810 (50%), 124163 (50%)	2011/OCT/05	2023/NOV/15	348.02
947451	JD ACCESS 5	107810 (50%), 124163 (50%)	2012/FEB/09	2023/NOV/15	69.76
984044		107810 (50%), 124163 (50%)	2012/MAY/06	2022/NOV/15	139.44
1010726		107810 (50%), 124163 (50%)	2012/JUL/04	2022/NOV/15	418.93
1020210		107810 (50%), 124163 (50%)	2013/JUN/10	2022/NOV/15	243.60
1038681		107810 (50%), 124163 (50%)	2015/SEP/19	2022/NOV/15	487.57
1040157		107810 (50%), 124163 (50%)	2015/NOV/25	2022/NOV/15	52.30
1040158		107810 (50%), 124163 (50%)	2015/NOV/25	2022/NOV/15	139.52
1043967		107810 (50%), 124163 (50%)	2012/FEB/09	2023/NOV/15	157.01
1043968		107810 (50%), 124163 (50%)	2011/JUL/23	2023/NOV/15	401.28
1043971		107810 (50%), 124163 (50%)	2012/JUL/04	2022/NOV/15	69.84
1043973		107810 (50%), 124163 (50%)	2012/JUL/04	2022/NOV/15	244.40
1043975		107810 (50%), 124163 (50%)	2012/JUL/04	2022/NOV/15	348.93
1050547		107810 (50%), 124163 (50%)	2017/MAR/04	2022/NOV/15	17.44
Total Ha					10491.98



Freeport-McMoRan Mineral Properties of Canada Ltd.

Date:
Feb 18, 2018

Drafted by:
S. Wetherup

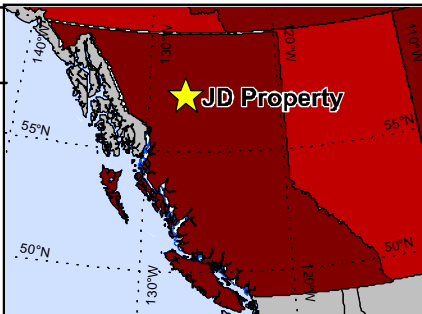
Figure:
2-2

JD Project

Claim Map

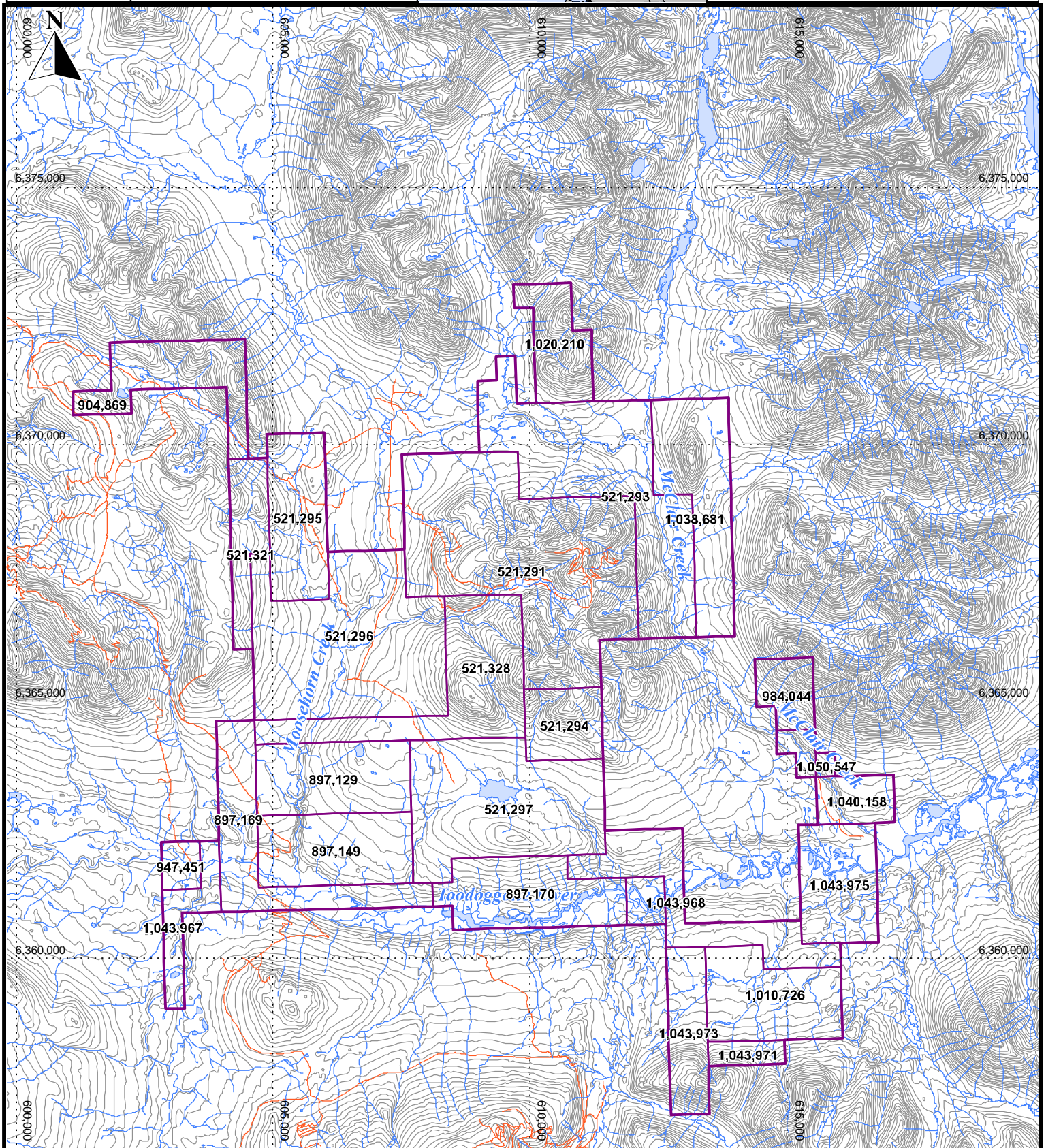
British Columbia, Canada

UTM NAD83 Zone 9



Legend

- JD Claims
- Roads
- Waterbodies
- Watercourses
- Elevation contour (100ft)



3.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

3.1 Access

The JD property is accessible by road from Prince George, a distance of ~600 km and a drive of 10 to 12 hours. Travel from Prince George is 164 km north along Hwy 97 to Windy Point and thence along Hwy 39 toward Mackenzie. Before Mackenzie the Finlay Forest Service Road heads westerly and crosses the southern end of Williston Lake. This road continues northerly along the west side of Williston Lake. Logging activity eventually ceases near Osilinka camp and travel continues north along the Omineca Mining (Kemess) road. At the 166 km mark is a junction with the right branch leading to the Kemess Mine. The left fork (Omineca Resource Access Road) heads northwesterly eventually crossing the Finlay River at ~23 km. This road continues northward 17 km to the Sturdee airstrip and continues another 27 km to the Toodoggonre River and onto the JD property.

The Property is approximately 130 km southeast of Dease Lake and 300 km due north of Smithers BC where the property can be directly accessed by helicopter.

3.2 Climate and Vegetation

Seasonal temperatures range from lows of -35°C in winter to +30°C in July and August. January and July mean temperatures are -14°C and 15° to 20°C respectively. The property area receives moderate precipitation with winter snow pack reportedly around 1.5 to 2 m. Access to the area is possible from June to September.

The property is forested with stands of balsam, spruce and pine. Timberline is around 1,500 m. Steeper slopes, especially those prone to avalanches, are often covered with very thick mats of low growing and tangled balsam. Terrain above 1,500 m consists of grassy alpine meadows interspersed with talus on steeper slopes.

3.3 Physiography

The JD property is situated in the northern Omineca Mountains of northern BC. Slopes on the property are moderate with occasional steep slopes along and at the headwaters of drainages. Topographic relief is ~800 m, ranging from 1150 m along the Toodoggonre River to just under 1930 m on a peak in the central portion of the property.

3.4 Infrastructure and Local Resources

The nearest major town centre is Smithers (300 km south) or Prince George (450 km SE) which are both resource (mining, logging, and ranching) based community with an experienced labour force. They can supply fuel, groceries, accommodation and heavy construction equipment and have regular scheduled air and train service. Major electrical transmission lines serve the Kemess mill 60 km to the south and the road that leads to Kemess was the main haul road for concentrate while it was operating.

4.0 EXPLORATION HISTORY

Exploration in the JD property area dates to the 1930s with placer gold exploration and operations occurring at the confluence of McClair Creek and the Toodoggone River. This prompted exploration in the early 1970's on the Property with Sumac Mines completing regional stream sediment surveys north of the Toodoggone River and staking the Moose (Porphyry Pearl area) and JD areas (Peatfield and Schmitt, 1980). Sumac left the area after this choosing to work in the newly discovered Kutcho Creek area.

Exploration in the region and on the JD claims during the late 1970's until 1979 with Energex renewing exploration on the Moose Property (Porphyry Pearl prospect). This began the most active exploration period in the region during the entire 1980's with numerous companies operating throughout the area and on various portions of the current JD claims.

After a hiatus during the early 1990's renewed interest in the area began in 1994 on the main JD and Moose areas primarily by AGC American Gold Corp. while a smaller operator worked north of Oxide Peak (although also owning Oxide Peak) on low-sulphidation gold-silver veins in their "Amethyst Valley" area.

A prolonged hiatus occurred between 1998 and 2008 when an airborne mag survey by Duran Ventures was conducted and follow up drilling by Tower Resources on the JD area in 2012 and 2013.

Recorded in the ARIS database, there have been 15,574 soil, 3,784 rock and 349 silt samples collected and analyzed on the JD Property or on grids/properties that extended onto the current JD claims. Also, there have been 4 airborne geophysical surveys and 3 IP surveys and numerous mapping and prospecting campaigns. Follow-up trenching, and drill testing has resulted in 5,718 m of trenching and 349 DDHs totalling 22,946 m of drilling. Again, some of this work extended off the current JD claims but the majority of it occurred on the claims.

Year	Operator	Area	Work Summary	ARIS #
1971	Sumac Mines	Regional	Silt sampling	
1972	Amax Potash	South McClair Creek	Mapping, 376 soil, 2 rock, 10 silt	4497
1974	Sumac Mines	Moose	IP, soils, 4 ddh, 493.5 m drilling	
1974	Sumac Mines	JD (Schmitt/Finn)	1 ddh, 122 m	
1979	Energex Minerals Ltd	Moose, JD	31 rocks, 6 soil, 140.7 m trenching	8058
1980	Serem	Oxide Peak	34 soil, 26 silt, mapping	8998
1980	Texasgulf Can.	JD, S McClair	216 soil, 20 rock, mapping	9269
1980	Du Pont of Canada Expl. Ltd	Air	25 silt, 14 soil, 4 rock	9282
1981	Texasgulf Can.	JD (Schmitt/Finn)	relogging 1 ddh	9372
1981	Du Pont of Canada Expl. Ltd	Ant	23 silt	9393
1981	Texasgulf Can.	Moose, JD, S McClair	852 soil, 93 silt, 352 rock, mapping	9832, 33, 95
1981	Great Western Petr.	Kadah, Moosehorn	1927 soil, 36 silt, 277 rock	10032, 34, 35, 51
1981	Kidd Creek Mines Ltd.	Moose	relogging 4 ddhs (Porphyry Pearl)	10291
1981	Kidd Creek Mines Ltd.	JD	55 rock, 7 trenches (101 m)	10297
1981	Golden Rule Resources Ltd.	Belle	44.7 line-km VLF-EM-Mag, 784 soil, 60 silt	10347
1981	Du Pont of Canada Expl. Ltd	Air, Ant	557 soil, 11 silt, 20 rock	10471, 73
1982	Kidd Creek Mines Ltd.	S McClair, JD (Schmitt/Finn)	109 rock, 34 soil, 6 trenches (92 m), 16 ddh (1444.2 m)	10694, 739
1983	Kidd Creek Mines Ltd.	JD (Pit)	11 line-km IP	11843
1983	Golden Rule Resources Ltd.	Belle	368 soil, 73 rock	12966
1984	Newmont Ex. of Can.	Oxide Peak	308 soil	12974
1984	Kidd Creek Mines Ltd.	JD	7 ddh, 336 m	13272
1986	Black Diamond Resources Ltd.	S McClair	52 soil, 11 silt, 10 rock	14209
1986	Manson Creek Resources Ltd.	Belle	294 soil, 34 rock	14489
1986	Cassidy Resources Ltd.	Kadah, Moosehorn	28 rock, trenches, petrography	14697
1986	Energex Minerals Ltd	Ant	Airborne mag-VLF	15183
1986	Energex Minerals Ltd	JD	Airborne mag-VLF	15185
1986	Geostar Mining Corp.	Oxide Peak	134 rock	15412
1986	Cyprus Metals (Canada) Ltd.	Moosehorn	1378 soil, 101 rock, trenches, 12 ddh (1410 m)	15469
1987	Com-Air Containers	S McClair	Airborne mag	15983
1987	Beachview Resources Ltd.	Moosehorn, JD	Airborne mag-VLF	15998
1987	Energex Minerals Ltd	Moose, Moosehorn	730 soil	16551
1988	Energex Minerals Ltd	Ant	233 soil	17257
1988	Skylark Resources Ltd.	Kadah	30 soil	17453
1988	Shayna Resources Ltd.	Oxide Peak	332 soil, 54 silt, 62 rock, trenching	17683
1988	Energex Minerals Ltd	JD, Moosehorn	2446 soil, 1760 rock, 78 trenches (4935 m)	17939, 18015
1989	Manson Creek Resources Ltd.	Belle	298 rock, 15 trenches (450 m)	18627
1988	Cyprus Gold (Canada) Ltd.	Moosehorn	13 ddh (1325 m)	18847
1990	Cons. Harlin Res.	N McClair	106 rock, 154 soil	20671
1994	AGC Americas Gold Corp.	JD	30 ddh (2072 m), 50 rock, 1650 soil	23663
1996	AGC Americas Gold Corp.	JD	103 ddh (8665 m), 130 rock, 1100 soil	24284
1997	Matrix Energy Inc.	Oxide Peak	17 soil, 2.2 line-km IP	24930
1998	AGC Americas Gold Corp.	JD	airborne EM-Mag	25587
1998	AGC Americas Gold Corp.	Moose	11 ddh (1973 m), G-mag, 1 trench	25757
2007	Birkeland, Arne O.	N McClair	Prospecting	29311
2008	Duran Ventures Inc.	JD	Airborne Mag	30143
2012	Tower Resources	JD	106 rock, 2106 soil, 18 ddh (2966 m)	33556
2013	Tower Resources	JD	IP-mag (11.1 km), 22 rock, DDH (2140 m)	34762

Table 4-1. Summary of work programs completed on the JD Property and surrounding area.



Freeport-McMoRan Mineral Properties of Canada Ltd.

Date:
Feb 18, 2018

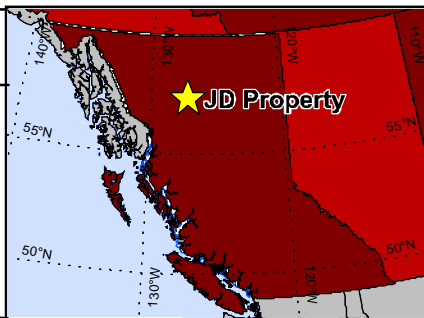
JD Project

Drafted by:
S. Wetherup

Historical Work Areas
British Columbia, Canada

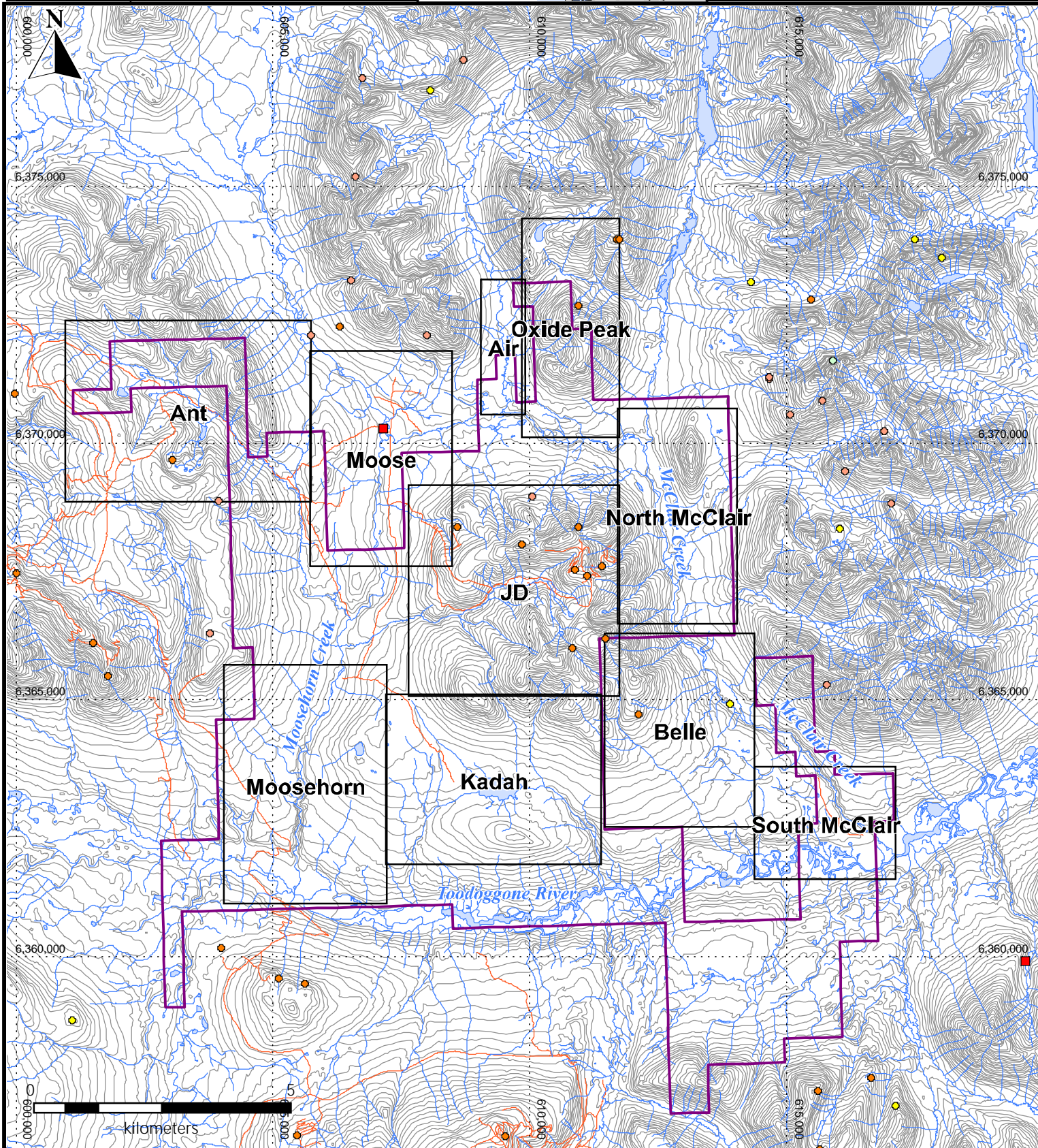
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4-1

UTM NAD83 Zone 9



Legend

- | | | | |
|--|---------------------------|--|--------------|
| | JD Claims | | Porphyry |
| | Roads | | Epithermal |
| | Waterbodies | | Hydrothermal |
| | Watercourses | | Epigenetic |
| | Elevation contour (100ft) | | Replacement |
| | Historical work areas | | Skarn |



5.0 GEOLOGICAL SETTING

5.1 Regional Geology

The region comprises a northwest trending belt of early Jurassic diorite, granodiorite or monzonite phases of the Black Lake Intrusive Suite together with coeval Toodoggone Formation calc-alkaline volcanic rocks (Figures 6-1 and 6-2). Toodoggone rocks unconformably overlie sedimentary and igneous arc rocks of the Permian Asitka and Upper Triassic Takla groups, which are in turn unconformably capped by Cretaceous continental sediments of the Sustut Group. Toodoggone rocks are generally not folded, but due to extension accompanied by rifting and tilting they now dip gently to moderately westward. Contacts between the underlying plutons and the overlying volcanic rocks appear to be irregular and the focus of local silica \pm epidote \pm pyrite alteration often making it difficult to locate true contacts. The structure of the district has been dominated by block faulting and half-graben tectonics which was an important controlling feature on the emplacement of the plutons, the eruption of the Toodoggone volcanic rocks, and the various styles of Cu-Au or Au-Ag mineralization.

Following is a condensed geological overview of the Toodoggone Region compiled from mapping by Diakow *et al.* (2005), Evenchick *et al.* (2007; Open File 2006-6) south and west of the JD claims and Diakow *et al.* (1987) mapping in the JD area. into the rock types below are shown on Figure 6-1.

Asitka Group (Carboniferous to Early Permian)

These rocks, the oldest recognized in the region, form small erosional inliers or fault-bounded wedges of thrust deformed sequences of predominantly limestone, siltstone and chert. They are conformably overlain or in thrust contact with the Takla Group. Asitka rocks are not mapped on the property.

Takla Group (Upper Triassic)

Takla Group rocks are widespread north of the Toodoggone River where they typically form steep ridges and cliffs. They are also well represented in the Finlay River area. On the JD property Takla rocks occur only on the eastern boundary and straddling McClair Creek. They consist of augite and plagioclase porphyritic basalt, andesite and mafic tuff, some coarsely clastic volcanic sedimentary rocks. The mafic flows are often pillowed, amygdaloidal and altered. An angular unconformity separates the overlying Cretaceous Sustut Group; however, Takla rocks are generally faulted against the Jurassic Toodoggone Formation. Takla Group rocks are economically important in the region as they host part of the Kerness North copper-gold porphyry deposit.

Toodoggone Formation (Early Jurassic)

The Toodoggone Formation is a 90 km long, 15 km wide belt of volcanic rocks extending northwards from Attycelley Creek near the Kemess North deposit to the Chukachida River. Recent mapping (Diakow, 2006) has redefined some of the members that make up the Toodoggone Formation to the west and south of the JD Property. The formation is approximately 2200 m thick consisting of red, maroon, and grey coloured flows and tuffs with lesser sediments. The volcanic rocks are largely calc-alkaline, non-marine, and were formed in a sub-aerial continental-margin arc setting. Two distinct volcanic cycles are identified and are sub-divided into seven stratigraphic members. Toodoggone rocks are mapped in most of the eastern portion and in portions of the southwestern and western parts of the property. Toodoggone rocks underlie over 90% of the JD Property and as mentioned above has not been the subject of regional mapping since 1987 so assigning some of the units on the Property can be problematic.

Toodoggone Formation - Lower Volcanic Cycle

A local basal conglomerate unit directly overlies the Takla Group rocks locally but is not noted in the JD area. The Duncan Member, defined south of JD, is the oldest member named member of the lower cycle, unconformably overlies Takla Group basement rocks and is generally comprised of dacite crystal and lithic tuff. Previous mapping by Diakow (1987) called the Duncan Member, Adoogacho and Moyez Members.

Overlying the Duncan Member is the Metsantan Member comprised of several hundred metres of massive andesitic flows. It is widely distributed north and south of the Toodoggone River and is one of the most commonly mapped members on the JD property. It commonly hosts epithermal gold-silver mineralization, low and high-sulphidation, in the Alberta Hump area (west of JD) and south of the Toodoggone River. This unit is called Metsantan and McClair(?) by Diakow (1987).

The uppermost rocks of this cycle are represented by the Saunders Member comprised of variably welded dacitic ash-flow tuff and plagioclase-porphyrific lavas. The member does not appear to occur on the JD Property.

Toodoggone Formation - Upper Volcanic Cycle

The upper and lower volcanic cycles are separated by an unconformity representing a brief hiatus in extrusive activity. Four members comprise the upper Toodoggone Formation but none of these units appear to occur on the JD Property. South of the Toodoggone River, the Junkers Member (renamed after the Quartz Lake member) overlies the Metsantan and Saunders Member strata.

The basal and thickest unit is comprised of thick beds of massively interbedded, reworked polymictic lapilli tuff, debris flows, volcanic conglomerate, sandstone and siltstone (TJs). Overlying the Junkers Member is the Graves Member named for lithic-rich ash flow tuff. The Pillar Member forms the top of the Toodoggone Formation south of the Toodoggone River. It consists of two successive cycles of interstratified lavas, epiclastic and volcanoclastic rocks (Diakow et al, 2005). The Belle Member is a new unit proposed for the highest volcanic member in the Toodoggone Formation. It comprises locally thick (150 m) rhyolite ignimbrite (TB) and occurs northeast of the JD Property. Overall, the Upper Cycle Toodoggone rocks occur east of the JD Property.

Sustut Group (Lower and Upper Cretaceous)

This group of rocks is a well bedded, near horizontal, succession of continental conglomerates, mudstones and some chert pebble sandstones in the western part of the Toodoggone River area. On the JD property, Sustut Group rocks occur only as scattered, rounded, glacially transported cobbles and boulders of conglomerate.

5.1.1 Regional Intrusive Rocks

Based on age dating and composition, the main intrusive rocks in the district can be separated into three categories (Diakow, 2001, 2004, 2008; Durning et al., 2009). From oldest to youngest these are:

- 1) Small bodies of Late Triassic diorite, gabbro, and hornblendite related to the Takla Group volcanism including the monzogranite associated with porphyry Cu-Au mineralization at the Fin prospect south of the JD Property.
- 2) Black Lake Intrusive Suite, a widespread and economically important suite of early Jurassic (~201 to 191 Ma) plutonic monzonites and granodiorites (Figure 5-1). They are genetically and temporally related to the Toodoggone Formation volcanic rocks and host significant portions of the Kemess Cu-Au deposits.
- 3) Dykes of altered andesite/monzonite occurring in narrow swarms marking old brittle faults. On the JD property, they occur along a NW trend following McClair Creek and onto Oxide Peak. These dykes only occur in felsic volcanic rocks presumed to be part of the Duncan Member and do not extend into the overlying Metsantan.

5.2 Property Geology

The JD Property is mostly underlain by Early Jurassic Toodoggone formation subaerial volcanic and volcanoclastic and minor sedimentary rocks which dip shallowly west to west-southwest (some minor

warping occur near fault zones). Underlying the Toodoggone formation are upper Triassic Takla Group sub-aqueous basaltic volcanic and minor calcareous sedimentary rocks which occur on the east side of the Property. These volcanic assemblages are cut by a series of NW trending monzonite dykes and minor diorite and monzonite bodies (Figure 6-2) on the east and north portions of the Property.

Previous workers and mapping by regional mapping (Diakow, *et al.*, 1987) assigned the Toodoggone volcanic units into the lower cycle of Toodoggone volcanism and more specifically the Adoogacho and McClair members. However, the Toodoggone stratigraphy from more recent mapping (Diakow, *et al.*, 2004 and Diakow *et al.*, 2008) has been abandoned elsewhere in the region (to the south and east) but there has been no recent regional mapping on the JD Property itself.

On the JD Property felsic volcanic and volcanoclastic rocks (dacite to andesite) appear to directly overlie Takla Group rocks and probably represent the Duncan Member. These rocks also contain rare siltstone/wacke units and are typically sericite-silica-pyrite or chlorite-silica-pyrite altered on the Property. Directly overlying the Duncan Member rocks are weakly chlorite-epidote altered massive andesite to basaltic andesite flows and lesser andesite volcanoclastic units. These are interpreted to be Metsantan Member rocks. The Toodoggone volcanic stratigraphy generally dips shallowly to the SW which allows for underlying Takla rock to be exposed on the eastern portions of the Property and at lower elevations.

Intrusive rocks observed on the Property occur almost exclusively along McClair Creek on the eastern side of the property and are a series of 330° trending near vertical dykes. These dykes are generally feldspar phyric (1-4 mm plagioclase) with lesser amounts of hornblende-feldspar phyric dykes. Most of these dykes have a reddish-orange aphanitic matrix and typically phenocrysts are strongly chlorite-epidote altered even though they cut strongly sericite-silica-pyrite (QSP) and clay-silica-pyrite altered volcanic rocks. These dykes only cut felsic volcanic rocks (Duncan Member) rocks along McClair Creek and on Oxide Peak on the east and northern margins of the property.

5.2.1 Structural Geology

These Mesozoic rocks have been affected by several deformational/tectonic events. The most obvious and most recent (D₃) appears as NW trending dextral strike-slip faults which are common features in the regional magnetic fabric, drainages and in the rocks. Concurrent, with the dextral faults are north striking normal faults and rhomboidal blocks as well as minor E-W striking compressional features (reverse faults) which appear within the eastern flowing portion of McClair Creek and presumably the Toodoggone River.

A set of east-northeast striking faults/fracture zones occur, and many small drainages appear to follow this

orientation suggesting several other such structures. No sense of motion was observed in the field, but they are assumed to be either reverse or oblique fault features and either represent an earlier compressional event ($D_2?$) or are minor conjugates to D_3 .

D_1 is inferred from the monzonite dyke swarm that occurs solely with Black Lake Intrusions, Duncan Member and Takla Group rocks on the Property. This swarm indicates there was a NW striking tensional zone occurring along what is now McClair Creek and up Oxide Peak, and this coincides with the orientation of the dominant D_3 strike-slip faults. It is very common to observe two different sets of slicken-lines along these structures indicating they have accommodated movement from multiple events. This dyke swarm follows the N and NW oriented McClair Creek valley and is accompanied by intense QSP alteration which the dykes generally post-date (Figure 5-2).



Freeport-McMoRan Mineral Properties of Canada Ltd.

Date:
Feb 18, 2018

Drafted by:
S. Wetherup

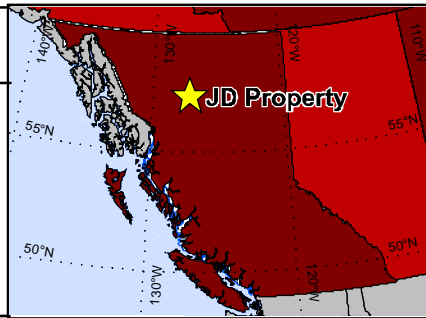
Figure:
5-1

JD Project

Regional Geology and
Major Deposits

British Columbia, Canada

UTM NAD83 Zone 9

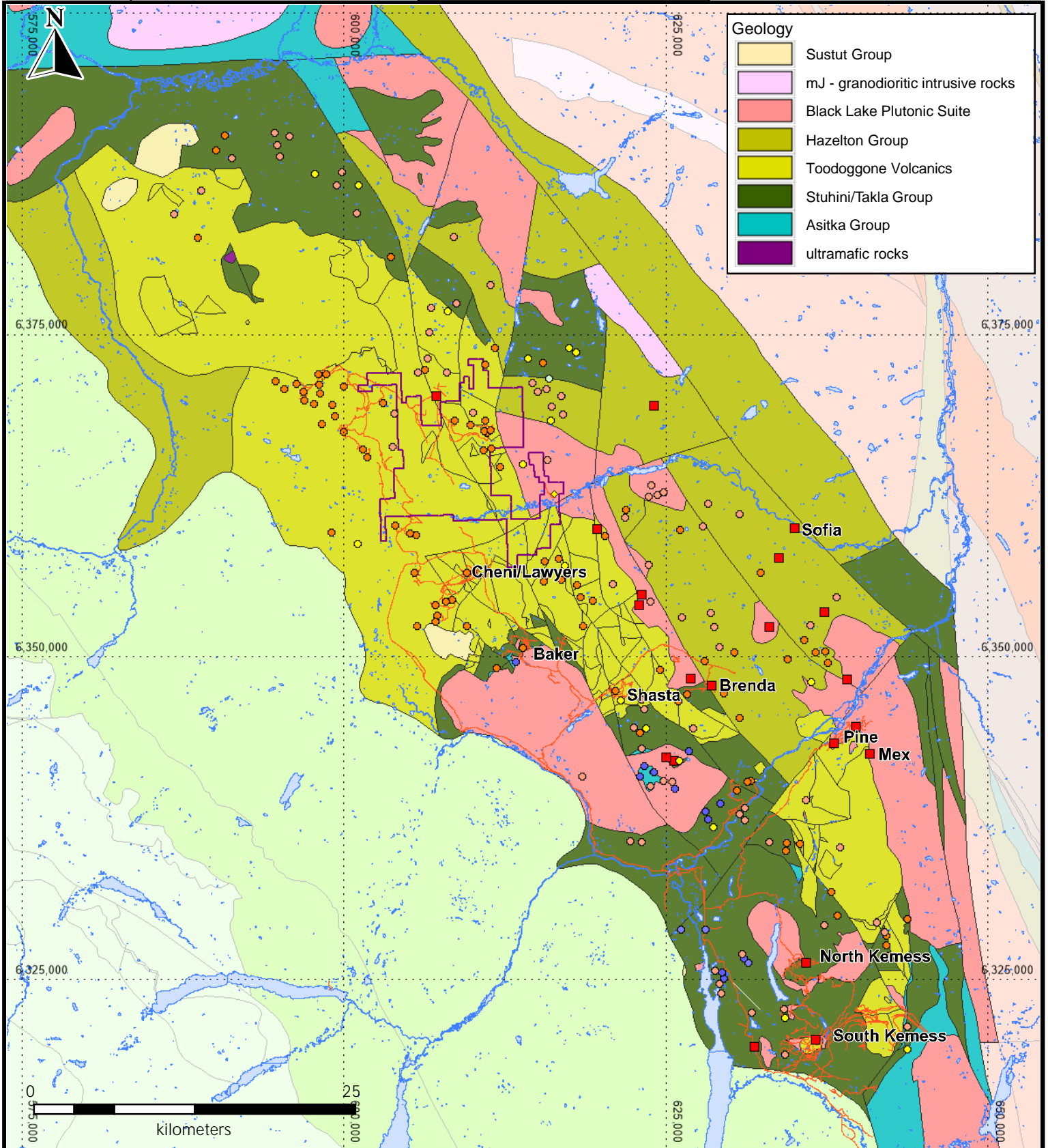


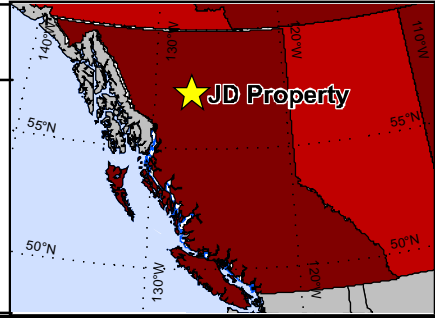
Legend

- | | |
|-------------|--------------|
| JD Claims | Porphyry |
| Roads | Epithermal |
| Waterbodies | Hydrothermal |
| | Epigenetic |
| | Replacement |
| | Skarn |
| | Placer |

Geology

- | |
|------------------------------------|
| Sustut Group |
| mJ - granodioritic intrusive rocks |
| Black Lake Plutonic Suite |
| Hazelton Group |
| Toodoggone Volcanics |
| Stuhini/Takla Group |
| Asitka Group |
| ultramafic rocks |



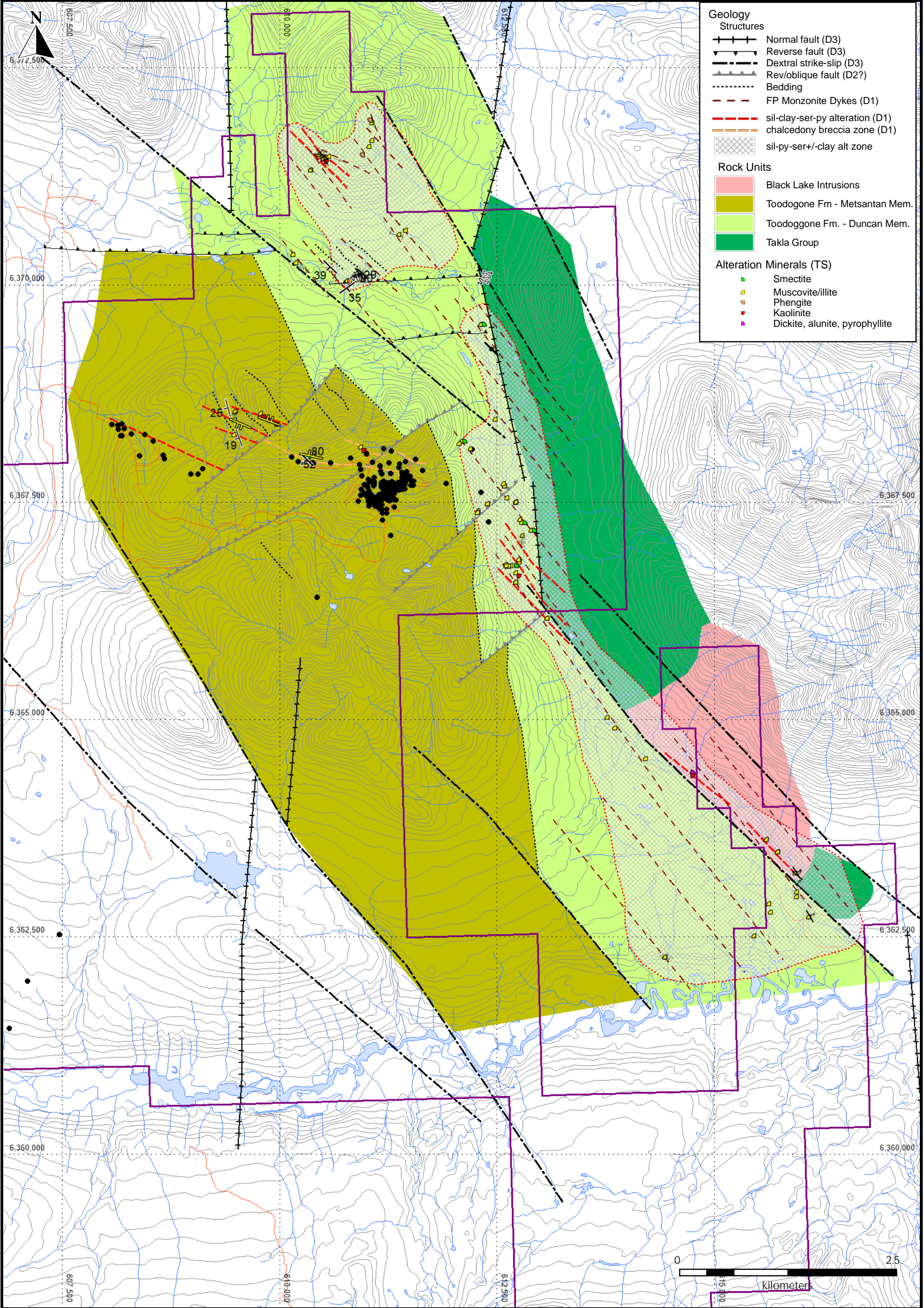


Geographic Symbols

- Watercourses
- Waterbodies
- Elevation contour (100ft)
- Roads/trails
- JD claim boundary
- DDH collar

Structures

- Bedding
- Strike-slip fault
- Lineation
- Joint
- Vein
- Altered zone
- Fault
- Point



6.0 MINERALIZATION AND ALTERATION

Two distinct alteration and mineralization styles occur on the JD Property, one typical of mesothermal porphyry Cu-Au-Mo deposits in the McClair Creek and Oxide Peak areas and another typical of low-sulphidation epithermal deposits in the Finn, Gumbo/Gasp, Schmitt, Woof, Creek and Moosehorn Zones. A third alteration assemblage was also noted during the 2015 exploration, high-sulphidation epithermal alteration, and is described in the exploration section.

6.1 Low-Sulphidation Epithermal Showings

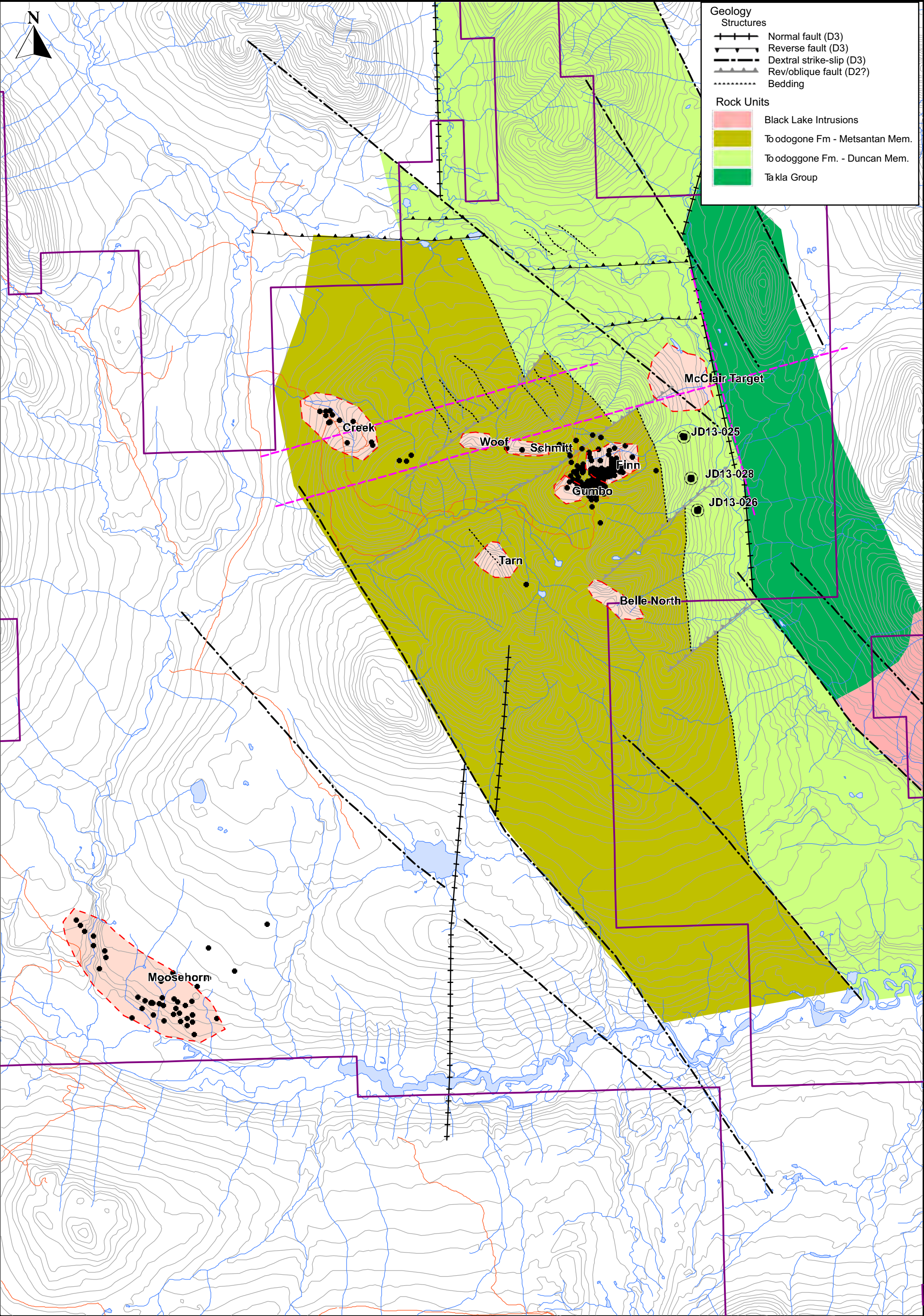
Most of the historical exploration work has focussed on low-sulphidation epithermal Au-Ag targets in the JD Area. Most of these showings occur along an ~E-W trend in the central portion of the Property (Finn, Schmitt, Gumbo, Woof and Creek) or the SW corner (Moosehorn) within weakly chlorite altered andesite flows and local volcanoclastic units. Veins are typically irregular crackle breccia and/or vuggy chalcedony/quartz-carbonate veins with pyrite, sphalerite, galena and chalcopyrite. Alteration in host rocks varies from minor chlorite-silica to quartz-calcite+/-hematite-epidote-chlorite-sericite and is limited to less than a metre to 2-3 m around veins.

The Finn Zone has seen the most drilling work to date and has had a historical non-NI43-101 compliant resource reported to be 490,000 oz Au at 1.6 g/t average calculated with a 0.3 g/t cut-off (Hawkins, 1997). Mineralization in the Finn Zone is distinct from the other zones in that silica-carbonate veining/breccia occurs within a stratabound zone of “Siliceous Breccia” within the Metsantan Member andesite volcanic rocks and on average is ~ 28 m wide. Mineralization appears to occur within this unit in close proximity to high-angle structures that also carry mineralization in the footwall to the Siliceous Breccia (McBride and Leslie, 2012).

Zones near the Finn Zone are quartz-carbonate breccias hosted within andesite flows with limited alteration haloes and width. Highlights from these zones from limited drilling and trenching include (Figure 7-1):

- Creek Zone – 4 m @ 103.3 g/t Au, 92.2 g/t Ag, 1.34% Cu and 11.7% Zn
- Woof Zone – Grab samples up to 79.2 g/t Au and 36,500 g/t Ag.
- Schmitt Zone – 8 m @ 326 g/t Au, and 6151 g/t Ag
- Gumbo Zone – 5.65 m @ 37.7 g/t Au ; 12 m @ 14.3 g/t Au.

			Geographic Symbols	
Date:	JD Project		Watercourses	2017 IP Lines
Feb 18, 2018	Mineralized Zones and		Waterbodies	Mineralized zones
Drafted by:	2017 IP Lines		Elevation contour (100ft)	
S. Wetherup	British Columbia, Canada	Roads/trails		
Figure:		JD claim boundary		
6-1		DDH collar		
UTM NAD83 Zone 9				



Geology Structures	
	Normal fault (D3)
	Reverse fault (D3)
	Dextral strike-slip (D3)
	Rev/oblique fault (D2?)
	Bedding
Rock Units	
	Black Lake Intrusions
	Toodogone Fm - Metsantan Mem.
	Toodogone Fm. - Duncan Mem.
	Takla Group

The Moosehorn Zone is located approximately 7.5 km southwest of the Finn zone near the confluence of Moosehorn Creek and the Toodoggone River. It is comprised of several en-echelon shear veins that trend NW across Moosehorn Creek. Highlights from drilling on these veins returned 0.55 g/t Au and 29 g.t Ag over 34 m (McBride and Leslie, 2012).

6.2 Porphyry Cu-Au-Mo

A single drill hole in 2012 (JD12-015) was targeted upon a gossan northeast of the main Finn Zone and intersected strong QSP alteration over 50.9 m and some alunite alteration suggestive of high-sulphidation epithermal related advanced argillic alteration and possibly a Porphyry Cu-Au zone at depth. Follow-up drilling in 2013, with three holes lower in elevation along the mountain and near to McClair Creek where abundant QSP and clay alteration occurs encountered intense QSP and clay alteration over their entire lengths. Furthermore, several of the reddish-orange feldspar-hornblende porphyry dykes that cut the altered rocks contain elevated Cu mineralization (up to 0.56% Cu) and in one hole the dykes contain angular, potassically altered volcanic and intrusive fragments. One such fragment contains quartz-magnetite stock work veining and further suggests a Cu-Au porphyry at depth.

7.0 EXPLORATION

Exploration in 2017 focussed on the Cu-Au Porphyry potential of the JD Property with alteration surface mapping, relogging the three 2013 drill holes nearest to McClair Creek (JD13-25, 26 and 28) and deep IP using 200 m spaced dipoles.

7.1 Geological and Alteration Mapping

Much of the results of the geological mapping have been presented in the “Property Geology” section, above. The main conclusion from this mapping is that the Toodoggone rocks are dipping shallowly to moderately SW and that the areas at lower elevation on the north east side of the property are the most deeply exhumed and are near or at the Takla-Toodoggone boundary. Furthermore, QSP and clay-pyrite-silica (Advanced Argillic or AA) alteration occurs only at the deepest levels in the volcanic stratigraphy along McClair Creek and on Oxide Peak Figure 5-2; Appendix 5).

Alteration mapping using a handheld Terraspec unit demonstrates the abundance of QSP and advanced argillic (clay-silica-pyrite) alteration along McClair Creek and on Oxide Peak (Figure 5-2; Appendix 1 and 5). Chlorite observed along McClair Creek is due solely to the presence of late chlorite-epidote altered

feldspar-hornblende porphyry (monzonite?) dykes which tend to impart a weak chlorite-epidote overprint onto QSP and AA altered rocks. These dykes vary in texture and phenocryst abundances in terms of phenocryst size and elongation and locally these dykes have an intrusive breccia texture and contains magnetite-chlorite veins with trace chalcopyrite.

During the mapping program, 13 samples were collected and submitted for 4 acid-digest ICP-MS analysis, to verify rock types and determine metal abundances. These are presented in Appendix 1 and 5.

7.2 Drill Core Re-logging

Drill core relogging focussed on using the Terraspec short-wave infrared spectrometer to identify alteration minerals within the holes JD13-25, 26 and 28. These drill holes tested the lowest stratigraphic elevation on the Property and returned several highly anomalous Cu assays from the 2013 sampling and appear to indicate possible Porphyry Cu-Au mineralization nearby. A summary of the logs is presented in Appendix 2.

Hole **JD13-25** cut chlorite-epidote-pyrite altered andesitic volcanic rocks until 65 m depth where clay-pyrite-silica altered (with slight chl-ep overprinting) dacite unit was intersected for 54 m until 119 m depth. This dacite unit is foliated and very fine grained and resembles similar highly altered units on the surface around McClair Creek. A QSP altered andesite unit was intersected to 157 m below which a hornblende porphyry basalt breccia which is likely to be Takla basalt occurs. Intense QSP alteration occurs from 119 to 222 m. The hole ended (last 8 m) in monzonite breccia dyke which contains quartz-pyrite-chalcopyrite stockwork veining.

Only the lower half of hole **JD13-26** was re-logged. This hole encountered QSP altered andesite and minor chlorite-epidote altered andesite dykes from 252 to 421 m. From 421 to 424.2 (EOH) is chlorite-epidote-magnetite altered monzonite dyke.

JD13-028 began in clay-sericite-pyrite-silica altered andesite before encountering a 10 m wide fault zone at 37 m depth. Below the fault andesitic rocks are chlorite-epidote altered to 115 m where QSP altered andesite occurs before encountering a series of fault zones and chlorite-epidote±magnetite altered monzonite dykes from 119 to 315 m. From 315 to 330 m, an intrusive monzonite breccia occurs with numerous exotic angular fragments consisting of mafic volcanic rocks, granitic intrusive fragments and rare quartz-magnetite stockwork veined potassically altered granitic fragments. Below 330 m, a dacitic crystal tuff occurs which is intensely QSP altered that is cut by chlorite veinlets and then a stockwork of later anhydrite veinlets.

7.3 Induced-Polarization Survey

Three IP lines were completed between September 13th and October 3rd, 2017. The pole-dipole and dipole-dipole survey totalled 13.8 line-km and used 200 m dipole separations. The focus of the survey was to test the subsurface electrical properties to a depth of 500-600 m for possible Porphyry Cu-Au hydrothermal centres.

The survey was successful in detecting a large 2 km wide chargeability and resistivity high at depth on the east side of line 2000N. A perpendicular ~N-S cross line was completed and appear to confirm the presence of the chargeability and resistivity anomaly (Appendix 3).

8.0 CONCLUSIONS

Historical exploration work on the JD Property focussed almost exclusively on low-sulphidation epithermal gold veins in the Metsantan Member on the Toodoggone Formation. Geological, structural and alteration mapping has shown that the JD Property contains basal Toodoggone Formation rocks, presumably Duncan Member and the contact with the Triassic Takla Group occurs at surface at lower elevations on the northeast corner of the Property. Mapping has also shown that these Duncan Member rocks are intensely altered to QSP or advanced argillic alteration assemblages and suggests a hydrothermal centre permissible to host porphyry Cu-Au-Mo mineralization.

Relogging of three drill holes that cut Duncan Member rocks along McClair Creek are also intensely altered and contain brecciated monzonite dykes with exotic angular clasts with porphyry style potassic-magnetite alteration and stockwork quartz-magnetite veins. This further supports the hypothesis that a porphyry Cu-Au-Mo system exists to depth on the Property.

The IP survey conducted in 2017 was successful in identifying a strongly chargeable and resistive body to depth along McClair Creek which is approximately 2 km across and may represent an altered intrusive body in the area.

It is recommended to follow up in 2018 with additional mapping and IP surveying to further define drill targets and ultimately conduct a small 1500-2000 m drill program to test these targets.

9.0 EXPLORATION EXPENDITURES

These expenditures cover the costs of field work, assays, interpretation and report writing for Event # 5675142 which applied \$306,982.42 CAD.

Table 9-1. Summary of exploration expenses.

Item	Category/Description	Amt	Units	Cost/Unit	Total
Labour	S. Wetherup (Sep 11 to 25)	10	days	\$700.00	\$7,000.00
Labour	Djohanne Celiz (Sep 11 to 25)	10	days	\$489.82	\$4,898.20
Labour	Mark Thoman (Sept 12 to 21)	8	days	\$700.00	\$5,600.00
Acc and Board	Black Lake Lodge	24	nights	\$225.00	\$5,400.00
Acc and board	Hotel and food (smithers)	10	mandays	\$192.76	\$1,927.60
Geochemical Analysis	Bureau Veritas (4acid digest)	12	samples	\$55.67	\$668.07
IP Contractor	Walcott and Associates				\$203,400.40
Helicopter	Great Slave Helicopters (2 engine)	24	hours	\$3,165.84	\$75,980.04
Ground Transport	Taxi, fuel car rentals				\$274.88
Airfare	YVR to Smithers (return) x 3	3	flights	\$1,139.99	\$3,419.97
Miscellaneous	Supplies				\$672.79
Report writing	S. Wetherup	5	days	\$700.00	\$3,500.00
Data preparation and drafting		3	days	\$700.00	\$2,100.00
Terraspec Analysis	Djohanne Celiz	2	days	\$489.82	\$979.64
					\$315,821.59

10.0 STATEMENTS OF AUTHORSHIP


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CERTIFICATE OF AUTHOR

I, Stephen Wetherup, do hereby certify that,

1. I am a graduate of the University of Manitoba with a B.Sc. Honours in Geology.
2. I am a member of the Association of Association of Professional Engineers and Geoscientists of British Columbia (APEGBC, #27770). I am a member of the Society of Economic Geologists and the Vancouver Mining Exploration Group.
3. I have been operating a business as a geological consultant under my own name since June, 2001, and under the name of Wetherup Geological Consulting since June 2017.
4. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission to disclose which makes the Report misleading.
5. I am responsible for the preparation of the Report titled “Assessment Report: Mapping and Induced-Polarization Surveying, JD Property, Omineca Mining Division, British Columbia”, (the “Report”), dated February 19th, 2018.

Dated this 19th Day of February, 2018.


Stephen William Wetherup,
BSc., P.Geo. (APEGBC, #27770)



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APPENDIX 1

Summary Data – Terraspec, Rock Samples, and Geological Mapping Stations

Summary of Rock Geochemical Analyses

Station	Year	Northing NAD83Z9	Easting NAD83Z9	Rock type1	Description	Sample No.	Au (PPB)	Mo (PPM)	Cu (PPM)	Pb (PPM)	Zn (PPM)	Ag (PPB)	As (PPM)	Sb (PPM)	Ba (PPM)
JDS17-002	2017	6371861	611081	andesite tuff	upto here mainly sil ep chl py altered volc tuff with less altered mafic dykes. here ksp phyrch dyke with ep chl py alt. and beside it intense sil py 2 to 3 pct chl ep altered tuff. dyke ~340	233801	10	0.97	65.8	16.79	146	128	17	0.92	291
JDS17-014	2017	6371452	610518	andesite xl tuff	clay-py alt tuff with 4 to 5 py, crystal texture still easily discernable even tho completely clay altered. looks to be oriented 330 this altered zone with another zone N at the lower level along the N ridge.	233802	3	3.79	6.8	15.51	13.1	26	10	0.86	1538
JDS17-015	2017	6371493	610473	andesite xl tuff	pervasive clay ser py sil alt with ksp xls still very euhedral and visible. ft 142.51 with oblique silks 184.40. secondary veins at 272.44. also some strong 070.85 shears locally	233803	<2	9.07	19.6	10.63	56.7	74	9.1	1.49	658
JDS17-017	2017	6371320	610378	andesite xl tuff	pyrite veinlets in chl mt ep sil altered andesite tuff. strong fracture and py vein set 315.85. mz syenite fg with 1 to 2 mm feldspars bt mt altered with chl eo over print. very magnetic	233804	<2	3	62.9	7.69	143.5	24	11.4	1.01	1664
JDS17-023	2017	6370255	610209	andesite xl tuff	rusty zone just east of some ksp mz dyke material. chl ep py alt tuff	233805	<2	0.44	2.5	5.28	137.8	<20	1.7	0.63	1484
JDS17-028	2017	6370049	610798	andesite xl tuff	andesite xl tuff slightly foliated/flaggy locally s0 054.35. here looks to be clay py altered poss sericite. dyke oc only 25 m se of here along creek.	233806	10	1.56	3.1	19.13	70.2	93	5.8	0.56	1992
JDS17-040	2017	6370598	611337	fp monzonite	could be a xl rich andesite or a crowded FP strong chl ep mt alt stockwork of ep veins and fractures	233807	<2	1.3	62.8	6.63	118.4	79	4.5	1.68	1507
JDS17-041	2017	6370591	611352	andesite volcanoclastic bx	only a few m along is siliceous volc bx with py chl and clay alt looks like clay overprints chl ep. local vuggy py blebs. fracture 109.49 ll valley here	233808	18	3.83	4.2	12.53	54.2	160	18.1	1.32	580
JDS17-044	2017	6370624	611468	andesite volcanoclastic bx		233809	10	2.23	8	16.63	69.8	167	4.5	0.71	447
JDS17-053	2017	6367952	610206	andesite	blast trench with andesite cut by chalcedony crackle veibs anf shear veins. mn wad and py in shear veins and weak smectite clay silica alteration overprinting the chl	89183	5	1.02	36.2	84.57	1282	3196	32.5	16.47	3058
JDS17-057	2017	6368435	609874	andesite xl tuff	alteration zone about 25 m wide and runs 290	89185	<2	1.14	2.7	11.62	0.9	41	4.5	0.98	766
JDS17-058	2017	6368517	609799	andesite xl tuff	zone looks to be about 25 to 35 m wide if intense clay sil py alt and py veining	89186	2	3.16	1.1	15.23	10.8	147	3.3	1.62	1296

Abbreviations**Minerals**

bt = biotite
chl = chlorite
ep = epidote
ser = sericite
cly = clay
sil = silica
mt = magnetite

Other

mz = monzonite
qsp = quartz-sericite-pyrite
fp = feldspar porphyry
ft = fault
bx = breccia
mg = medium grained

Mapping Station Data

Station	Year	Northing NAD83Z9	Easting NAD83Z9	Intensity (1=v. weak, 5=intense)							py %	Alt Code	Rock type1	Sample No.	Description		
				bt	chl	ser	sil	cly	ep	mt							
JDS17-001	2017	6371927	611061		2		3			2			pp	andesite tuff		volcanic tuff highly siliceous with ep altered feldspars 0.5 py. mafic black dyke with ep alt plag	
JDS17-002	2017	6371861	611081		2		3			2			4	pp-py	andesite tuff	233801	upto here mainly sil ep chl py altered volc tuff with less altered mafic dykes. here ksp phyric dyke with ep chl py alt. and beside it intense sil py 2 to 3 pct chl ep altered tuff. dyke ~340
JDS17-003	2017	6371673	611097		2		1			4			1	pp	ksp porphyry monzonite		intense ep alt. also a highly mag syenite dyke only 1 to 2 m wide
JDS17-004	2017	6371657	611082		2		1			2			1	pp	dacite xl tuff		more qtz mz with py ep chl alt
JDS17-005	2017	6371610	611063		3					1				pp	andesite		andesite with 1 mm plag phenos. magnetic
JDS17-006	2017	6371586	611048			4	3						4	ph	andesite		qsp alt zone abt 15 m wide btn ksp porphyry mz dykes
JDS17-007	2017	6371613	611069		3		3			3				pp	andesite		ep chl alt andesite
JDS17-008	2017	6371581	611026		3		1			3			1	pp	andesite		
JDS17-010	2017	6371529	610974		3		2			3			1	pp	andesite tuff		slightly reworked and to dacite tuff with plag ep replaced and matrix and ksp silicified. locally py veinlets and diss py
JDS17-011	2017	6371499	610920		3		1			3				pp	andesite xl tuff		ksp barely altered some local breccia units with clotty ep aroubd clasts
JDS17-012	2017	6371426	610701		3					3				pp	ksp porphyry monzonite		ep chl altered ksp hbl porphyry mz dyke. oriented 290 65N?
JDS17-013	2017	6371472	610586			3	3	3						ph	andesite xl tuff		down slope from dyke some debris of chl sil py altered tuff and with 15 m of this spot frags of clay ser sil py alt tuff occurs
JDS17-014	2017	6371452	610518			2	2	3					4	ph	andesite xl tuff	233802	clay-py alt tuff with 4 to 5 py, crystal texture still easily discernable even tho completely clay altered. looks to be oriented 330 this altered zone with another zone N at the lower level along the N ridge.
JDS17-015	2017	6371493	610473			3	2	3						ph	andesite xl tuff	233803	pervasive clay ser py sil alt with ksp xls still very euhedral and visible. ft 142.51 with oblique slks 184.40. secondary veins at 272.44. also some strong 070.85 shears locally
JDS17-016	2017	6371380	610475		3					3				pp	ksp porphyry monzonite		3 to 6mm ksp porphyry with some bt and hbl in pink matrix
JDS17-017	2017	6371320	610378		3		3			2	3		2	pp	andesite xl tuff	233804	pyrite veinlets in chl mt ep sil altered andesite tuff. strong fracture and py vein set 315.85. mz syenite fg with 1 to 2 mm feldspars bt mt altered with chl eo over print. very magnetic
JDS17-018	2017	6371250	610319	1	3					1	3		0.5	pp	andesite volcanoclastic bx		either volcanoclastic bx or mz bx with trace bt mt alt over printed by chl
JDS17-019	2017	6371219	610325		3					3				pp	ksp porphyry monzonite		
JDS17-020	2017	6371199	610253		3					2	3		0.5	pp	andesite xl tuff		
JDS17-021	2017	6370347	610170	1	3		2			2	2			pp	ksp porphyry monzonite		chl mt ep altered xl tuff possibly altered mz dyke. weak remnant bt alt
JDS17-022	2017	6370305	610137		3					2	2			pp	ksp porphyry monzonite		
JDS17-023	2017	6370255	610209		3	2	2			3			2	ph	andesite xl tuff	233805	rusty zone just east of some ksp mz dyke material. chl ep py alt tuff
JDS17-024	2017	6370179	610284		3					2				pp	fp monzonite		ft 020.80
JDS17-025	2017	6370163	610328		3					1	2			pp	fp monzonite		chl mt altered fld mz dyke
JDS17-026	2017	6370174	610641		3		1			3			0.5	pp	andesite xl tuff		layered almost foliated xl tuff with chl ep alt. s0 134.39. local volcanoclastic bx with ksp ep replaced frags.
JDS17-027	2017	6370078	610645		3					3				pp	ksp porphyry monzonite		pink ksp porphyry dyke in the creek bed running 320. not far from xl tuff and volc bx 50 m north
JDS17-028	2017	6370049	610798		1	1	1	3					1	aa	andesite xl tuff	233806	andesite xl tuff slightly foliated/flaggy locally s0 054.35. here looks to be clay py altered poss sericite. dyke oc only 25 m se of here along creek.
JDS17-029	2017	6370074	610825		3	1	1	1					2	aa	andesite xl tuff		strong 029.90 fracture set
JDS17-030	2017	6370087	610875		1	1	1	2					2	aa	andesite xl tuff		flaggy clay py alt tuff bedding flat lying but not consistent
JDS17-031	2017	6370094	610892		3	1	1	1	3				2	aa	fp monzonite		dyke in ft contact with chl clay py altered andesite. ft oriented 350

Mapping Station Data

Station	Year	Northing NAD83Z9	Easting NAD83Z9	Intensity (1=v. weak, 5=intense)							py %	Alt Code	Rock type1	Sample No.	Description
				bt	chl	ser	sil	cly	ep	mt					
JDS17-032	2017	6370122	610920	3					3	1	pp	andesite		could be a feld porphyry dyke with 30 pct plag phenos 1 to 2 mm and intensely chl ep altered with common ep veins but likely andesite flow unit. ep veins 080.29 and 049.70. ft 146.57 horiz slks 160.09 dextral. and ft with strong slks 142.42 slks 208.40 normal	
JDS17-033	2017	6370136	610945	3		1			3	2	pp	andesite		again could be strongky alt dyke but look a more like chl ep py alt andesite. small 4 m wide ksp porphyry mz dyke runs 340 here. strong normal ft 132.42 with 208.40 slks	
JDS17-034	2017	6370231	610967	4		1			4	1	pp	andesite		some of the finer grained fp mz dyke just west of this site looks identical to the one on the creek. most rock still crowded feldspar porphyry andesite with stronf ep chl py alteration. common ep veinlets with what locally look like silica haloes and some open space ep filled vugs. many plag phenos completely ep altered.	
JDS17-035	2017	6370204	611043	3					2		pp	ksp porphyry monzonite		several dykes along slope roughly oriented 310	
JDS17-037	2017	6370113	612357	3					3	2	pp	hbl syenite		mz syenite hbl completelychl altered numerous ep chl fractures. at least 35 m wide and appears to be in contact on the E side with basalt. fts 105.82 and 135.90 and 067.80	
JDS17-038	2017	6370039	612279	3					2	2	0.25	pp	diorite		fg diorite weakly porphyritic with some slightly larger 1 to 2 mm plag.epidote veining common and locally some ksp haloes. photo taken of ksp
JDS17-039	2017	6370733	611427											only some angular fragments of ksp mz dyke and xl tuff breccias all chl ep altered with minor py	
JDS17-040	2017	6370598	611337	4		1			3	3		pp	fp monzonite	233807	could be a xl rich andesite or a crowded FP strong chl ep mt alt stockwork of ep veins and fractures
JDS17-041	2017	6370591	611352	3	1	2	2	2			1	ph	andesite volcaniclastic bx	233808	only a few m along is siliceous volc bx with py chl and clay alt looks like clay overprints chl ep. local vuggy py blebs. fracture 109.49 ll valley here
JDS17-042	2017	6370577	611393	3		2	1	2			2	ph	andesite xl tuff		pyritic xl tuff
JDS17-043	2017	6370619	611446	3	1	2	1	2			1	ph	ksp porphyry monzonite		here hit contact with ksp porphyry dyke and andesite bx
JDS17-044	2017	6370624	611468	3	2	2	3	1			4	ph	andesite volcaniclastic bx	233809	
JDS17-045	2017	6371959	612256											core JD13-28 ksp altered mz dyke intense chl ep mt 1pct py from 193 to 315 and prom late anhydrite veins. 315 to 330 intusive bx sim altetation with some cpy. below dacite porphyry clay py silica altred	
JDS17-046	2017	6368011	610994	2					2			pp	andesite		
JDS17-047	2017	6368129	610955	2				3			0.25	clay	andesite	89181	mostly weak chl py altered plag porphyry andesite flows and flow bx locally. here there is heavily limonitic clay altered tuff? a narrow zone possibly 3 to 5 m wide
JDS17-048	2017	6368087	610894	2								pp	andesite volcanic bx		
JDS17-049	2017	6368052	610786	2			1					pp	andesite volcanic bx		
JDS17-050	2017	6367981	610501	2								pp	andesite		plag hbl porphyry andesite
JDS17-051	2017	6368023	610307	2		2	2				0.25	fecb	andesite	89182	3 m wide clay py sil alteted zone smectite clays. very irregular following 135.80 ft zone and ledges splaying off 282.50
JDS17-052	2017	6367978	610241									ua	andesite		drill pad. qtz shear vein with fine py sph and mn staining around it but little other alt
JDS17-053	2017	6367952	610206	1		2	2				0.5	fecb	andesite	89183	blast trench with andesite cut by chalcedony crackle veibs anf shear veins. mn wad and py in shear veins and weak smectite clay silica alteration overprinting the chl

Mapping Station Data

Station	Year	Northing NAD83Z9	Easting NAD83Z9	Intensity (1=v. weak, 5=intense)							py %	Alt Code	Rock type1	Sample No.	Description
				bt	chl	ser	sil	cly	ep	mt					
JDS17-054	2017	6368019	610166	2			2	1			1	fecb	andesite		drill pipe. fecb alt and drusy open space chacedony qtz veins irregular morph.
JDS17-055	2017	6368203	610099	2								ua	andesite		hematite stained
JDS17-056	2017	6368397	609949				2	4			0.25	aa	andesite tuff	89184	intensely clay altered tuff surrounded by chl altered volcanoclastic tuff
JDS17-057	2017	6368435	609874					4			4	aa	andesite xl tuff	89185	alteration zone about 25 m wide and runs 290
JDS17-058	2017	6368517	609799				3	4			4	aa	andesite xl tuff	89186	zone looks to be about 25 to 35 m wide if intense clay sil py alt and py veining
JDS17-059	2017	6368617	609722	1								fecb	andesite		hematitic andesite since last stop
JDS17-060	2017	6368768	609692				4					fecb	andesite		massive vuggy qtz vein here
JDS17-061	2017	6368809	609589	3		2					2	fecb	andesite		
JDS17-062	2017	6368795	609551	3		2		1			0.5	fecb	andesite		rusty fractures in andesite
JDS17-063	2017	6368746	609482												ferricrete coming out of east dainage while west drainage has calcium sulphate
JDS17-064	2017	6368573	609474	3		2					2	fecb	andesite tuff		
JDS17-065	2017	6368539	609506	2		3	3				4	aa	andesite tuff	89197	89188 is chl py sil altered wall rock around clay sil py altered structure
JDS17-066	2017	6368515	609496				3	4			4	aa	andesite tuff		py vein stockwork in tuff. dom py veins 025.29 and secondary 245.89 and 355.78 and s0 165.25
JDS17-067	2017	6368442	609503	3		2	4				4	aa	andesite tuff	89189	s0 160.19 here a clay altered zone cuts andesite at 113.85
JDS17-068	2017	6368274	609495			1	4				0.5	aa	andesite tuff	89190	up to here zones of py chl alt and some clay py sil alt
JDS17-069	2017	6368199	609374	2								pp	andesite		some mn staining on fractures

Abbreviations**Minerals**

bt = biotite
chl = chlorite
ep = epidote
ser = sericite
cly = clay
sil = silica
mt = magnetite

ksp = K-feldspar
hbl = hornblende
plag = plagioclase

Alteration Types

pp = propylitic
ph = phyllic
fecb = Fe-carbonate
aa = advanced argillic
si = silicification
ua = unaltered

Other

mz = monzonite
qsp = quartz-sericite-pyrite
fp = feldspar porphyry
ft = fault
bx = breccia
mg = medium grained

Station	Year	Easting NAD83Z9	Northing NAD83Z9	Sample No	Terraspec Identified Mineral Species (1=present, 0=not present)																Sample Description	Spectral Interpretation	Remarks										
					chl	ep	act	sil	kao	dic	alu	pyro	ill	ill	ill	ill	ill	musc	musc	phe				smec	gyp	hem	jar	goe	prh				
JDS17-001	2017	611061	6371927	89198	1	1																				1					greenish-gray, relict porphyritic texture; str si on gmass, plag completely altd to ep then oriented with cv? hbl to ch 0.5% nv as fine diss	phengite (2211) - epidote (?) - ch (?)	
JDS17-002	2017	611081	6371861	89199	1									1																	green, mod-str ch-si alt gmass, ch on magics, wk ep on plag phenos, 1-2% fine py as diss	ch - ill/musc (2205, 2208)	2205
JDS17-004	2017	611082	6371657	89200		1								1																	green/pink, cpo, with coarse kspar altd to ep, smaller plag altd to ep, mafics to ch, mass to ch-si 0.5-1% nv as fine diss	epi - ill/musc (2205)	2205
JDS17-006	2017	611048	6371586	89101											1																dull white/greenish, str clay-qtz alt, texture obliterated, hm-gt in portions	musc (2208)	2208
JDS17-010	2017	610974	6371529	89102	1											1															fgn, green, sich on gmass, ch on mafics, plag gen unalt to weak se or wk ep, 0.5-1% py as fine diss	ch - phengite (2210)	2210
JDS17-013	2017	610586	6371472	89103										1										1							light yellow, str se/cy altd, jar+/-hm in portions, texture obliterated by alt	hm - musc/ill (2207)	2207
JDS17-014	2017	610518	6371452	233802				1						1																	dull white, pervasive si-musc alt, a few oxi ch-alt ex-mafics, olag altd to yellowish/brownish clay	kaolPX - ill/musc	
JDS17-014	2017	610518	6371452	89104	1			1																							dull white, texture obliterated, possible volcanics, 1-2% py as fgn-mgn diss	kaolPX - m. ch	
JDS17-015	2017	610473	6371493	233803										1																	yellowish white, str clay-se-si alt, vuggy in portions with jar	ill/musc (2209)	2209
JDS17-017	2017	610378	6371320	233804	1									1																	green, f-mgn, slightly crowded, mod si alt on gmass, mod ch alt on mafics and gmass, en alt on some mafics and in patches 0.5-1% nv as fine diss	ch - musc/ill (2207)	2207
JDS17-017	2017	610378	6371320	89108		1								1																	f-mgn, yellow gree/pink, mod ep alt on mafics>ch, some plag are pinkish (hm dusting or ep?) - ill (2202)		2202
JDS17-017	2017	610378	6371320	89109											1								1		1						gray, mod qz-cy, 2-3% py as clusters, mod-str hm-gt	hm-gt - musc (2208)	2208
JDS17-021	2017	610170	6370347	89110	1										1																greenish, f-mgn, crowded, mt-ch on mafics and gmass, unalt or weakly altered plag, 0.5- 1% nv as diss and usually tarnished	musc (2208) - ch	2208
JDS17-023	2017	610209	6370255	233805	1									1																	dark green, mgn porphyritic, mod si on gmass, mod ch on mafic phenos and gmass, mt as diss	ch - ill/musc; noisy	
JDS17-026	2017	610641	6370174	89112		1										1															f-mgn porphyritic, crowded, mafics altd to ch, some plag with partial ep altn, bxted in portions with pinkish kspar en replaced irregular frags	ep? - phen (2212)	
JDS17-028	2017	610798	6370049	233806	1									1																	light greenish gray, porphyritic, mod-pervasive ch on gmass and possibly mafics, pervasive si on gmass wk to mod on plag phenos	musc/ill (2208) - ch	2208
JDS17-029	2017	610825	6370074	89114	1											1															green, f-mgn porphyritic, mod-str si-ch, wk ep altd, si-ch on gmass, ch on mafic phenos, en on some plag phenos 1-2% nv as fine diss	ch-phen (2214)	
JDS17-030	2017	610875	6370087	89115											1								1								white/yellow/pinkish from oxi; porphyritic, clay altd plag, some portions vuggy, str qtz	musc (2211) - hm	2211
JDS17-031	2017	610892	6370094	89116		1																									green, cpo, mod ch-ep altd, si-ch on gmass, ch on mafics, ep partially replacing plag	ep - ill/phen (2214)	
JDS17-033	2017	610945	6370136	89117		1																									green-gray; ch-ep on mafics; some plag altd to ep; si-ch altn in groundmass; trace py; hm on frags	ep - phen (2210)	
JDS17-034	2017	610967	6370231	89118		1																									green; some ep altd penos with chl halos	ep	
JDS17-037	2017	612357	6370113	89119	1											1	1														pink; coarse-grained; weakly altered	ch - ill/phen?; smec (frac	
JDS17-038	2017	612279	6370039	89120	1																										mafic phenos altd to ch and as mt(?); <0.5% py occuring as clusters and as diss	ch, noisy (WR); prehnite? (vn)	
JDS17-040	2017	611337	6370598	233807		1																									monzonite(?); crowded porphyry; coarse plag and pinkish kf crystals; ch-mt-alt mafics and patches of eni	ep	
JDS17-041	2017	611352	6370591	233808		1																									greenish gray; str qtz, mod ch, wk epi alt plag, 2-3% py as fgn to mgn diss	ep	
JDS17-042	2017	611393	6370577	89123	1	1								1																	greenish gray; porphyritic; relatively fresh-looking plag phenos; mod si-ch-py altd gmass: some plag altd to en: mafics to ch: 1-2% nv as fine diss	ch-ep?-ill/musc (2209, 2210)	2209
JDS17-044	2017	611468	6370624	233809	1									1																	greenish white; possibly porphyritic strong se-si altd overprinting early ch alt; 3-5% nv as clusters and mag diss	ch - musc-ill (2207)	2207
JDS17-047	2017	610955	6368129	89181				1						1																	greenish/dull white/orange/red; ch- altd with clay overprint; mod-str si	kaolPX-ill	
JDS17-051	2017	610307	6368023	89182	1			1								1															greenish/dull white/orange; pervasive clay alt overprinting early ch alt	smec - kaolPX +/- cf	
JDS17-053	2017	610206	6367952	89183	1			1																							gray qtz vns in green ch-mt altd andesite (?)	ch? - qz?	
JDS17-056	2017	609949	6368397	89184				1		1	1																				white/orange; fgn; str si-cy altd; mod-str oxi (gt)	dk - qz - alu (K, 1479) - gt	1479

Terraspec Sample Interpretation

Station	Year	Easting NAD83Z9	Northing NAD83Z9	Sample No	Terraspec Identified Mineral Species (1=present, 0=not present)																Sample Description	Spectral Interpretation	Remarks		
					chl	ep	act	sil	kao	dic	alu	pyro	ill	ill	musc	musc	phe	smec	gyp	hem				jar	goe
JDS17-057	2017	609874	6368435	89185				1		1													gray/white; fgn; mod-str si-cy altn; 3-5% py as diss	dk - qz	
JDS17-058	2017	609799	6368517	89186					1														gray with relict porphyritic texture; md-str si altering gmass and mafics; clay alt on	kaolPX - ill/musc	
JDS17-065	2017	609506	6368539	89187												1				1			white; str si-se altn with 2-5% fine py diss	hm - musc (2209)	2209
JDS17-065	2017	609506	6368539	89188	1																		green; fgn-mgn; str pervasive si-ch altd with patches of hm-gt oxi	ch - ill/musc (2204)	2204
JDS17-067	2017	609503	6368442	89189												1				1			grayish white, fine-grained; str clay; mod si	ill (2202) - jar	2202
JDS17-068	2017	609495	6368274	89190																1		1	grayish white; str si, mod cy, mod hm-gt, 3-5% py as diss	hm-gt - ill (2207)	2207
JDS17-002	2017	611081	6371861	233801	2	2			1														upto here mainly sil ep chl py altered volc tuff with less altered mafic dykes. here ksp phyric dyke with ep chl py alt. and beside it intense sil py 2 to 3 pct chl ep altered tuff dyke abt 240		

APPENDIX 2

Drill Hole Relogs

Core Re-log Holes JD13-025, 26, and 28

HoleID	From	To	Rock type	Alteration	Description	SampleNo	Depth	Terraspec Interpretation
JD13-025	0.0	29.0	Talus material					
JD13-025	29.0	42.4	Andesite volcanic breccia	chl-ep-py	angular to subangular to irregular clasts with gray matrix; matrix-supported; chl-ep alt; gray matrix; ch-ep altd with py		41.40	epidote-phengite (clast); ch-phengite (matrix)
JD13-025	42.4	65.0	Andesite tuff	clay-py-sil (chl-ep)	green, porphyritic, plag>hbl phenos; plag altd to epid; hbl altd to cy+/- mt; gmass to ch; @62.00 - increase in ch alt; @42.50 - vuggy qz-py-hm-sph veinlet		46.00	epidote-phengite
JD13-025	65.0	119.0	Dacitic crystal tuff	ser-sil-py (chl-ep)	foliated, broken, white, with cross-cutting ep-cpy+/-bn veinlets; few ch clots		111.60	ch - ill/musc (2208) - epi
JD13-025	119.0	157.0	Andesite	ser-sil-py (chl-ep)	porphyritic, crowded, fg, clots of py; epi as veinlets; FLT @ 139.70 - 140.00		120.40	ah - ch - ill/musc (2209)
JD13-025	157.0	222.0	Hbl basalt breccia	ser-sil-py (chl-ep)	Takla Fm?; ah-ep veins; pyrite as stringers; @ 162.00 - clots of py-cpy; @170.00 - 179.50 - increase in QSP; @196.00 - 205.00 - bleached zone		157.90	ah - ch - phen
JD13-025							171.40	ah - ill/musc (2204) - m. ch
JD13-025							188.00	ah - phen - ch
JD13-025						89170	195.40	ah - phen - ch
JD13-025						89171	200.40	phen - ah - ch
JD13-025							204.30	ah - phen - ch
JD13-025	222.0	230.1	Feldspar porphyry monzonite bx	ksp-ser-sil-py (chl-ep)	pinkish, dark green; subangular clasts of monzo; matrix-supported; epidote veins cutting matrix only; several Mn-rich 2-3 mm gypsum veins; py as diss and as clots; cpy in qtz-cpy-py vein		228.50	ep - phen - ch

JD13-026	252.3	269.2	Andesite	ser-sil-py			253.00	ah - ill (2196) - minor kaolPX - minor ch
JD13-026	269.2	274.5	Feldspar porphyry andesite	chl-ep	dike			
JD13-026	274.5	279.9	Andesite	ser-sil-py			275.40	ill/musc (2197) (WR); ill/musc - kaolWX (on vein)
JD13-026	279.9	282.5	Feldspar porphyry andesite	chl-ep	dike		281.50	ch - ill?
JD13-026	282.5	415.0	Andesite	ser-sil-py	qtz-py veining, rhodochrosite veins at 315.00; expanding clays at 318.00		300.00	ah - kaolWX or halloysite
JD13-026							325.00	dk - ah - ill/musc
JD13-026							354.30	musc (2196/2197) - ch
JD13-026						89151	360.00	musc (2195) - kaolPX - ah
JD13-026						89152	365.20	ill (2193) - ch - kaolPX?
JD13-026						89153	372.00	musc (2200) - ah - ch - kaolPX
JD13-026							375.20	musc (2195/296)
JD13-026						89154	377.50	musc (2203) - ah
JD13-026						89155	383.60	ah - ch - musc (2201)
JD13-026						89156	388.90	ah - ch - musc (2202)
JD13-026						89157	391.00	musc (2202) - m. ch - ah?
JD13-026							396.50	ill/musc (2200/2199) - ah
JD13-026						89158	397.50	musc (2202) - ah
JD13-026						89159	400.30	ah - musc (2202)
JD13-026						89160	407.20	ah - musc (2201)
JD13-026						89161	413.40	musc (2202) - qtz
JD13-026	415.0	416.5	chilled margin	ser-sil-py (chl)			415.50	ch - ill/musc
JD13-026	416.5	421.0	Feldspar porphyry andesite	ser-sil-py+/-ksp (chl)	stronger ser altd		417.80	ah - phen - ch
JD13-026						89162	419.90	musc (2201) - ch
JD13-026	421.0	424.2	Feldspar porphyry monzonite	ser-py (chl-ep)	ser-py altered margin of monzonite dyke which is generally chl-mt altered		423.30	musc (2202) - ch
JD13-026						89163	424.20	musc (2202) - ch

JD13-028	0.0	8.0	rubble					
JD13-028	8.0	37.0	Andesite	clay-ser-py-sil (chl-ep)	greenish-gray; fine-grained; ch altering groundmass; epi on plag phenocrysts; epidote+/-py veinlets common; py also as fine diss		31.00	phen (2209) - ep - kaolPX - ch
JD13-028	37.0	47.0	Fault zone					
JD13-028	47.0	71.0	Feldspar porphyry monzonite	ep-mt	dike; lots of xenoliths present; pinkish, crowded texture; mt-ep altd, no epidote veins seen; 0.5% fine pyrite and trace cpy seen		50.10	epi - phen?

Core Re-log Holes JD13-025, 26, and 28

HoleID	From	To	Rock type	Alteration	Description	SampleNo	Depth	Terraspec Interpretation
JD13-028	71.0	110.0	Crystal lithic andesite tuff	chl-ep	lithic fragments altered to epidote; fiamme textures seen; greenish; fault at 71-71.30, intense chl-ep alt		79.90	phen (2214) - epi? - ch?
JD13-028	110.0	115.0	Feldspar porphyry andesite	chl-ep	intense chl-ep altered			
JD13-028	115.0	119.0	Feldspar porphyry andesite	ser-sil-py	intense qsp alt grades to upper contact to chl-ep-py		118.80	phen (2215)
JD13-028	119.0	120.0	Fault zone					
JD13-028	120.0	127.0	Feldspar porphyry monzonite	chl-ep	monzonite dike with brecciated contact below and fault contact below; dark gree; str ch-ep altd, weak kspar, with py-cpy		123.50	ch - ep? - ill/musc (2210)
JD13-028	127.0	161.0	Monzonite	chl-ep-mt	pink, with magnetite and epi-py veinlets @150.40 - massive py+/-cpy vein; @137.00 -138.70 - str ch-ep altd, patchy kspar or hm		134.10	ch - ill - ep
JD13-028	161.0	163.5	Fault zone		staining?; few open space carbonate-py veinlets (up to 2mm widths); fine py-cpy as diss		168.60	?? - ep
JD13-028	163.5	173.0	Monzonite	chl	pink, with magnetite and epi-py veinlets @150.40 - massive py+/-cpy vein; @137.00 -138.70 - str ch-ep altd, patchy kspar or hm			
JD13-028	173.0	196.0	Andesite	chl-ep-mt-py	staining?; few open space carbonate-py veinlets (up to 2mm widths); fine py-cpy as diss		190.60	ch?
JD13-028	196.0	204.0	Fault zone					
JD13-028	204.0	287.5	Feldspar porphyry monzonite	chl-ep	fgn; ah veinlets cutting epidote; fine cpy-py as diss; py as veinlets and clots; structures at 245-.40 - 248.30m; fault contact at		228.30	phen (2214) - ch or epi
JD13-028					204.00 - 196.00		274.70	phen (2211) - ah - ch or epi
JD13-028	287.5	290.9	pyrite breccia	ch-ep+/-ksp-py	pyrite-anhydrite breccia zone within monzonite with monzonite altered to chlorite rather than typical reddish (kspar altered?) hue.		290.60	phen (2211)
JD13-028	290.9	315.0	Feldspar porphyry monzonite	ch-ep-ksp	pinkish black; fpo; crowded phenos; ch-ep-kspar altd; fine py-cpy; kspar decrease at top contact		301.00	ah? - phen? - ch?
JD13-028	315.0	330.0	Monzonite breccia	kspar-bt-mt-ch-ep	brecciated with pebble-cobble-sized clasts, polymictic, clast-supported, subrounded to subangular; k-feldspar-bt-ch-mt altd, epidote as veins and as matrix and as alt of matrix; late fine hairline ah; fgn-mgn py as diss and as clots and veinlets; trace to 0.5 very fine cpy; epidote as veins; kfelds as veins		322.00	ah - phen (2214)
JD13-028	330.0	351.7	Dacitic crystal tuff	ser-sil-py (chl-ah)	porphyritic, crowded phenos, 10% py mostly on ch phenos asa well as groundmass; several thin 1-mm thick ah venlets; @ 350.80 - late ah vein cutting ca-py vein with ch selvage; @ 335.70 - 20cm wide pinkish ah vein	89169	330.90	musc (2205) - ah
JD13-028						89168	333.50	musc (2204) - ah
JD13-028						89167	337.60	musc (2205) - ah
JD13-028							341.00	ah - phen (2210) - ch
JD13-028						89166	342.60	musc (2202) - ah
JD13-028						89165	346.50	musc (2203) - ah
JD13-028						89164	350.20	qtz - musc (2209) - ch

APPENDIX 3

IP Logistical Report

A LOGISTICS REPORT

ON

INDUCED POLARIZATION SURVEYING

**JD PROPERTY
TODOGGONE RIVER AREA, BRITISH COLUMBIA
OMINECA MINING DIVISION
57 ° 26.5 'N, 127 ° 8.3'W**

Claims Surveyed

521291,521293,521296,1038681

NTS 94E/08

for

FREEMONT – McMORAN OF CANADA LIMITED.

Vancouver, British Columbia

by

**Alexander Walcott, B.Sc.
PETER E. WALCOTT & ASSOCIATES LIMITED**

**Coquitlam, British Columbia
October 2017**

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SURVEY SPECIFICATIONS	7

APPENDIX

COST OF SURVEY
PERSONNEL EMPLOYED ON SURVEY
DAILY REPORTS

ACCOMANPANYING MAPS

Line Location and Claim Map		1:20,000
Detail Line and Claim Location Map		1:10,000
Pseudo sections -		
10+00N, 20+00N	PL-DP	1:10,000
20+00N, 100+000E	DP-DP	1:10,000
Loke 2D Inverted Sections -		
10+00N, 20+00N, 100+00E		1:10,000
Loke 3D Inverted Sections		
10+00N, 20+00N, 100+00E		1:10,000

INTRODUCTION.

Between September 13th and October 3rd, 2017, Peter E. Walcott & Associates Limited undertook induced polarization (IP) surveying for Freeport-McMoran of Canada Limited over their JD Property, British Columbia.

The surveying was conducted utilizing both pole-dipole and dipole-dipole techniques measuring the 1st to 6th separations utilizing a 200 metre dipole separations.

A total of 3 traverses were completed for a total of some 13.8 kilometres of induced polarization surveying.

Survey lines were positioned and established by the geophysical crews under the direction of Freeport-McMoran of Canada Limited.

The survey met with several challenges, due to weather, wildlife, and noisy reading conditions due to magnetic storms which seriously hampered survey production

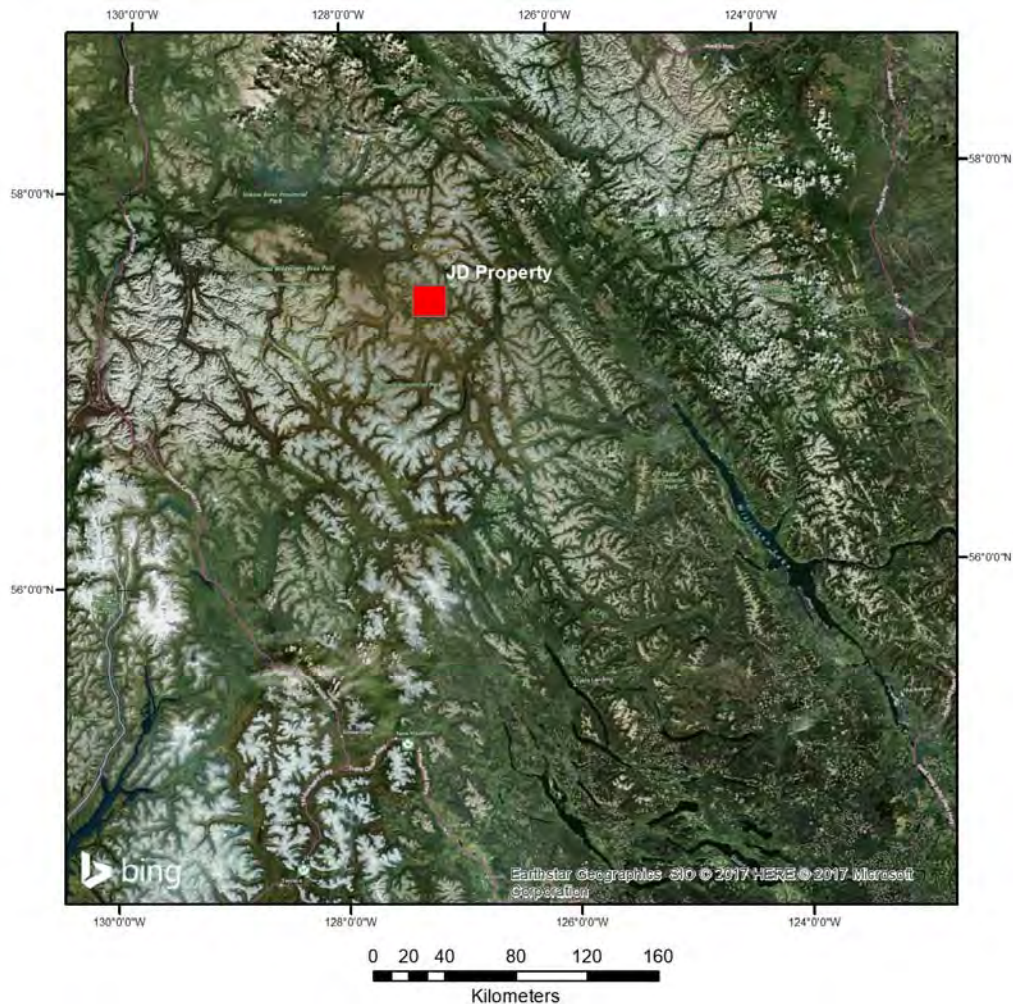
In addition, horizontal positions of the line stations were measured a Garmin handheld GPS unit.

PROPERTY LOCATION AND ACCESS

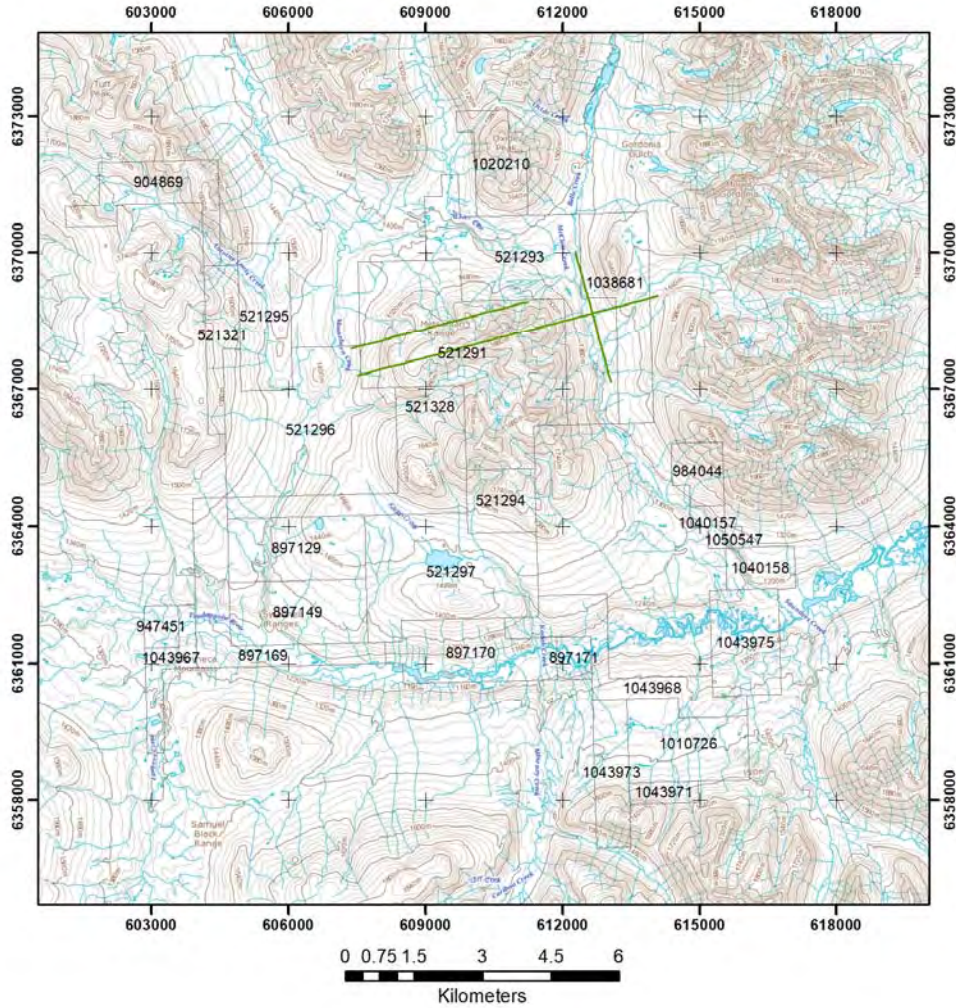
The JD property is located in northern British Columbia, some 300 kilometers due north of the town of Smithers, British Columbia.

Access to the property is gain via the Omineca Resource Road to various staging areas, then by helicopter to the property.

Access to the property on this project was by helicopter from the Black Lake camp, some 25 kilometers to the south of the property where the crew was housed for the duration of the survey. The helicopter was brought in daily from Silver King Helicopter's Kemess base.

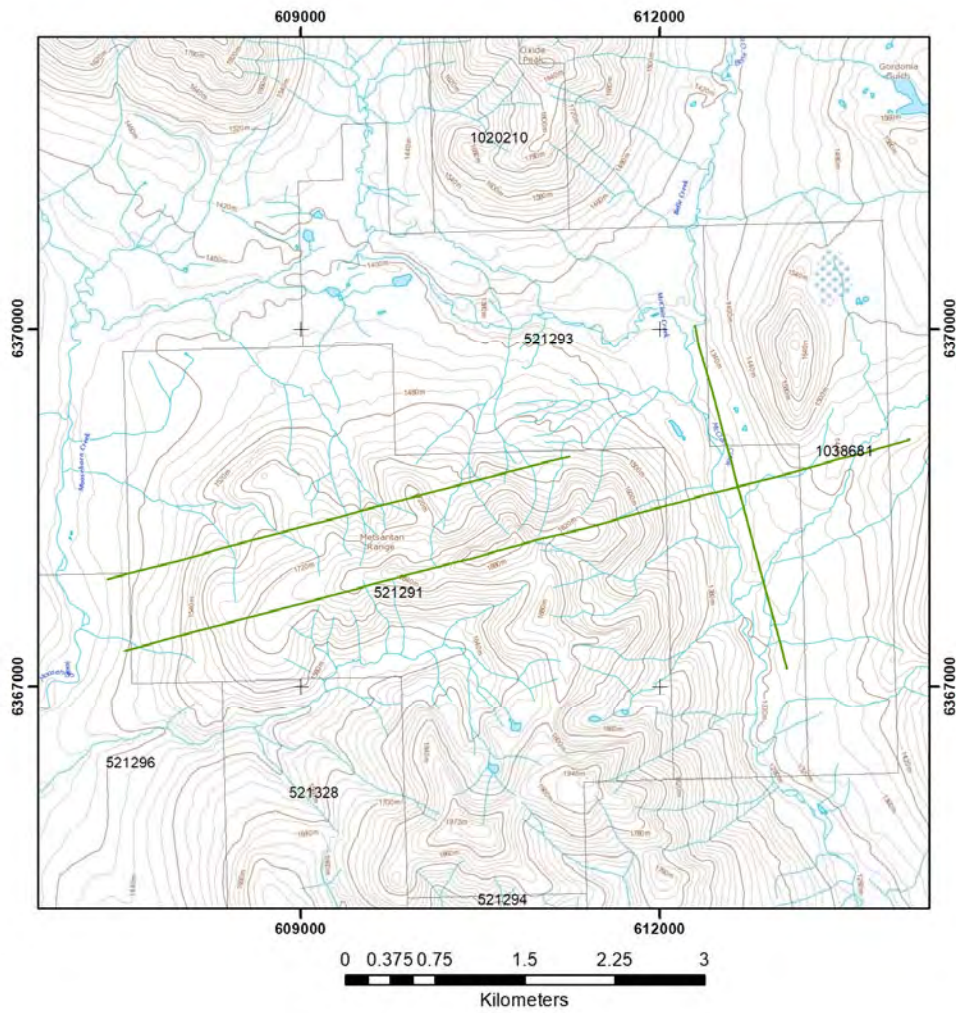


PROPERTY LOCATION AND ACCESS con't



Claim Location Map

PROPERTY LOCATION AND ACCESS con't



Claim and Line Location Map

SURVEY SPECIFICATIONS.

The Induced Polarization Survey.

The induced polarization (IP) survey was conducted using a pulse type system, the principal components of which were manufactured by Instrumentation GDD of Quebec, Canada and Walcer Geophysics of Enniskillen, Ontario.

The system consists basically of three units, a receiver (GDD), transmitter (Walcer) and a motor generator (Honda). The transmitter, which provides a maximum of 8.5 kw d.c. to the ground, obtains its power from a 24 kw 400 c.p.s. alternator driven by a Honda 25 h.p. gasoline engine. The cycling rate of the transmitter is 2 seconds “current-on” and 2 seconds “current-off” with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through the current electrodes C₁ and C₂, the primary voltages (V) appearing between any two potential electrodes, P₁ through P₅, during the “current-on” part of the cycle, and the apparent chargeability, (M_a) presented as a direct readout in millivolts per volt using a 200 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a micro-processor – the sample window is actually the total of twenty individual windows of 50 millisecond widths.

The apparent resistivity (ρ_a) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The surveying was carried out using the “pole-dipole” and “dipole-dipole” methods of surveying

The pole-dipole method, the current C₁ is moved along the survey lines at a spacing of “a” (the dipole) in unison with the reading array while the second current electrode, C₂, is kept constant at “infinity”, which was located at UTM NAD83 605325E, 6372950N

The dipole-dipole method, both currents C₁ and C_x are moved along the survey line separated by the respective “a” spacing and in unison with the reading array.

SURVEY SPECIFICATIONS cont'd.

The distance, “na” between C₁ and the nearest potential electrode generally controls the depth to be explored by the particular separation, “n”, traverse. On this survey a maximum of n=6 was used for both arrays.

On this survey a total of some 13.8 kilometres of induced polarization survey traverses on 3 lines were completed.

Horizontal control.

The horizontal positions of the stations were recorded using a Garmin GPSmap 64CSx.

Data Presentation.

The induced polarization data is presented as individual pseudo section plots of apparent resistivity and apparent chargeability at a scale of 1:10,000 generated using Geosoft Oasis Montaj.

APPENDIX

COST OF SURVEY

Peter E. Walcott & Associates Limited undertook the survey on a daily basis providing a six-man crew, IP equipment, GPS, altimeters and auxiliary equipment for a total of \$76,075.00

Mobilization costs of \$10,000.00 were incurred along with additional charges for fuel and accommodation of \$25,800 and helicopter charges of \$91,525.50, so that the total cost of services provided was \$203,400.50

PERSONNEL EMPLOYED ON SURVEY.

Name	Occupation	Address	Dates
Alex Walcott	Geophysicist	Peter E. Walcott & Associates Limited 111- 17 Fawcett Rd., Coquitlam, British Columbia, V3K 6V2	
M. Magee	Geophysical Operator	“	
M. Low	Geologist	”	Sept 13 th – Oct 3 rd , 2017
M. Legunese	Geophysical Operator	”	“
O. Kucer	Geophysical Helper	“	“
O. David	“	“	“
M. French	“	“	Sept 13 th – 26 th
Z. Podolan	“	“	Sept 26 th – Oct 3 rd , 2017

**PETER E. WALCOTT & ASSOCIATES
PROJECT FIELD REPORT**

**CLIENT:
TYPE OF SURVEY:**

**PERIOD:
EQUIPMENT:**

DATE	PERSONNEL WORKING	DETAILS OF DAILY WORK	REMARKS
Sunday 10	MM BL ML OK MF OD		
Monday 11	MM BL ML OK MF OD		
Tuesday 12	MM BL ML OK MF OD		
Wednesday 13	MM BL ML OK MF OD	Layout infinity and set up on line 1N.	
Thursday 14	MM BL ML OK MF OD	Read from 0E to 400E with n=6 on line 1N.	
Friday 15	MM BL ML OK MF OD	Read from 600E to 1600E with n=6 on line 1N.	
Saturday 16	MM BL ML OK MF OD	Read from 1800E to 4000E on line 1N. Begin winding up CL.	

**PETER E. WALCOTT & ASSOCIATES
PROJECT FIELD REPORT**

CLIENT:
TYPE OF SURVEY:

PERIOD:
EQUIPMENT:

DATE	PERSONNEL WORKING	DETAILS OF DAILY WORK	REMARKS
Sunday 17	MM BL ML OK OD MF	Wind up line 1N. Set up on line 2N. Read from 0E to 600E with n=3 on line 2N.	
Monday 18	MM BL ML OK OD MF	Read from 0E to 200E with n=6 on line 2N.	Mag noise affecting readings. Begin hiking downhill at 14:30 due to weather.
Tuesday 19	MM BL ML OK OD MF	No production.	No fly day. Fog to ground.
Wednesday 20	MM BL ML OK OD MF	Read from 200E to 1400E with n=6 on line 2N.	Noise in morning.
Thursday 21	MM BL ML OK OD MF	Read from 1600E to 2600E with n=6 on line 2N.	More noise.
Friday 22	MM BL ML OK OD MF	Hike in to stations. Find and fix two breaks in infinity. Find and fix break in CL. Read n=3 at 3400E and n=6 at 2800E.	Couple inches snow overnight. Slippery sidehill/ grass.
Saturday 23	MM BL ML OK OD MF	No production.	Late start due to weather at kemess. 16mv noise in morning. Infinity break while waiting to subside.

**PETER E. WALCOTT & ASSOCIATES
PROJECT FIELD REPORT**

CLIENT:
TYPE OF SURVEY:

PERIOD:
EQUIPMENT:

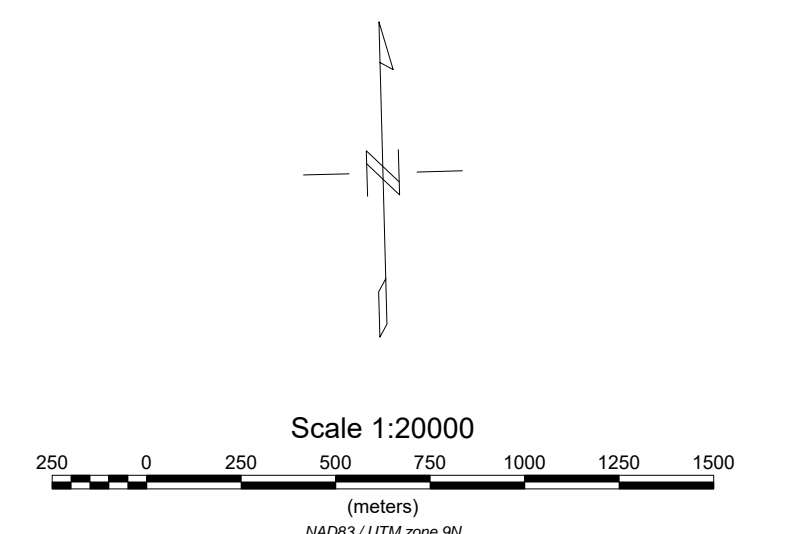
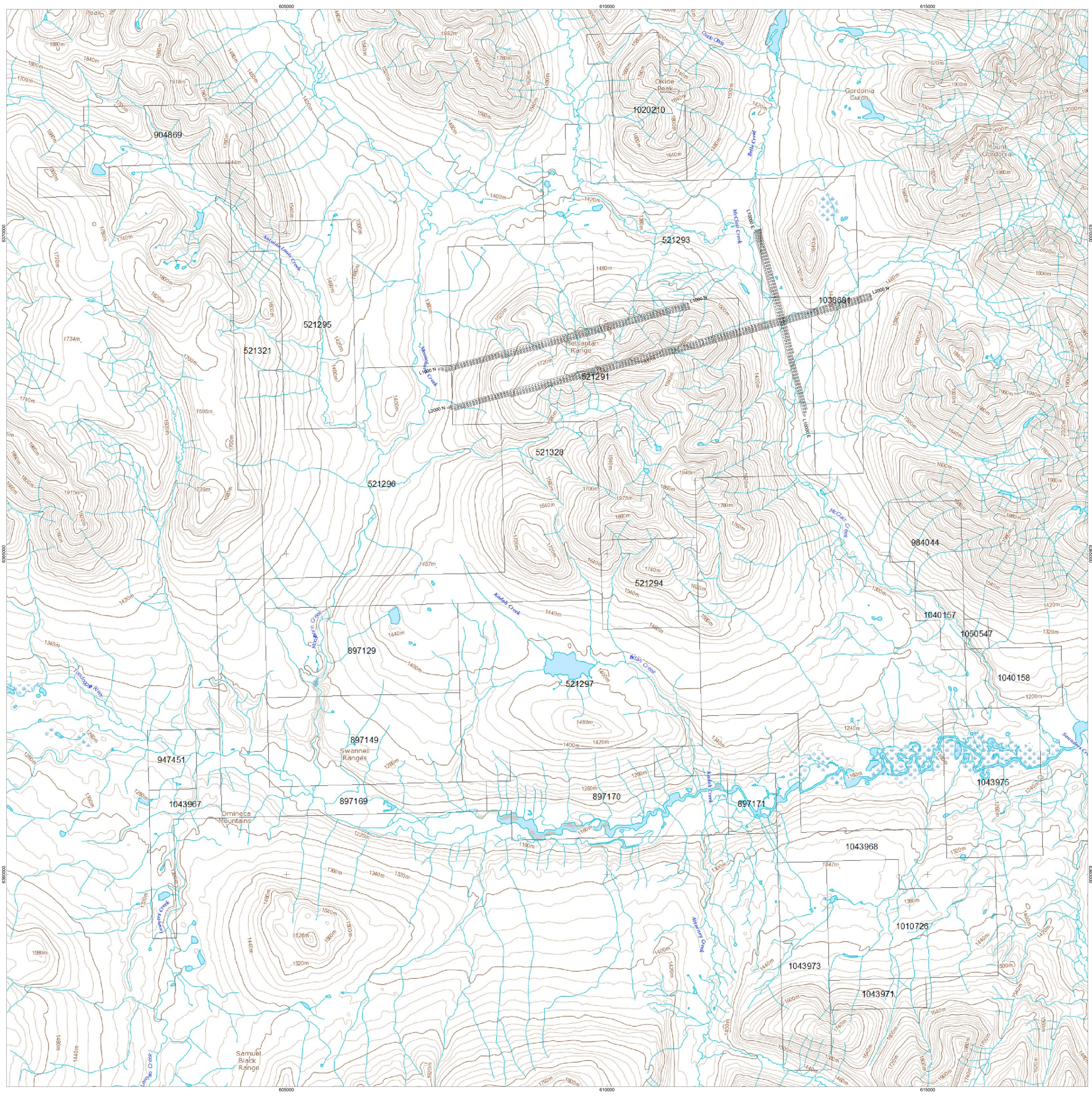
DATE	PERSONNEL WORKING	DETAILS OF DAILY WORK	REMARKS
Sunday 24	MM ML BL OK OD MF	Read from 3000E to 4000E with n=6 on line 2N.	Major noise in morning.
Monday 25	MM ML BL OK OD MF	Read from 4200E to 4600E with n=6 on line 2N.	Infinity break during first move and again at end of day. Very thick bush east end of line.
Tuesday 26	MM ML BL OK OD VB	No production.	Two infinity breaks and 400mA+ burn in CL. Veronique Bjorkman help out on line. BL remain camp – sick. MF leave camp in morning.
Wednesday 27	MM ML BL OK OD ZP	Wind up CL and infinity. Pack tx site for slinging in morning.	Zdenek Podolan arrive camp.
Thursday 28	MM ML BL OK OD ZP	Sling TX to east side of grid. Layout CL's to 3000N and 2800N on line 1E. Read from 3000N to 2600N with n=3 on line 1E in dipole dipole.	
Friday 29	MM ML BL OK OD ZP	Read from 2400N to 0N with n=3 on line 1E in dipole dipole.	
Saturday 30	MM ML BL OK OD ZP	Read from 0N to 2400N with n=6 on line 1E in dipole dipole.	First flight 10:00 due to kemess weather.

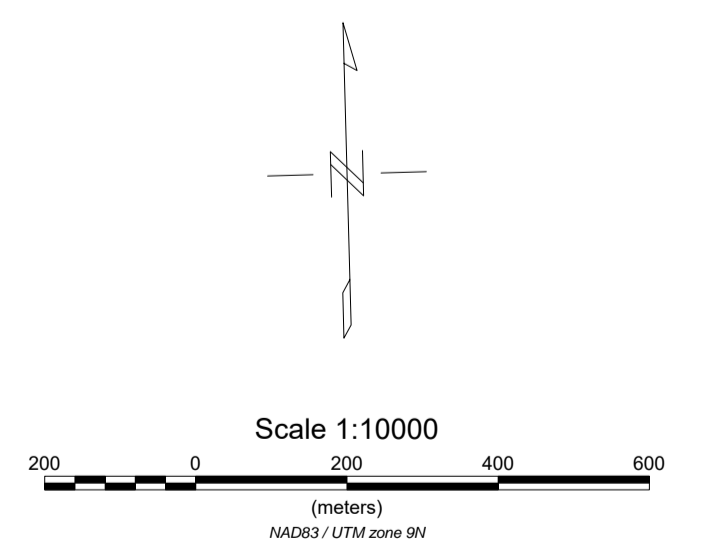
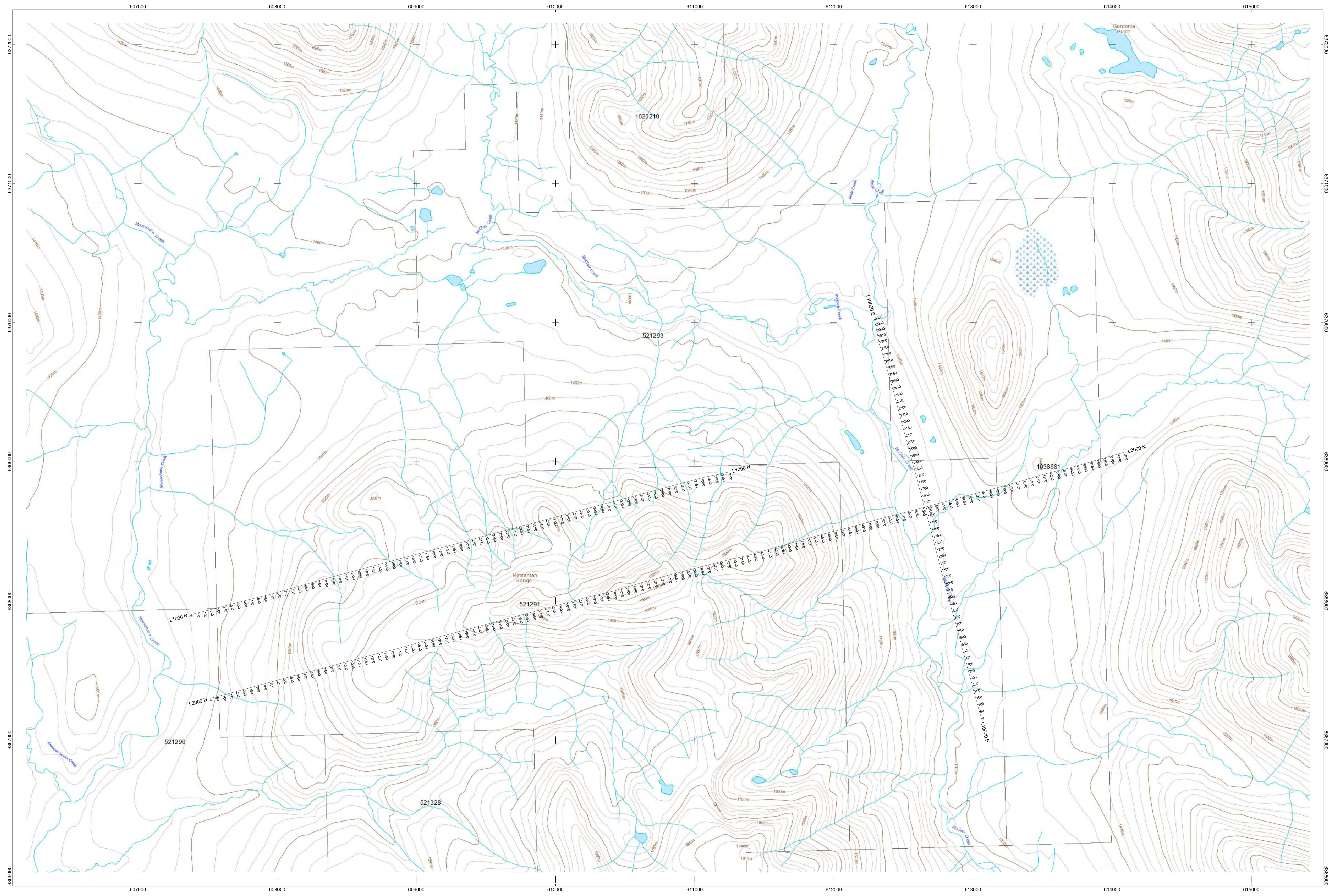
**PETER E. WALCOTT & ASSOCIATES
PROJECT FIELD REPORT**

CLIENT:
TYPE OF SURVEY:

PERIOD:
EQUIPMENT:

DATE	PERSONNEL WORKING	DETAILS OF DAILY WORK	REMARKS
Sunday 1	MM ML BL OK ZP OD	Read from 2600N to 3000N on line 1E. Clean up all wires. Read from 6800E to 5800E with n=3 on line 2N.	Unable to extend line 1E due to swollen creek.
Monday 2	MM ML BL OK ZP OD	Read from 5600E to 4600E with n=3 on line 2N. Read station 4600E with n=6 on line 2N.	
Tuesday 3	MM ML BL OK ZP OD	Read from 4800E to 6800E with n=6 on line 2N. Wind up all wires and recover all infinity screens from poor stations. Sling gear back to camp.	
Wednesday 4	MM ML BL OK ZP OD	Clean up camp and pack trucks.	
Thursday 5	MM ML BL OK ZP OD	Drive Black Lake to Mackenzie.	Stop off on way to install internet at McConell creek.
Friday 6	MM ML BL OK ZP OD	Travel Mackenzie to Hope.	ZP Transfer to Milligan crew in PG.
Saturday 7	MM ML BL OK OD	Travel Hope to warehouse. Unload trucks and pack all camp gear away.	

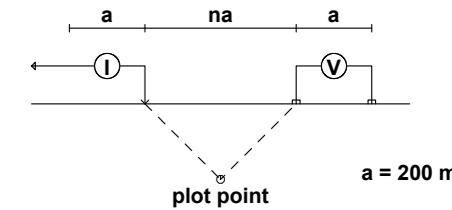




FREEPORT – McMORAN OF CANADA LIMITED
INDUCED POLARIZATION SURVEY
LINE LOCATION MAP
 JD PROPERTY
 TOODOGGONE RIVER AREA
 BRITISH COLUMBIA
 SEPTEMBER-OCTOBER 2017
PETER E. WALCOTT & ASSOCIATES LIMITED

20+00 N

Pole-Dipole Array

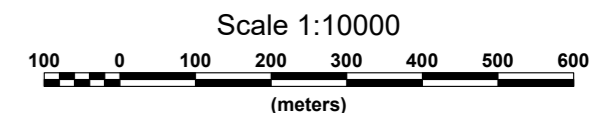


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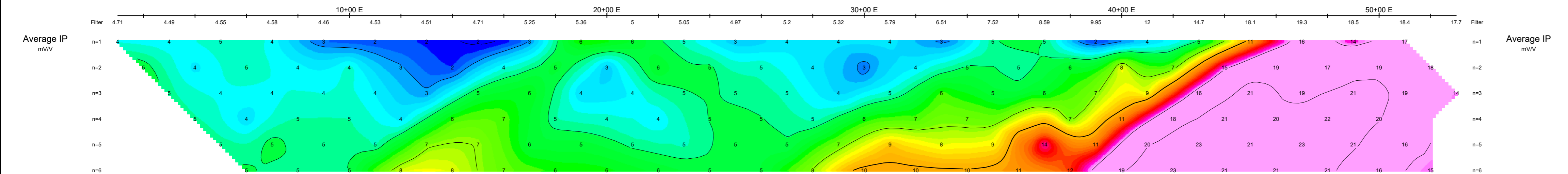
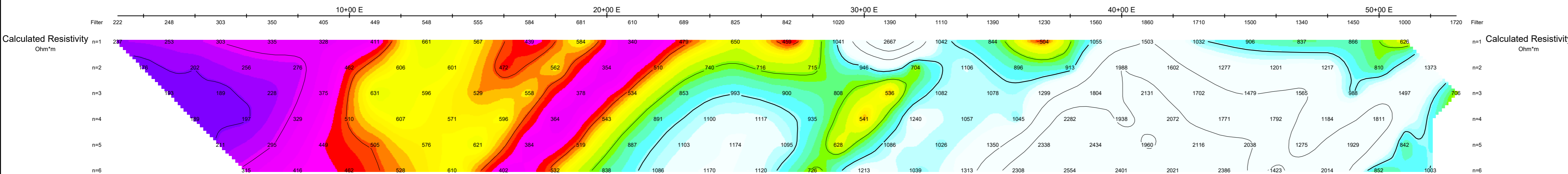
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Instruments:
 GDD GRX8
 WALCER 9 kw Tx
 Frequency: 0.125 Hz.
 Operators: M.M., J.T.

Logarithmic
 Contours: 1.5, 2, 3, 5, 7.5, 10,...

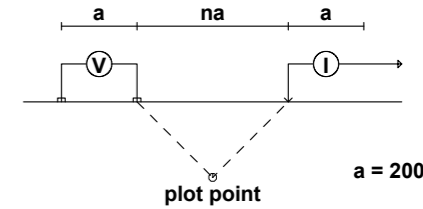


FREEPORT – McMORAN OF CANADA LIMITED.
 INDUCED POLARIZATION SURVEY
 JD PROJECT
 Date: SEPTEMBER/OCTOBER 2017
 Interpretation:
 PETER E. WALCOTT & ASSOCIATES LIMITED



20+00 N

Dipole-Pole Array



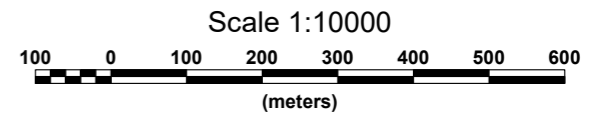
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Instruments:
GDD GRX8
WALCER 9 kw Tx
Frequency: 0.125 Hz.
Operators: M.M., J.T.

Logarithmic
Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

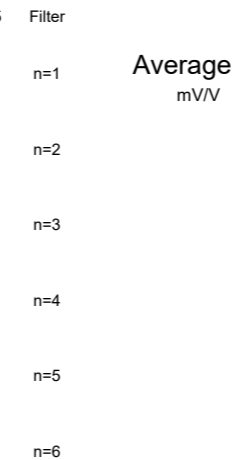
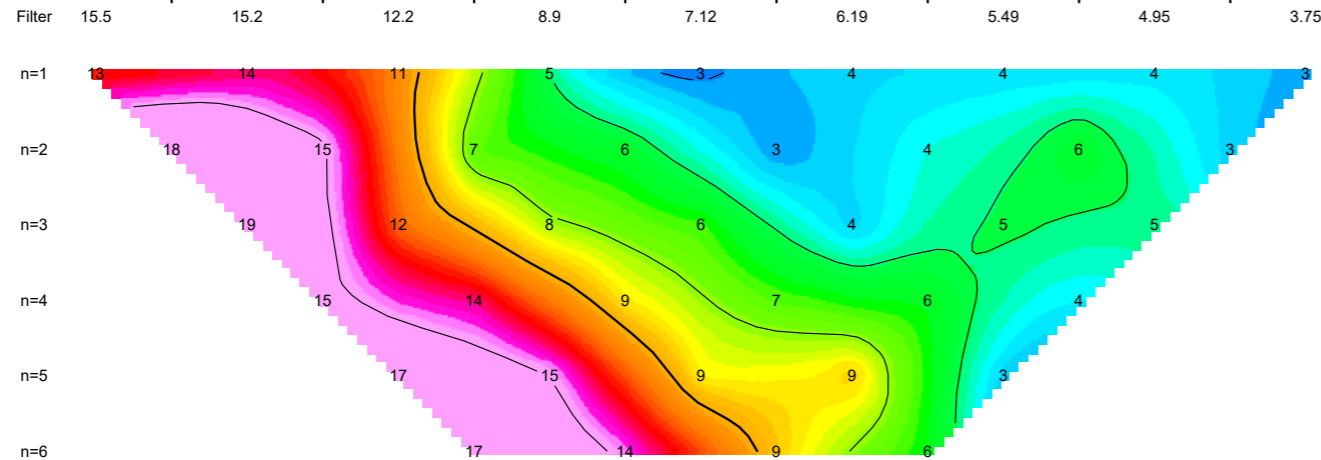
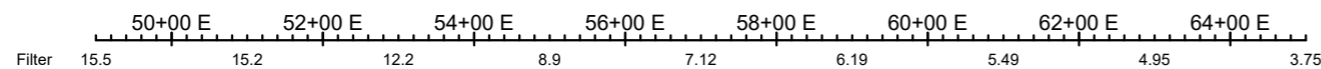
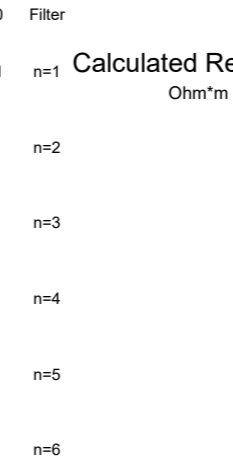
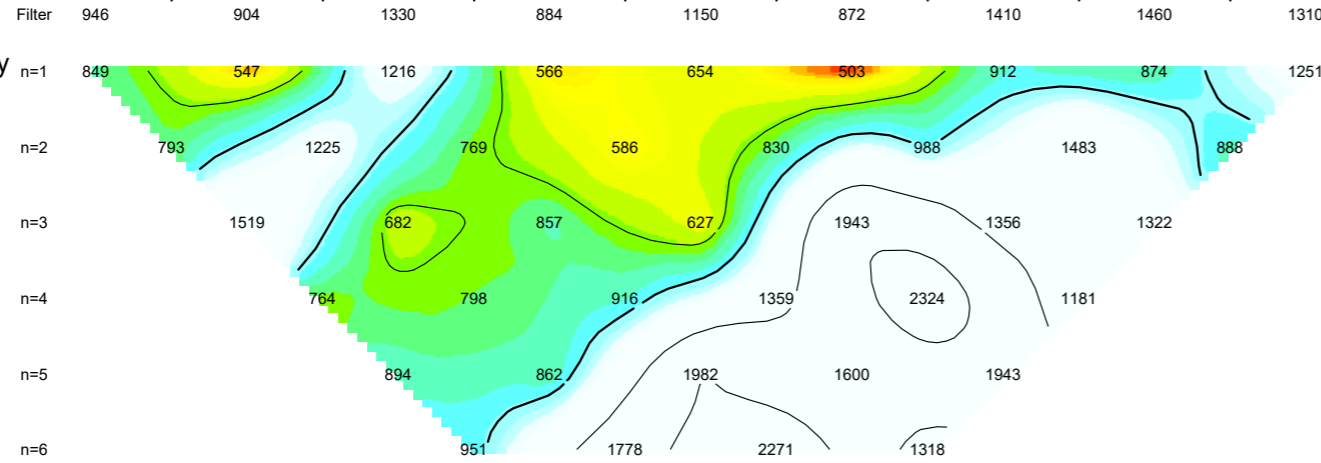
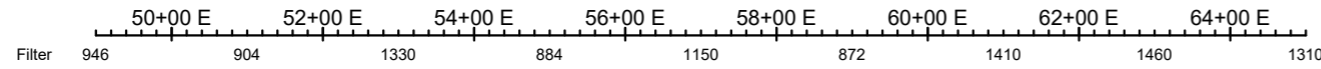


FREEPORT – McMORAN OF CANADA LIMITED.

INDUCED POLARIZATION SURVEY
JD PROJECT

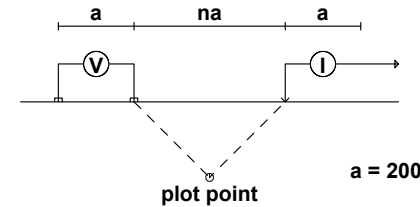
Date: SEPTEMBER/OCTOBER 2017
Interpretation:

PETER E. WALCOTT & ASSOCIATES LIMITED



100+00 E

Dipole-Pole Array

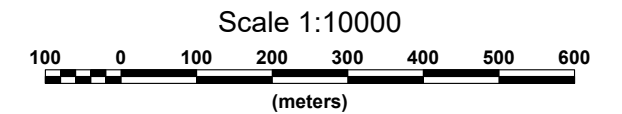


a = 200 m

Filter
*
**

Instruments:
GDD GRX8
WALCER 9 kw Tx
Frequency: 0.125 Hz.
Operators: M.M., J.T.

Logarithmic
Contours
1, 1.5, 2, 3, 5, 7.5, 10,...



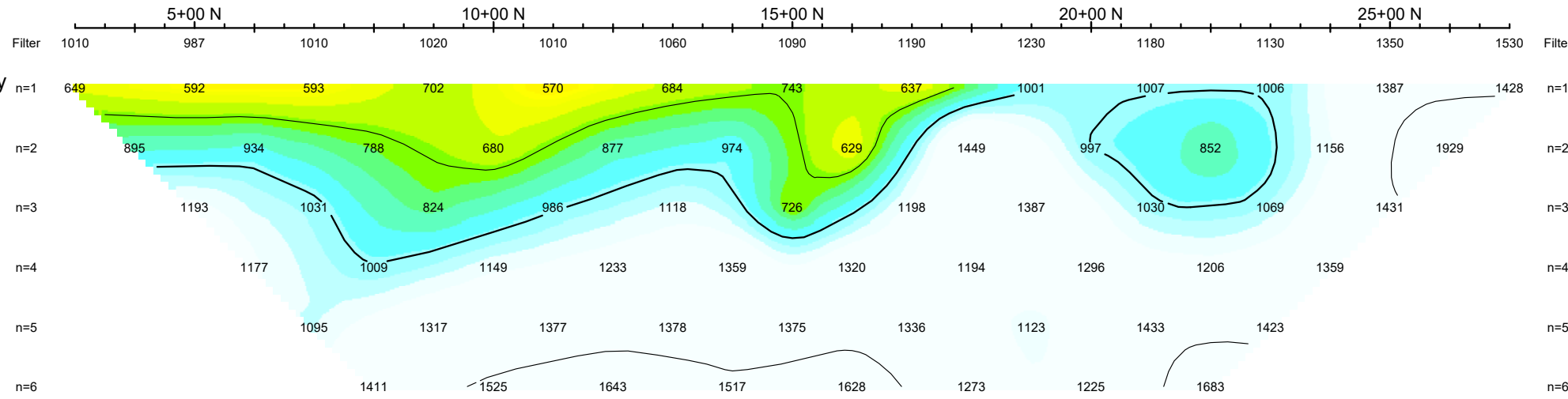
FREEMONT – McMORAN OF CANADA LIMITED.

INDUCED POLARIZATION SURVEY
JD PROJECT

Date: SEPTEMBER/OCTOBER 2017
Interpretation:

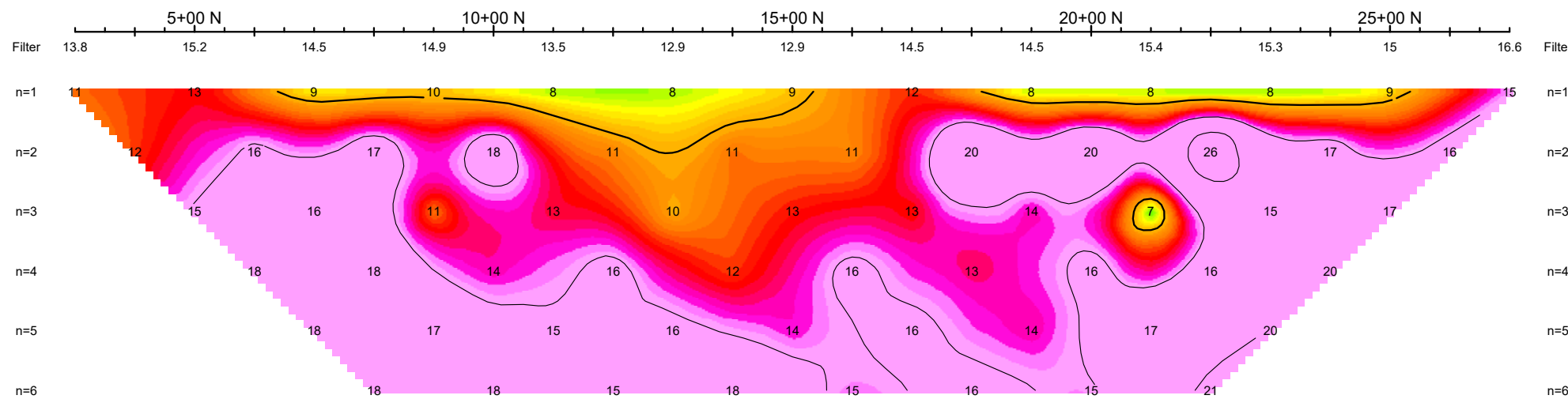
PETER E. WALCOTT & ASSOCIATES LIMITED

Calculated Resistivity
Ohm*m

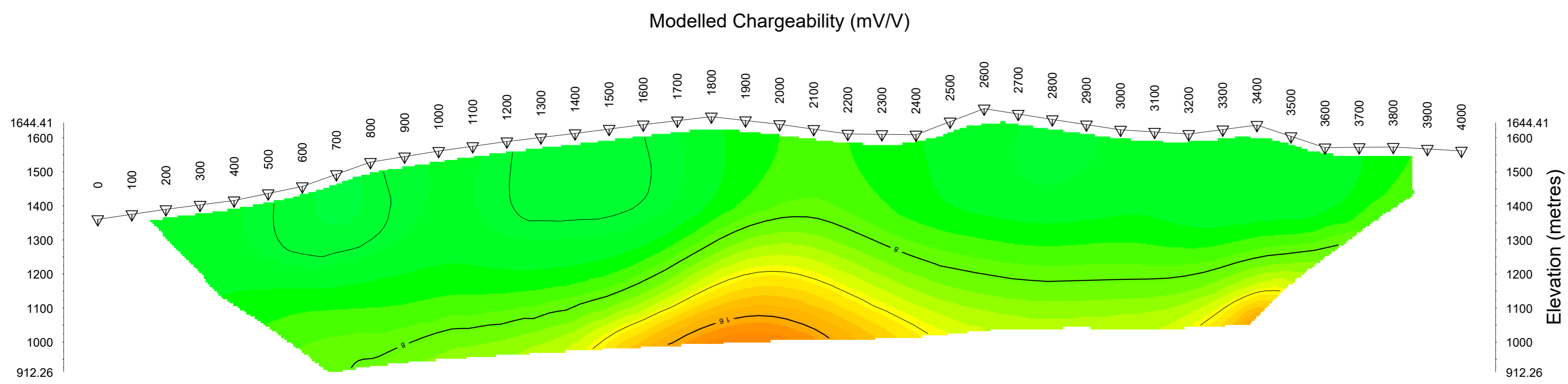
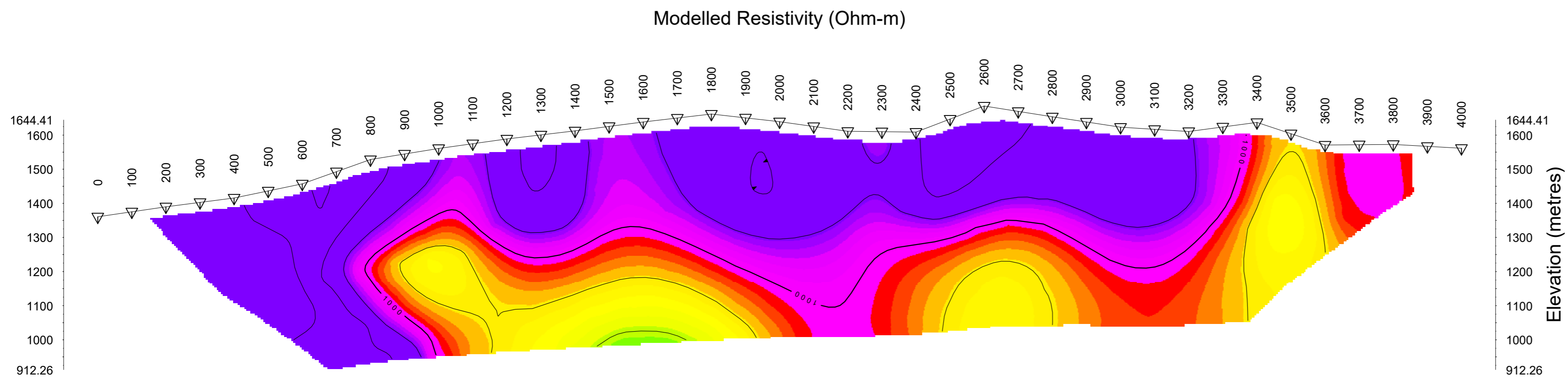


Calculated Resistivity
Ohm*m

Average IP
mV/V



Average IP
mV/V

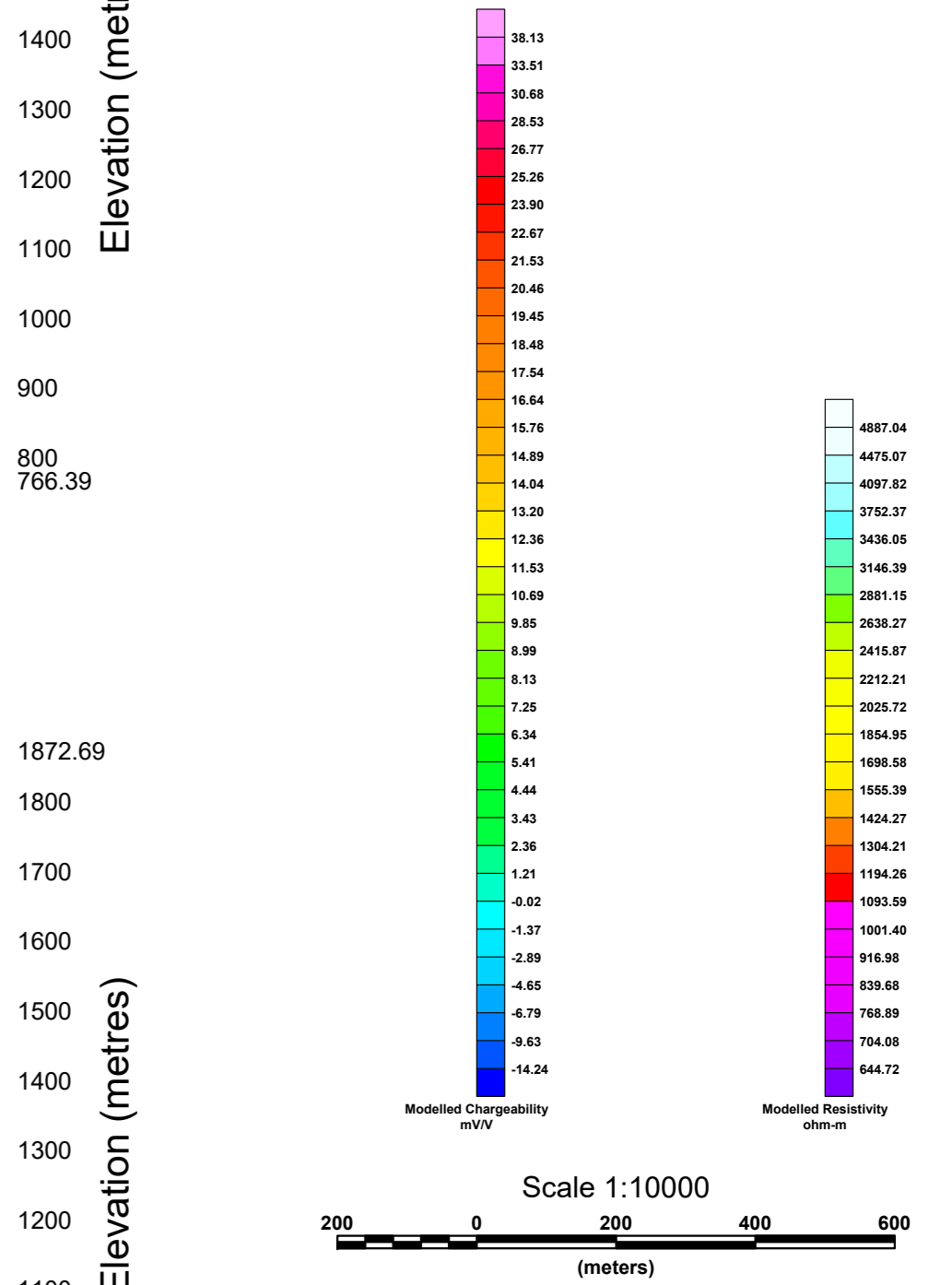
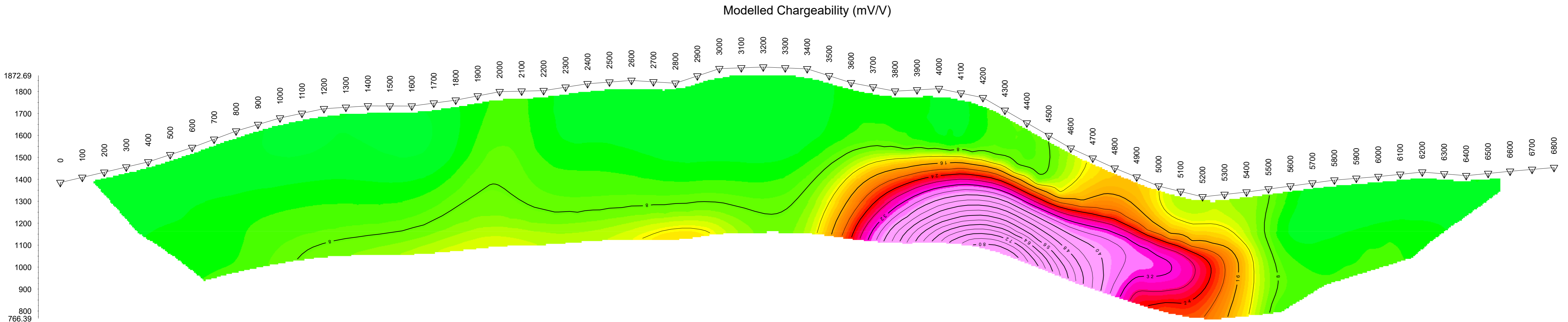
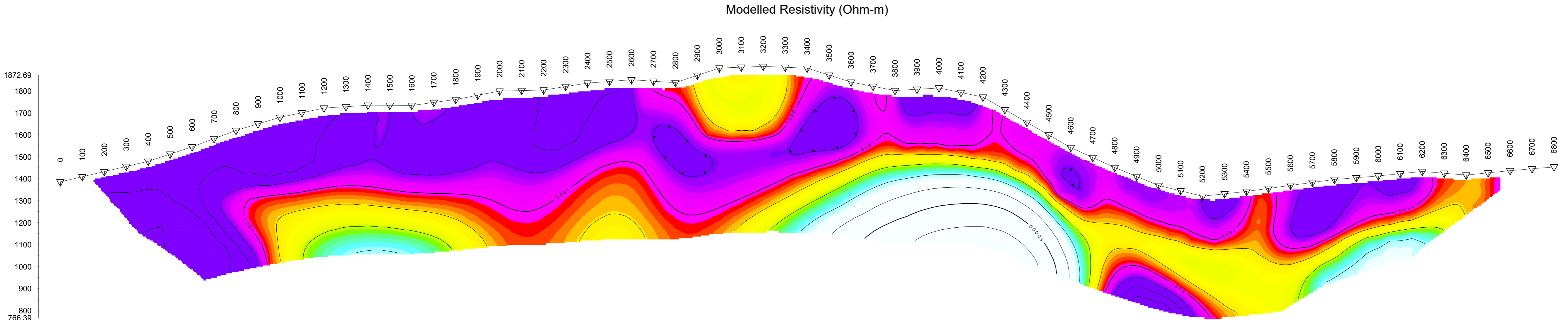


Modelled Chargeability
mV/V

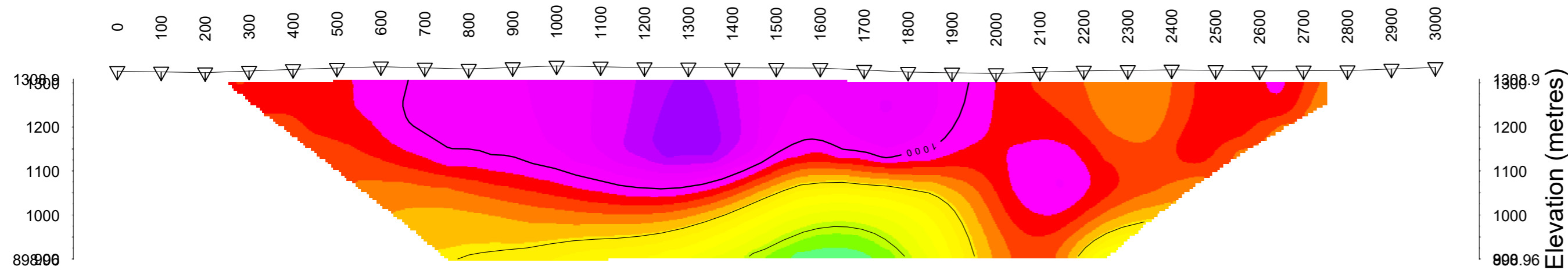
Modelled Resistivity
ohm-m

Scale 1:10000

FREEPORT
 INDUCED POLARIZATION SURVEY
 JD PROJECT
 BRITISH COLUMBIA
 Date: OCT 2017
 RES2DINV
 Inversion By: PETER E. WALCOTT & ASSOCIATES LIMITED

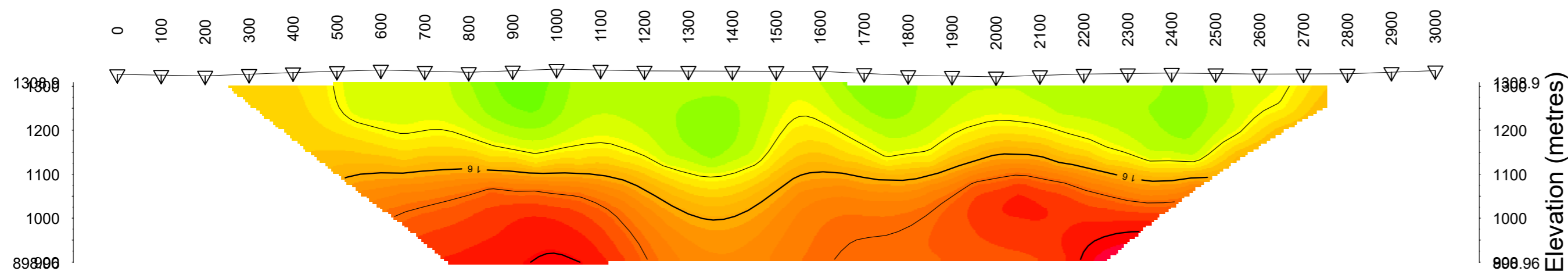


Modelled Resistivity (Ohm-m)

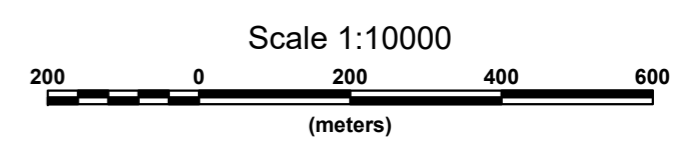
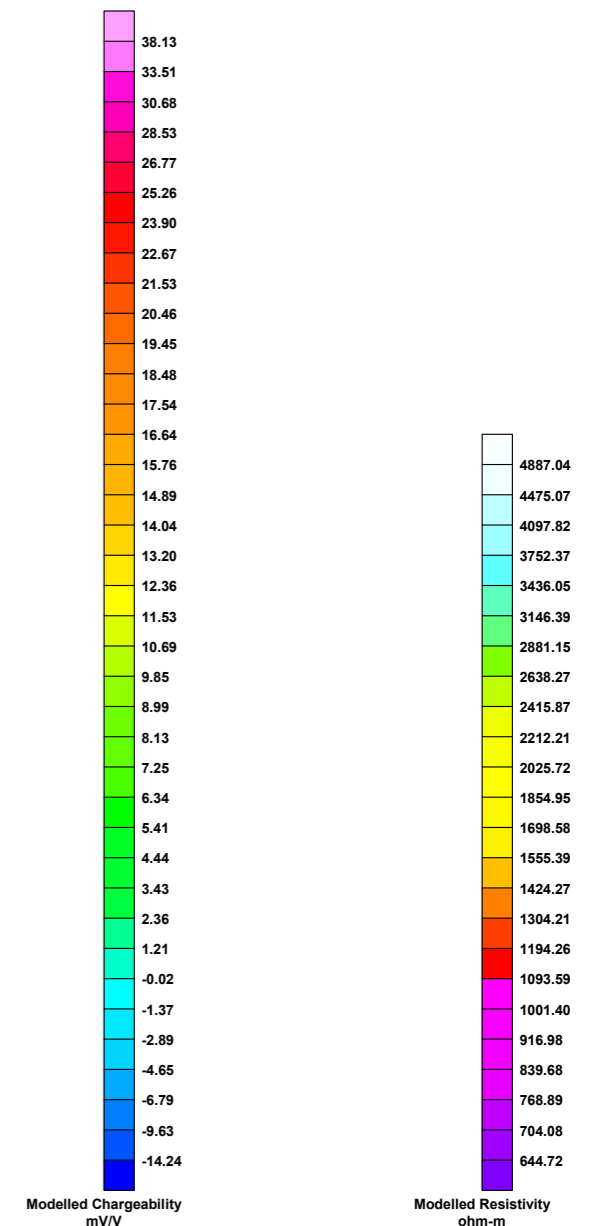


Elevation (metres)

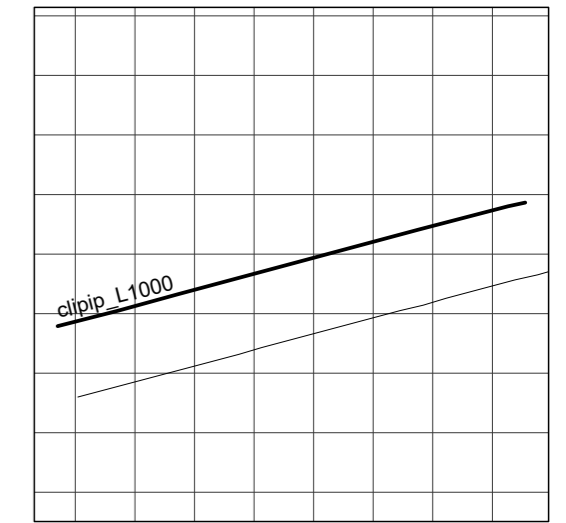
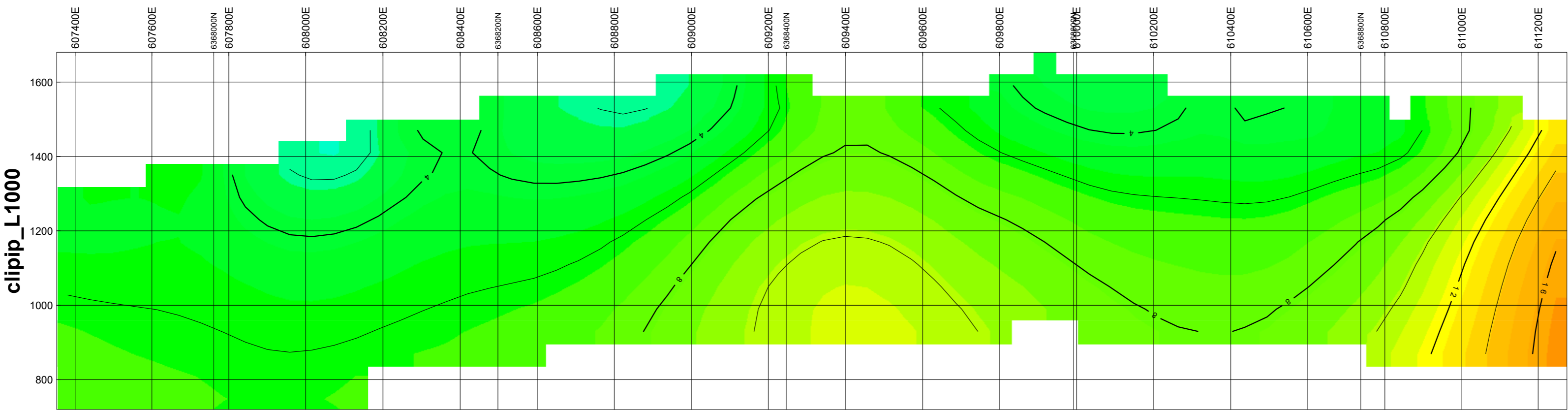
Modelled Chargeability (mV/V)



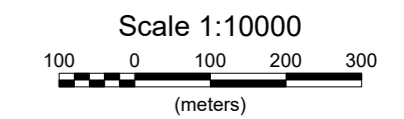
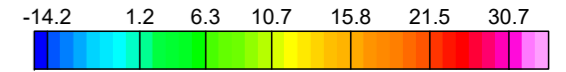
Elevation (metres)



FREERT
INDUCED POLARIZATION SURVEY JD PROJECT BRITISH COLUMBIA
Date: OCT 2017 RES2DINV
Inversion By: PETER E. WALCOTT & ASSOCIATES LIMITED



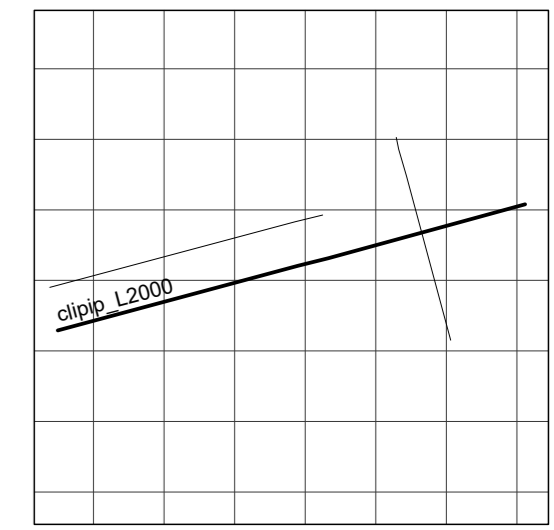
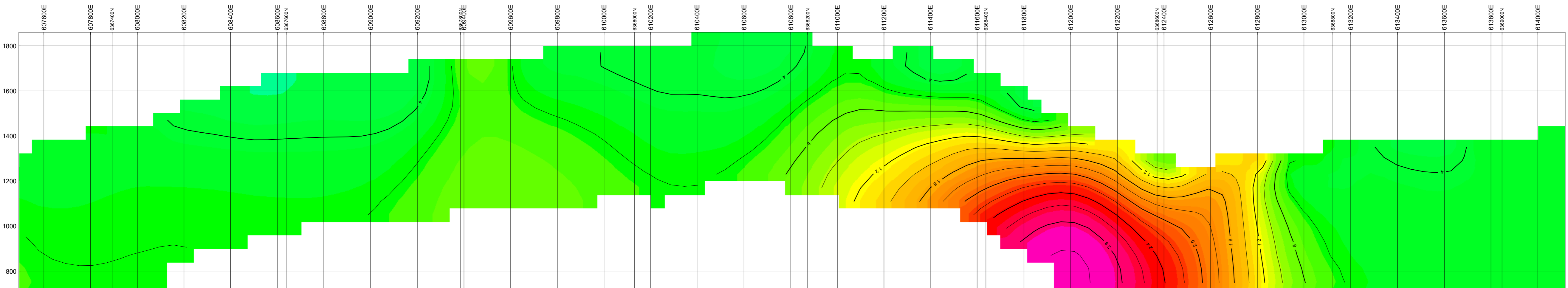
Section Trace Plan View



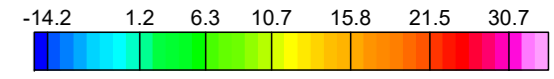
Vertical Exaggeration: 1

FREEPORT – McMORAN OF CANADA LIMITED.
JD PROJECT
 3D MODELLED CHARGEABILITY (mV/V)

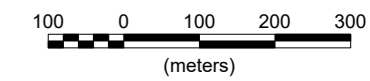
clipip_L2000



Section Trace Plan View



Scale 1:10000

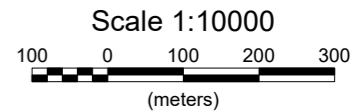
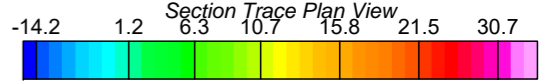
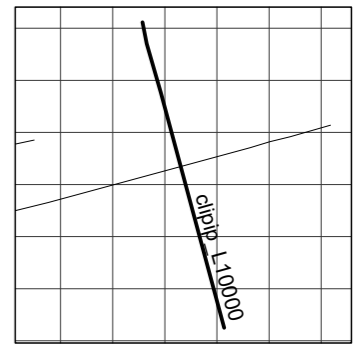
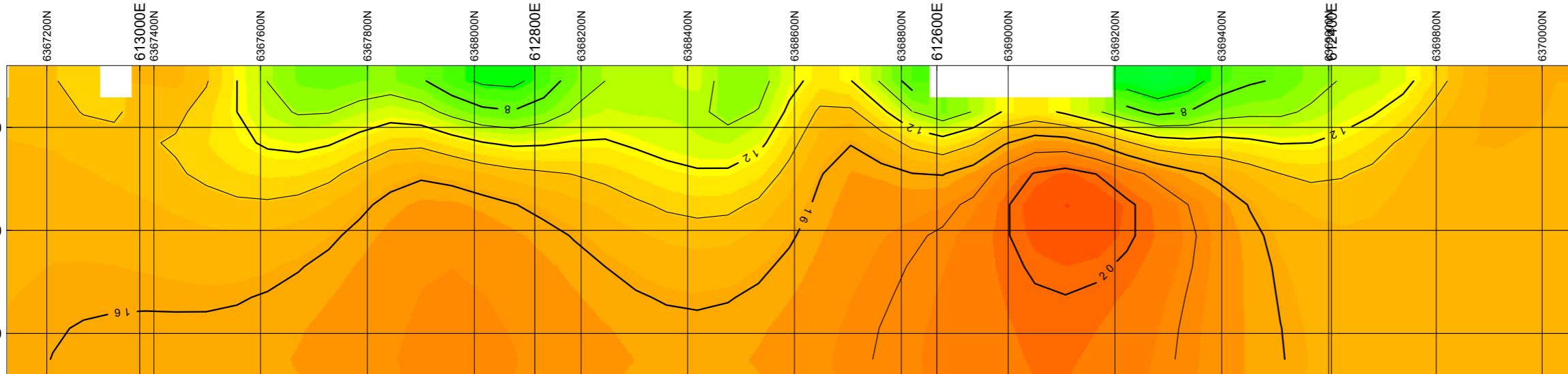


Vertical Exaggeration: 1

FREPORT – McMORAN OF CANADA LIMITED.
JD PROJECT

3D MODELLED CHARGEABILITY (mV/V)

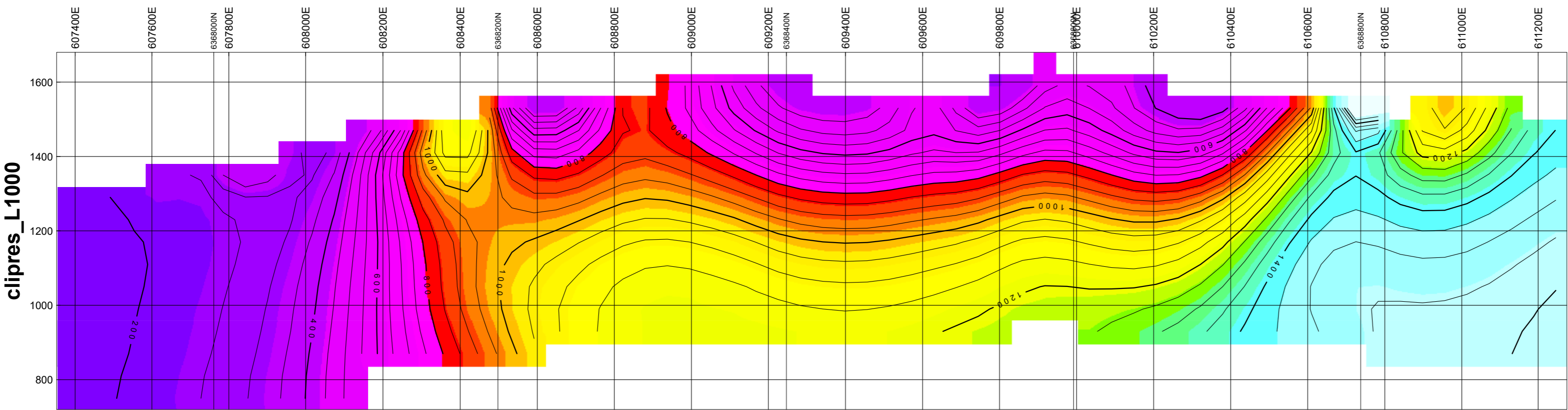
clipip_L10000



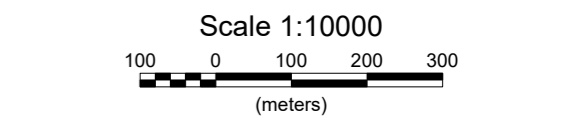
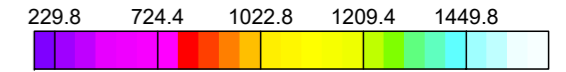
Vertical Exaggeration: 1

FREEPORT – McMORAN OF CANADA LIMITED.
JD PROJECT

3D MODELLED CHARGEABILITY (mV/V)

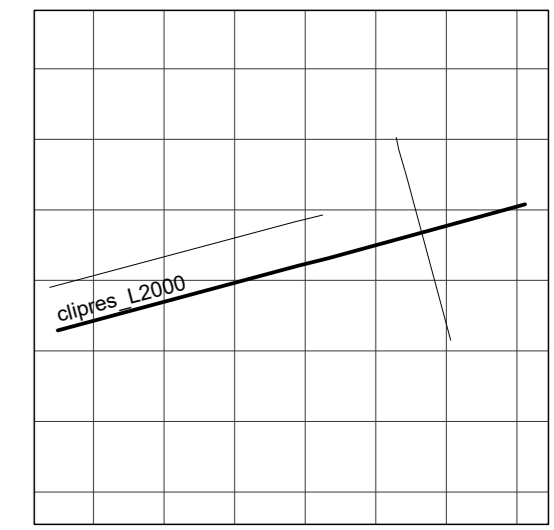
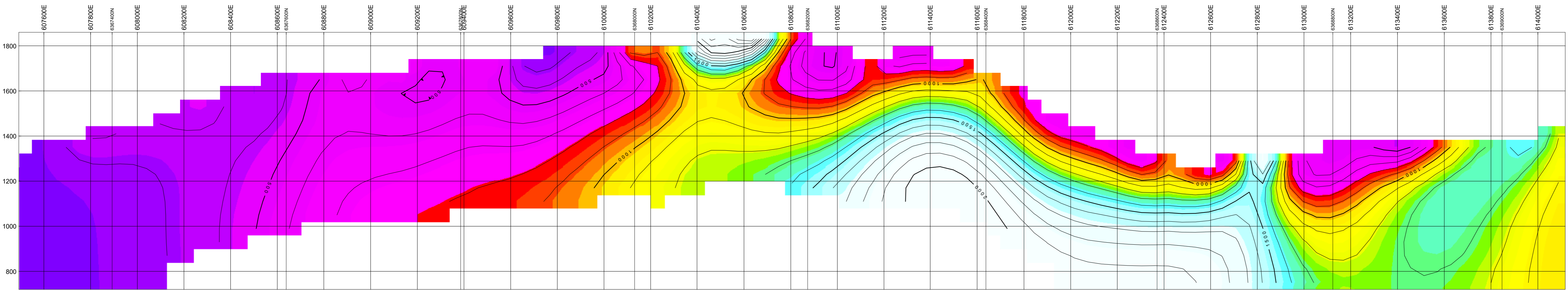


Section Trace Plan View

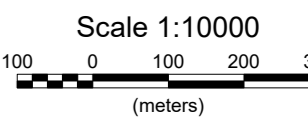
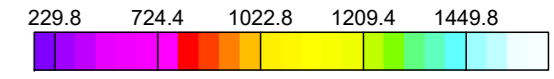


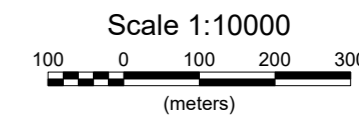
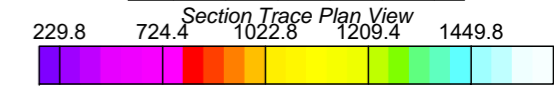
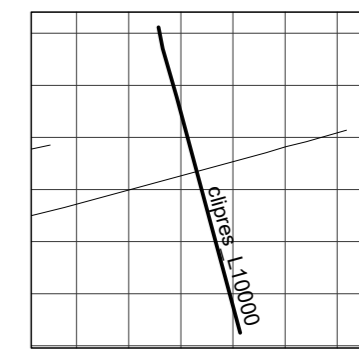
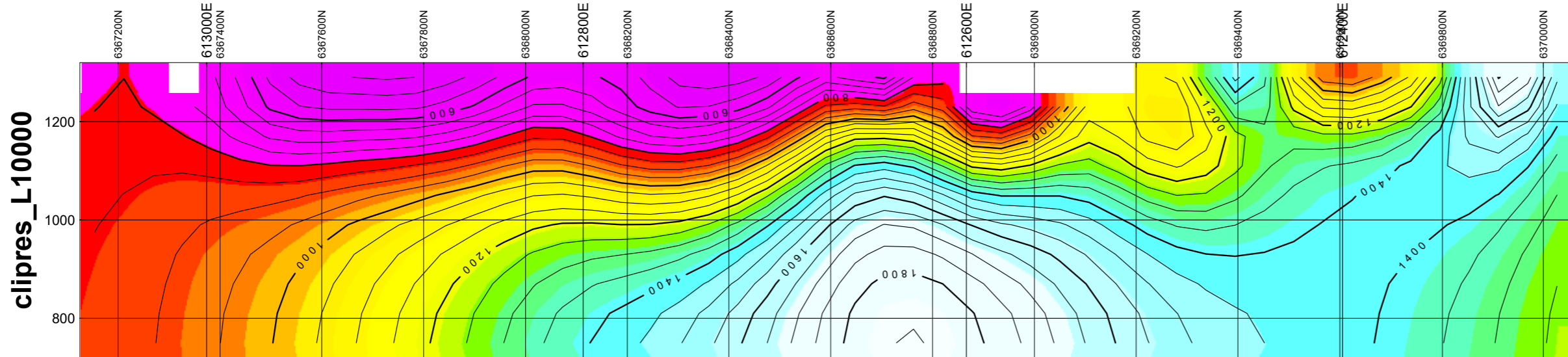
FREEPORT – McMORAN OF CANADA LIMITED.
JD PROJECT
 3D MODELLED RESISTIVITY (ohm-m)

clipres_L2000



Section Trace Plan View





Vertical Exaggeration: 1

FREEPORT – McMORAN OF CANADA LIMITED.
JD PROJECT
 3D MODELLED RESISTIVITY (ohm-m)

APPENDIX 4

Assay Certificates



BUREAU VERITAS MINERAL LABORATORIES
Canada

www.bureauveritas.com/um

Bureau Veritas Commodities Canada Ltd.
9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada
PHONE (604) 253-3158

Client: **Freeport-McMoran of Canada Ltd.**
1409 - 409 Granville Street
Vancouver British Columbia V6C 1T2 Canada

Submitted By: Ramon Taningco
Receiving Lab: Canada-Vancouver
Received: September 25, 2017
Report Date: November 18, 2017
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN17002205.1

CLIENT JOB INFORMATION

Project: WCR
Shipment ID:
P.O. Number
Number of Samples: 14

SAMPLE DISPOSAL

RTRN-PLP Return After 90 days
PICKUP-RJT Client to Pickup Rejects

Bureau Veritas does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Freeport-McMoran of Canada Ltd.
1409 - 409 Granville Street
Vancouver British Columbia V6C 1T2
Canada

CC:

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
BAT01	1	Batch charge of <20 samples			VAN
PRP70-250	14	Crush, split and pulverize 250 g rock to 200 mesh			VAN
FA330-Au	14	Fire assay fusion Au by ICP-ES	30	Completed	VAN
EN002	14	Environmental disposal charge-Fire assay lead waste			VAN
MA250	14	4 Acid digestion Ultratrace ICP-MS analysis	0.25	Completed	VAN

ADDITIONAL COMMENTS



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Bureau Veritas assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted.
*** asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

Client: **Freeport-McMoran of Canada Ltd.**

1409 - 409 Granville Street

Vancouver British Columbia V6C 1T2 Canada

Project: WCR

Report Date: November 18, 2017

Page: 2 of 2

Part: 1 of 4

CERTIFICATE OF ANALYSIS

VAN17002205.1

Method	WGHT	FA330	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca	
Unit	kg	ppb	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	
MDL	0.01	2	0.05	0.1	0.02	0.2	20	0.1	0.2	1	0.01	0.2	0.1	0.1	1	0.02	0.02	0.04	1	0.01	
233801	Rock	0.82	10	0.97	65.8	16.79	146.0	128	2.0	5.4	1935	3.63	17.0	3.0	6.1	418	0.04	0.92	0.07	110	0.89
233802	Rock	0.91	3	3.79	6.8	15.51	13.1	26	0.9	0.5	246	3.09	10.0	2.6	5.0	782	<0.02	0.86	0.05	89	0.46
233803	Rock	0.65	<2	9.07	19.6	10.63	56.7	74	0.6	0.5	99	4.06	9.1	2.8	5.0	360	<0.02	1.49	1.84	113	0.11
233804	Rock	0.69	<2	3.00	62.9	7.69	143.5	24	1.5	5.2	1105	4.40	11.4	2.3	4.2	905	0.78	1.01	0.07	150	1.19
233805	Rock	0.72	<2	0.44	2.5	5.28	137.8	<20	1.3	10.5	1687	4.93	1.7	1.8	4.0	653	0.15	0.63	<0.04	125	1.92
233806	Rock	0.82	10	1.56	3.1	19.13	70.2	93	0.9	0.5	478	1.59	5.8	3.6	7.1	181	0.03	0.56	0.22	70	0.23
233807	Rock	0.70	<2	1.30	62.8	6.63	118.4	79	3.0	7.8	1893	4.28	4.5	2.6	5.8	722	0.05	1.68	0.17	113	3.32
233808	Rock	0.77	18	3.83	4.2	12.53	54.2	160	1.7	6.4	2087	4.67	18.1	2.8	6.4	741	<0.02	1.32	1.04	131	4.10
233809	Rock	0.61	10	2.23	8.0	16.63	69.8	167	1.7	3.1	996	3.40	4.5	2.4	5.2	525	<0.02	0.71	0.65	135	1.19
89179	Rock	0.49	7	1.90	10.0	11.13	7.6	279	0.3	2.1	68	4.39	10.5	2.2	3.7	301	3.71	1.83	2.60	61	4.49
89183	Rock	0.98	5	1.02	36.2	84.57	1281.9	3196	2.1	5.6	4094	3.76	32.5	3.8	4.3	125	3.30	16.47	0.06	141	0.12
89185	Rock	0.71	<2	1.14	2.7	11.62	0.9	41	0.3	1.7	9	2.11	4.5	1.3	3.9	991	<0.02	0.98	5.10	179	0.14
89186	Rock	0.60	2	3.16	1.1	15.23	10.8	147	0.4	<0.2	108	1.73	3.3	2.4	4.2	201	<0.02	1.62	0.08	152	0.21
89197	Rock	1.00	6	1.28	103.4	9.92	44.4	67	11.0	33.9	253	6.74	270.2	0.9	2.1	461	0.09	3.90	0.09	263	2.25



Bureau Veritas Commodities Canada Ltd.

9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

Client: **Freeport-McMoran of Canada Ltd.**

1409 - 409 Granville Street

Vancouver British Columbia V6C 1T2 Canada

Project: WCR

Report Date: November 18, 2017

Page: 2 of 2

Part: 2 of 4

CERTIFICATE OF ANALYSIS

VAN17002205.1

Method	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Sn	Be	Sc	S	Y	Ce	Pr	Nd	Sm	
Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	
MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.2	0.1	1	0.1	0.04	0.1	0.02	0.1	0.1	0.1	
233801	Rock	0.054	14.5	4	1.10	291	0.338	8.49	2.429	3.91	0.7	43.9	0.8	<1	10.4	0.93	15.7	29.10	3.7	13.5	2.6
233802	Rock	0.031	12.2	2	0.24	1538	0.458	8.69	4.297	2.16	0.6	105.4	2.7	1	5.8	0.53	8.6	18.44	2.0	6.3	1.1
233803	Rock	0.082	28.7	2	0.30	658	0.402	7.79	3.212	2.08	0.9	98.5	1.6	<1	8.3	0.79	10.0	42.64	4.0	12.3	2.3
233804	Rock	0.101	18.1	2	1.36	1664	0.484	10.33	3.603	2.60	0.6	73.8	1.4	2	13.5	0.51	25.2	37.10	4.7	18.6	4.8
233805	Rock	0.105	15.4	2	1.25	1484	0.436	8.85	3.448	2.15	0.6	77.5	1.2	1	10.7	<0.04	25.9	31.74	4.2	16.7	4.6
233806	Rock	0.079	20.3	3	1.13	1992	0.271	8.33	2.296	2.68	1.1	48.5	2.8	1	8.5	0.04	11.5	38.34	4.3	15.9	3.1
233807	Rock	0.102	18.4	4	1.16	1507	0.357	8.54	2.977	1.87	0.8	48.4	1.0	2	10.1	<0.04	21.3	35.05	4.0	16.8	3.9
233808	Rock	0.094	22.9	5	0.92	580	0.384	8.74	2.692	1.04	1.4	50.4	1.5	1	10.4	0.59	18.2	38.70	4.2	16.1	3.8
233809	Rock	0.098	19.1	5	1.01	447	0.386	8.39	5.237	0.68	1.1	48.3	1.1	2	10.4	0.34	15.8	38.03	4.7	18.5	4.1
89179	Rock	0.216	9.4	2	0.12	307	0.289	8.06	0.127	0.96	1.2	53.0	2.4	2	4.8	1.44	6.4	21.02	2.8	11.5	2.5
89183	Rock	0.075	16.6	3	0.82	3058	0.280	6.13	0.066	4.37	2.6	51.9	0.7	<1	8.0	0.06	13.3	28.51	3.7	14.0	2.8
89185	Rock	0.137	12.5	4	<0.01	766	0.442	13.54	0.034	0.08	0.3	67.1	4.6	<1	11.4	1.54	3.2	24.42	2.7	8.8	1.5
89186	Rock	0.037	13.9	3	0.34	1296	0.481	8.89	1.990	2.50	0.6	103.9	1.3	1	11.3	0.16	13.2	25.28	3.1	10.3	2.1
89197	Rock	0.105	11.6	2	0.70	34	0.461	7.68	3.036	1.10	0.5	23.4	0.4	<1	15.5	5.99	15.9	23.23	3.2	12.9	2.9



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Vancouver British Columbia V6C 1T2 Canada

Project: WCR

Report Date: November 18, 2017

Page: 2 of 2

Part: 3 of 4

CERTIFICATE OF ANALYSIS

VAN17002205.1

Method	Analyte	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
		Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Li	Rb	Ta	Nb	Cs	Ga	In	Re	Se	Te
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.02	0.1	0.1	0.04	0.1	0.02	0.01	0.002	0.3	0.05	
233801	Rock	1.0	2.9	0.4	2.4	0.6	1.8	0.3	1.8	0.3	1.68	8.5	92.8	0.4	5.63	3.7	17.87	0.12	<0.002	0.4	0.52
233802	Rock	0.2	1.1	0.1	0.9	0.3	1.2	0.2	1.4	0.3	2.94	5.6	50.0	0.4	5.81	1.9	18.42	0.04	<0.002	0.5	0.06
233803	Rock	0.5	1.5	0.2	1.7	0.4	1.2	0.2	1.3	0.3	2.81	3.8	68.9	0.3	5.36	3.5	16.94	0.10	0.002	1.2	0.60
233804	Rock	1.3	5.1	0.8	5.3	1.1	3.0	0.5	2.9	0.5	2.43	17.7	56.2	0.4	5.66	3.2	23.77	0.09	0.003	0.5	0.18
233805	Rock	1.2	4.5	0.7	4.3	1.0	2.7	0.4	2.8	0.4	2.33	21.9	40.3	0.3	4.82	3.4	18.74	0.06	0.004	0.3	0.08
233806	Rock	0.7	3.4	0.3	2.2	0.4	1.4	0.2	1.6	0.2	1.75	8.8	82.7	0.4	4.85	1.4	13.68	0.09	<0.002	0.9	0.23
233807	Rock	0.9	4.0	0.4	3.1	0.7	2.1	0.3	2.0	0.4	1.83	8.0	32.6	0.4	6.02	1.6	18.22	0.11	<0.002	<0.3	0.36
233808	Rock	1.2	3.1	0.4	3.1	0.7	1.9	0.3	1.9	0.3	1.80	6.4	28.8	0.4	6.46	0.9	21.53	0.32	<0.002	0.4	1.99
233809	Rock	1.1	3.6	0.4	3.2	0.6	1.8	0.3	1.8	0.3	1.72	10.5	10.5	0.5	6.09	1.2	20.94	0.26	<0.002	0.6	0.75
89179	Rock	0.7	2.0	0.1	1.3	0.3	1.0	0.1	0.9	0.2	1.71	3.6	25.6	0.4	5.59	1.7	19.50	0.12	0.006	2.4	1.34
89183	Rock	0.6	3.1	0.3	2.3	0.5	1.4	0.2	1.4	0.3	1.56	35.9	150.8	0.3	3.80	1.8	14.78	0.02	0.002	<0.3	0.07
89185	Rock	0.4	0.9	<0.1	0.6	<0.1	0.4	<0.1	0.6	<0.1	1.92	40.3	<0.1	0.3	4.57	<0.1	24.05	<0.01	<0.002	0.7	1.66
89186	Rock	0.5	1.9	0.2	1.9	0.5	1.6	0.3	2.0	0.3	2.71	13.6	83.9	0.3	5.43	3.5	17.33	0.02	0.002	<0.3	0.68
89197	Rock	1.1	3.2	0.5	3.0	0.7	1.8	0.3	1.5	0.2	0.65	13.1	18.3	0.3	4.44	3.3	18.61	0.05	0.003	1.8	2.40



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Bureau Veritas Commodities Canada Ltd.

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Client: Freeport-McMoran of Canada Ltd.

1409 - 409 Granville Street

Vancouver British Columbia V6C 1T2 Canada

Project: WCR

Report Date: November 18, 2017

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CERTIFICATE OF ANALYSIS

VAN17002205.1

Method	MA250
Analyte	Tl
Unit	ppm
MDL	0.05
233801	Rock 0.82
233802	Rock 0.43
233803	Rock 0.51
233804	Rock 0.43
233805	Rock 0.30
233806	Rock 0.68
233807	Rock 0.29
233808	Rock 0.23
233809	Rock 0.17
89179	Rock 0.62
89183	Rock 2.71
89185	Rock 0.13
89186	Rock 0.83
89197	Rock 0.34



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Project: WCR
Report Date: November 18, 2017

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QUALITY CONTROL REPORT

VAN17002205.1

Method	WGHT	FA330	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
Analyte	Wgt	Au	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Th	Sr	Cd	Sb	Bi	V	Ca		
Unit	kg	ppb	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm		
MDL	0.01	2	0.05	0.1	0.02	0.2	20	0.1	0.2	1	0.01	0.2	0.1	0.1	1	0.02	0.02	0.04	1	0.01		
Pulp Duplicates																						
233809	Rock	0.61	10	2.23	8.0	16.63	69.8	167	1.7	3.1	996	3.40	4.5	2.4	5.2	525	<0.02	0.71	0.65	135	1.19	
REP 233809	QC			2.07	7.2	16.03	69.9	179	1.6	2.9	996	3.43	4.8	2.5	5.5	552	<0.02	0.72	0.64	134	1.27	
Reference Materials																						
STD OREAS25A-4A	Standard			2.44	35.4	26.17	42.8	<20	50.1	8.8	538	6.93	10.3	3.0	16.8	55	<0.02	0.67	0.41	169	0.30	
STD OREAS45E	Standard			2.46	819.4	20.07	44.8	306	509.5	67.9	608	25.94	18.3	2.6	14.0	19	<0.02	1.09	0.35	346	0.07	
STD OXC145	Standard			199																		
STD OXC145	Standard			199																		
STD OXH139	Standard			1330																		
STD OREAS45E Expected				2.4	780	18.2	46.7	311	454	57	570	24.12	16.3	2.41	12.9	15.9	0.06	1	0.28	322	0.065	
STD OREAS25A-4A Expected				2.55	33.9	26.6	44.4	70	45.8	8.2	500	6.7	10.7	2.94	15.8	48.5		0.67	0.35	163	0.283	
STD OXC145 Expected				212																		
STD OXH139 Expected				1312																		
BLK	Blank			<2																		
BLK	Blank			<2																		
BLK	Blank			<0.05	0.2	0.04	<0.2	<20	<0.1	<0.2	1	<0.01	<0.2	<0.1	<0.1	<1	<0.02	<0.02	<0.04	<1	<0.01	
BLK	Blank			<2																		
BLK	Blank			3																		
Prep Wash																						
ROCK-VAN	Prep Blank			<2	1.16	5.7	3.02	42.8	<20	1.6	6.2	798	2.41	3.2	1.3	2.8	250	<0.02	0.25	0.07	43	2.03
ROCK-VAN	Prep Blank			<2	1.56	6.9	2.90	42.0	<20	1.5	4.9	783	2.34	2.7	1.2	2.8	231	<0.02	0.22	0.06	43	1.86



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Project: WCR
Report Date: November 18, 2017

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QUALITY CONTROL REPORT

VAN17002205.1

Method	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
Analyte	P	La	Cr	Mg	Ba	Ti	Al	Na	K	W	Zr	Sn	Be	Sc	S	Y	Ce	Pr	Nd	Sm	
Unit	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	
MDL	0.001	0.1	1	0.01	1	0.001	0.01	0.001	0.01	0.1	0.2	0.1	1	0.1	0.04	0.1	0.02	0.1	0.1	0.1	
Pulp Duplicates																					
233809	Rock	0.098	19.1	5	1.01	447	0.386	8.39	5.237	0.68	1.1	48.3	1.1	2	10.4	0.34	15.8	38.03	4.7	18.5	4.1
REP 233809	QC	0.095	20.5	5	1.02	443	0.368	8.98	5.366	0.71	1.1	47.3	1.1	2	10.4	0.35	17.1	40.49	5.1	19.8	4.2
Reference Materials																					
STD OREAS25A-4A	Standard	0.052	25.4	120	0.34	157	0.968	9.91	0.154	0.52	1.8	158.2	4.2	1	12.3	0.04	11.8	52.35	5.4	18.9	3.5
STD OREAS45E	Standard	0.037	13.0	1084	0.16	277	0.543	7.37	0.059	0.34	1.1	94.7	1.6	<1	93.3	<0.04	8.8	26.70	2.7	9.9	2.1
STD OXC145	Standard																				
STD OXC145	Standard																				
STD OXH139	Standard																				
STD OREAS45E Expected		0.034	11	979	0.156	252	0.559	6.78	0.059	0.324	1.07	97	1.32		93	0.046	8.28	23.5	2.47	9.05	2.28
STD OREAS25A-4A Expected		0.0495	21.8	120	0.327	151	0.977	8.87	0.134	0.5	2	155	4.2	0.93	13.7	0.047	10.5	48.9	5.11	18.2	3.55
STD OXC145 Expected																					
STD OXH139 Expected																					
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.001	<0.1	<1	<0.01	<1	<0.001	<0.01	0.005	<0.01	<0.1	<0.2	0.2	<1	0.1	<0.04	<0.1	<0.02	<0.1	<0.1	<0.1
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
ROCK-VAN	Prep Blank	0.043	14.1	3	0.59	848	0.236	7.45	3.471	1.40	0.8	59.7	1.1	1	7.1	0.11	18.6	27.24	3.8	11.7	2.5
ROCK-VAN	Prep Blank	0.037	12.2	3	0.57	831	0.228	7.36	3.424	1.39	0.4	55.3	1.1	<1	7.1	0.08	17.0	23.52	2.8	10.3	2.1



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Project: WCR
Report Date: November 18, 2017

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QUALITY CONTROL REPORT

VAN17002205.1

Method	Analyte	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	MA250	
		Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Li	Rb	Ta	Nb	Cs	Ga	In	Re	Se	Te
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
MDL		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.02	0.1	0.1	0.1	0.04	0.1	0.02	0.01	0.002	0.3	0.05
Pulp Duplicates																					
233809	Rock	1.1	3.6	0.4	3.2	0.6	1.8	0.3	1.8	0.3	1.72	10.5	10.5	0.5	6.09	1.2	20.94	0.26	<0.002	0.6	0.75
REP 233809	QC	1.3	3.4	0.4	3.0	0.7	1.8	0.3	1.9	0.3	1.86	10.8	11.6	0.5	6.05	1.3	20.66	0.25	<0.002	0.6	0.73
Reference Materials																					
STD OREAS25A-4A	Standard	0.8	2.6	0.3	2.2	0.4	1.2	0.2	1.2	0.2	4.08	40.8	64.3	1.3	19.57	6.5	25.72	0.09	<0.002	3.1	<0.05
STD OREAS45E	Standard	0.5	2.0	0.3	1.9	0.4	1.2	0.2	1.3	0.2	2.89	7.3	23.4	0.5	6.24	1.3	17.46	0.11	<0.002	3.9	0.15
STD OXC145	Standard																				
STD OXC145	Standard																				
STD OXH139	Standard																				
STD OREAS45E Expected		0.52	1.82	0.33	2.05	0.38	1.2	0.17	1.21	0.175	3.11	6.58	21.2	0.54	6.8	1.26	16.5	0.099		2.97	0.1
STD OREAS25A-4A Expected		0.69	2.68	0.34	2.25	0.43	1.23	0.19	1.3	0.2	4.28	36.7	61	1.5	20.9	6	25.9	0.09		2.5	
STD OXC145 Expected																					
STD OXH139 Expected																					
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.04	<0.1	<0.02	<0.01	<0.002	<0.3	<0.05
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
ROCK-VAN	Prep Blank	0.7	3.0	0.8	2.8	0.6	1.9	0.3	2.1	0.3	1.76	2.1	27.8	0.4	6.02	0.4	14.51	0.05	<0.002	<0.3	0.17
ROCK-VAN	Prep Blank	0.6	3.2	0.4	2.3	0.6	1.9	0.3	1.8	0.3	1.77	2.6	25.0	0.4	5.42	0.4	14.20	0.03	<0.002	0.3	0.12



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Project: WCR
Report Date: November 18, 2017

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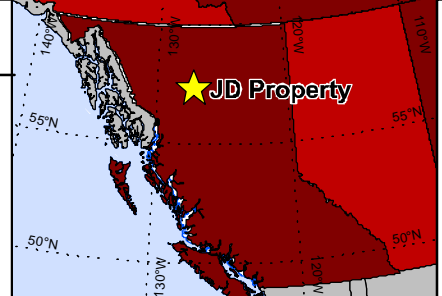
QUALITY CONTROL REPORT

VAN17002205.1

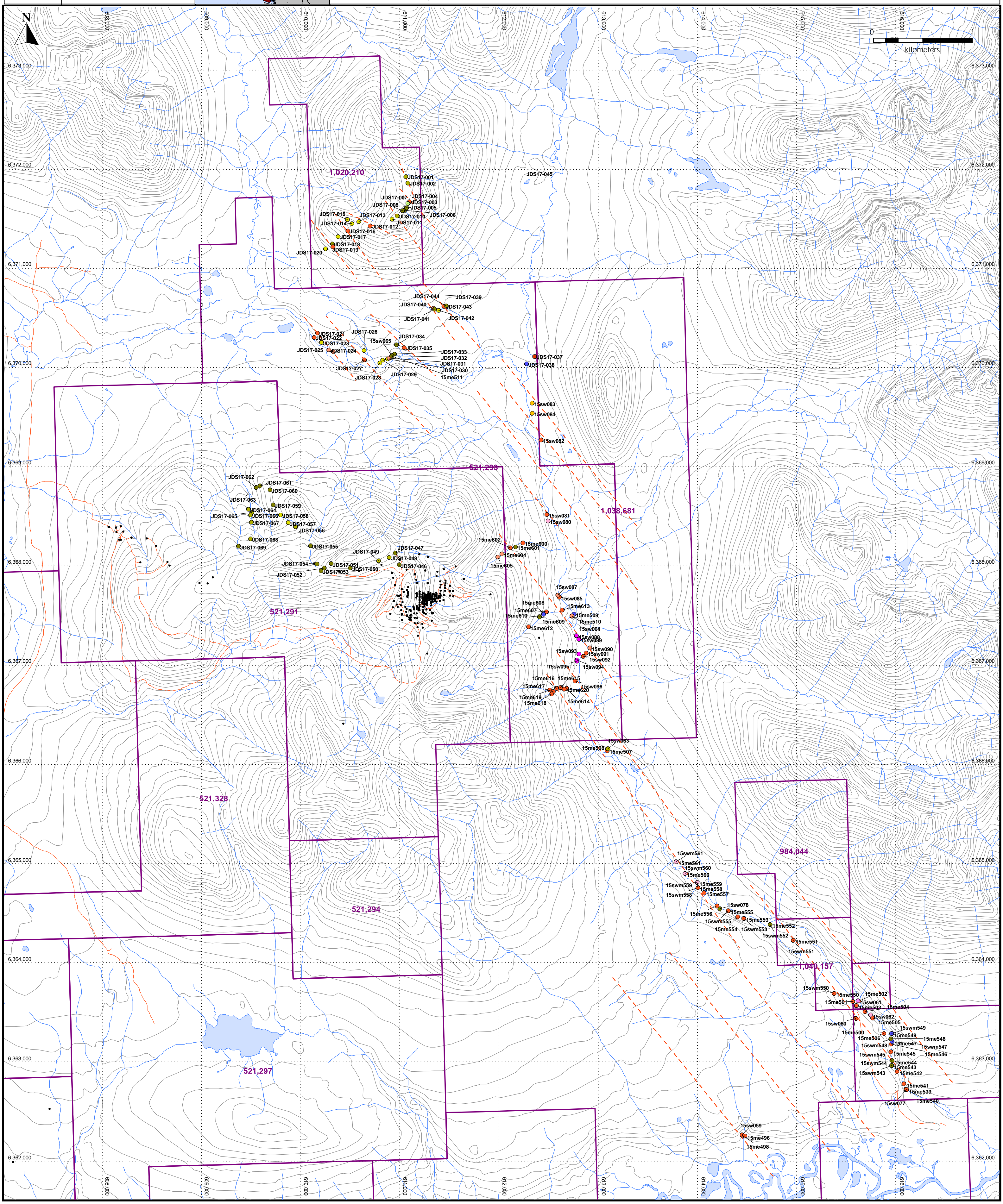
Method	MA250	
Analyte	Tl	
Unit	ppm	
MDL	0.05	
Pulp Duplicates		
233809	Rock	0.17
REP 233809	QC	0.16
Reference Materials		
STD OREAS25A-4A	Standard	0.38
STD OREAS45E	Standard	0.16
STD OXC145	Standard	
STD OXC145	Standard	
STD OXH139	Standard	
STD OREAS45E Expected		0.09
STD OREAS25A-4A Expected		0.35
STD OXC145 Expected		
STD OXH139 Expected		
BLK	Blank	
BLK	Blank	
BLK	Blank	<0.05
BLK	Blank	
BLK	Blank	
Prep Wash		
ROCK-VAN	Prep Blank	0.15
ROCK-VAN	Prep Blank	0.14

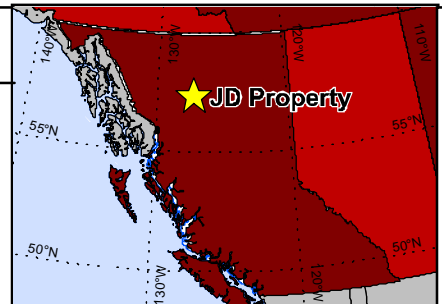
APPENDIX 5

Maps

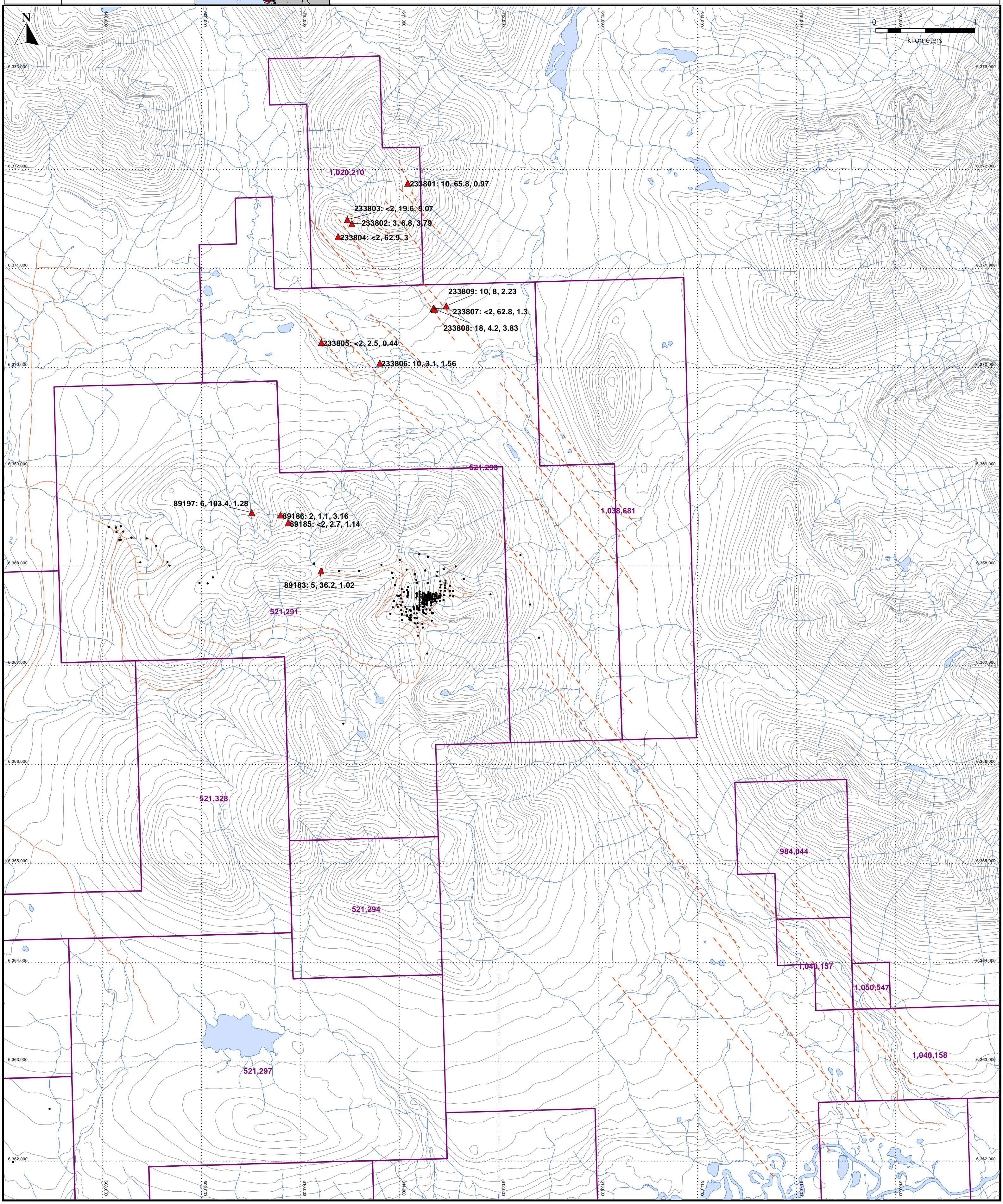


Symbols Line Watercourses Waterbodies Drill collar JD claims	Structures Vein Alt. Zone Dyke Shear zone Bedding	Geology Points ksp porphyry mz fp monzonite diorite hbl syenite qtz monzodiorite silica andesite andesite tuff andesite volcanic bx andesite xl tuff dacite xl tuff siltstone augite basalt	Late monzonite dykes
--	---	---	----------------------





- Symbols**
- Roads
 - Watercourses
 - Waterbodies
 - Drill collar
 - JD claims
 - Elevation Contour (100 ft)
 - Late monzonite dykes
 - Rock Sample (sample_rock_assays_2017: Au (ppb), Cu (ppm), Mo (ppm))



APPENDIX 6

Statement of Work Confirmation

Mineral Titles Online

Mineral Claim Exploration and Development Work/Expiry Date Change

Confirmation

Recorder: FREEPORT-MCMORAN MINERAL
 PROPERTIES CANADA
 INC. (284568)
Recorded: 2017/NOV/22
D/E Date: 2017/NOV/22

Submitter: FREEPORT-MCMORAN MINERAL
 PROPERTIES CANADA
 INC. (284568)
Effective: 2017/NOV/22

Confirmation

If you have not yet submitted your report for this work program, your technical work report is due in 90 days. The Exploration and Development Work/Expiry Date Change event number is required with your report submission. **Please attach a copy of this confirmation page to your report.** Contact Mineral Titles Branch for more information.

Event Number: 5675142

Work Type: Technical Work
Technical Items: Geological, Geophysical

Work Start Date: 2017/SEP/13
Work Stop Date: 2017/OCT/03
Total Value of Work: \$ 306982.42
Mine Permit No: MX-13-290

Summary of the work value:

Title Number	Claim Name/Property	Issue Date	Good To Date	New Good To Date	# of Days Forward	Area in Ha	Applied Work Value	Submission Fee
521291		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	1393.40	\$ 0.00	\$ 0.00
521293		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	922.82	\$ 0.00	\$ 0.00
521294		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	209.18	\$ 0.00	\$ 0.00
521295		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	365.67	\$ 0.00	\$ 0.00
521296		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	1045.43	\$ 0.00	\$ 0.00
521297		2005/OCT/17	2023/NOV/15	2023/NOV/15	0	837.01	\$ 0.00	\$ 0.00
521321		2005/OCT/18	2023/NOV/15	2023/NOV/15	0	208.97	\$ 0.00	\$ 0.00
521328		2005/OCT/19	2023/NOV/15	2023/NOV/15	0	592.54	\$ 0.00	\$ 0.00
897129	MOOSEHORN 1	2011/SEP/13	2020/NOV/15	2023/NOV/15	1095	418.44	\$ 25102.33	\$ 0.00
897149	MOOSEHORN 2	2011/SEP/13	2020/NOV/15	2023/NOV/15	1095	418.58	\$ 25110.70	\$ 0.00
897169	MOOSEHORN 3	2011/SEP/13	2020/NOV/15	2023/NOV/15	1095	436.00	\$ 26155.84	\$ 0.00
897170	MOOSEHORN 4	2011/SEP/13	2020/NOV/15	2023/NOV/15	1095	436.13	\$ 26163.70	\$ 0.00
897171	MOOSEHORN 5	2011/SEP/13	2020/NOV/15	2023/NOV/15	1095	69.79	\$ 4186.50	\$ 0.00
904869	JD NW 1	2011/OCT/05	2020/NOV/15	2023/NOV/15	1095	348.02	\$ 20878.84	\$ 0.00
947451	JD ACCESS 5	2012/FEB/09	2019/JUL/04	2023/NOV/15	1595	69.76	\$ 6093.44	\$ 0.00
984044		2012/MAY/06	2018/JUL/04	2022/NOV/15	1595	139.44	\$ 11594.36	\$ 0.00
1010726		2012/JUL/04	2018/JUL/04	2022/NOV/15	1595	418.93	\$ 34495.55	\$ 0.00
1020210		2013/JUN/10	2018/JUL/04	2022/NOV/15	1595	243.60	\$ 18920.79	\$ 0.00
1038681		2015/SEP/19	2017/NOV/25	2022/NOV/15	1816	487.57	\$ 27891.68	\$ 0.00
1040157		2015/NOV/25	2017/NOV/25	2022/NOV/15	1816	52.30	\$ 2855.23	\$ 0.00
1040158		2015/NOV/25	2017/NOV/25	2022/NOV/15	1816	139.52	\$ 7616.05	\$ 0.00
1043967		2012/FEB/09	2019/JUL/04	2023/NOV/15	1595	157.01	\$ 13713.69	\$ 0.00
1043968		2011/JUL/23	2023/NOV/15	2023/NOV/15	0	401.28	\$ 0.00	\$ 0.00
1043971		2012/JUL/04	2018/JUL/04	2022/NOV/15	1595	69.84	\$ 5750.62	\$ 0.00
1043973		2012/JUL/04	2018/JUL/04	2022/NOV/15	1595	244.40	\$ 20124.85	\$ 0.00
1043975		2012/JUL/04	2018/JUL/04	2022/NOV/15	1595	348.93	\$ 28731.73	\$ 0.00
1050547		2017/MAR/04	2018/MAR/04	2022/NOV/15	1717	17.44	\$ 706.53	\$ 0.00

Financial Summary:

Total applied work value: \$ 306092.43

PAC name: Thomas Cameron Scott
Debited PAC amount: \$ 0.0
Credited PAC amount: \$ 889.99

Total Submission Fees: \$ 0.0

Total Paid: **\$ 0.0**

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The event was successfully saved.

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