

Stu 2019 Geophysics – IP Survey Field Report

115/I07 Yukon, Canada

WORK PERFORMED:
August 23 – September 11, 2019

Prepared for:



Prepared by:



Field Report
Stu 2019 Geophysics – IP Survey

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1 SUMMARY

This report describes the DC resistivity-induced polarization (IP) survey conducted for Granite Creek Copper Ltd. on the Stu Property north of Carmacks, Yukon. The survey consisted of seven 2D IP lines totalling 23.9 line-km.

Aurora Geosciences Ltd. completed the work in a single deployment from August 23rd to September 11th, 2019. The crew stayed in Copper North's Carmacks Copper camp a few kilometers south of the IP lines. Daily access to the grid was by truck and ATV. Vision Quest Exploration line cutters were also at the camp from August 23rd when the Aurora crew arrived until September 1st. A small forest fire approximately 100 metres from the access road to camp forced a temporary evacuation on September 8th but the Carmacks branch of Yukon Government's wildland fires department neutralized the danger immediately and the crew returned to work after a single night in Carmacks.

A full survey log is attached to this report as Appendix I.

2 CREW AND EQUIPMENT

The personnel who conducted the survey are detailed in Table 1.

Table 1: Crew detail.

Crew Member	Job Role	Dates on Site
Dave Hildes	Onsite Project Manager	Aug 23 – Sep 11, 2018
Nicholas McKay	Technican	Aug 23 – Sep 11, 2018
Vince Van Delft	Technician	Aug 23 – Sep 11, 2018
Adam Bouchama	Technician	Aug 23 – Sep 11, 2018
Rupert Dook	Technician	Aug 23 – Sep 11, 2018
Liam Fowlie	Delivery Driver / Truck Rescue	Aug 23, Sep 11,16 & 17, 2019
Casey Chouinard	Truck Rescue	Sep 16 & 17, 2019

The crew was equipped with instruments and equipment as detailed in Table 2.

Table 2: Instrument and equipment detail.

Equipment	Model	Serial Numbers
IP receivers	1 X Iris Elrec Pro	2315-2758300063-165
	1 X GDD GRx24	1312
IP transmitters	2 X GDD 3.6kW TxII	267 & 438
Non-differential handheld GPS	5 X Garmin 64 or 62 CSX + 2 backups	
Handheld radios	5 X iCom handheld	

	1 X Base
Communication	1 X Iridium Sat phone 2 X InReach
IP equipment	60 X 50 m cables 2 X Honda 5 kW generators Misc. IP equipment
Office equipment	2 X Laptops with Geosoft Office box including repair kit & bear deterrents
Vehicles	1 X Truck (4X4) 2 X 2 person ATVs with trailers 1 X single person ATV (backup)

3 SURVEY LOCATION

Granite Creek Copper's Stu Property is located approximately 47 km northwest of the village of Carmacks, YT. Access is via 34 km on the government maintained (gravel) Freegold Road and then 14 km along the privately maintained access road to Copper North's Carmacks Project. The crew stayed at the Copper North camp on Williams Creek and commuted the 3-4 km daily to the Stu 2019 IP survey lines, shown in [Figure 1](#), by truck. The old Gran/Zone 3 access road is currently accessible by ATV from the main road to just beyond L96.

Lines were cut by an independent contractor and deviated significantly from the planned locations, often by more than 100 metres. In general the IP crew used the lines as provided despite the location errors and made every effort to keep stations as close to their projected locations as possible. The one exception was the southwest end of L108 where the cut line deviated to such an extent that it crossed L106 from the BC Gold 2008 IP survey and remained in between L106 and L104. The old BC Gold lines are shown in [Figure 1](#) by lighter weight than the 2019 IP lines. As IP data had already been collected in this area, the crew decided to pick up the equipment already laid out and instead leave the cut line at station 12500 to angle back to the planned line location. The line cutters did recut some of the southwest end of L108 but in general L108 from station 10500 to 12500 as shown in [Figure 1](#) is not cut.

The planned lines are at an azimuth of 038, designed to complement the lines surveyed for BC Gold in 2008. With permission from Copper North, the lines extend beyond the Stu claim boundary onto Copper North's property to enable full depth imaging on the Stu.

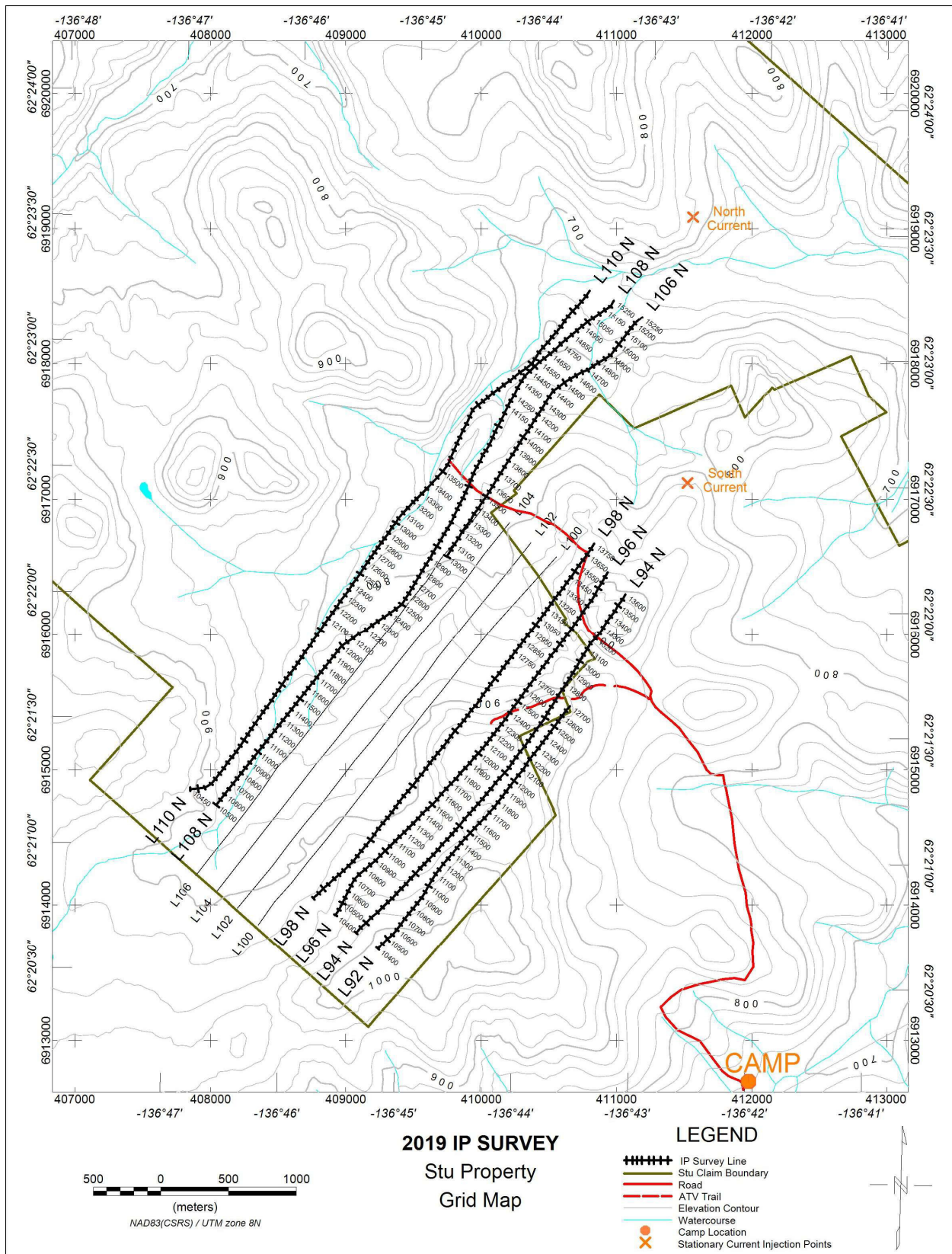


Figure 1: Survey Location and Road Access.

4 SURVEY SPECIFICATIONS

The IP-resistivity survey was conducted according to specifications detailed in Table 3.

Table 3: IP-resistivity survey specifications.

Array	Poly-pole array with 6 X 50 m, 4 X 100 m, 2 X 150 m. Total spread length is 1000 metres. The roving current is always 50 m away from the first receiving electrode and moves are 50 m.		
Dipole spacing	50, 100 & 150 metres.		
Line spacing	200 metres (nominal).		
Registration	Navigation and station locations by non-differential GPS on cut lines. NAD83, UTM Zone 8N coordinates were used. No station markings in the field were used.		
Current locations	Roving current inline and 50 m northeast of potential spread. Current moves are in 50 m increments. Stationary current electrodes as follows:		
	Lines	UTM Zone 8 Easting	UTM Zone 8 Northing
	110, 108 & 106	411565	6919088
	98, 96, 94 & 92	411525	6917122
Tx	Time domain, 50% duty cycle, reversing polarity, 0.125 Hz.		
Rx windows	20 channels, semi-log scheme. Time delay of 40 ms. 7 channels of 40 ms, 7 channels of 80 ms and 6 channels of 160 ms.		
Stacks	Minimum 15, more as required dependent on noise.		
Repeated Stations	Taken at the discretion of the field operator to balance confidence and productivity.		

5 DATA PROCESSING

Resistivity-IP and GPS data were downloaded nightly from the receiver and handheld GPSes and archived. Data were imported into the Geosoft Oasis Montaj IP package, inspected and poor quality readings or those which did not repeat rejected from the database. The apparent resistivity is recalculated using a four-electrode equation assuming a homogeneous earth and georeferenced coordinates. The apparent resistivity and total chargeability are averaged for repeated stations.

The data quality is very high for most areas. L106 was surveyed on days where thunderstorm activity was high and data are noisier on this line, presumably from spherics.

As the cut lines were in general not close to the planned locations, every station was recorded using handheld non-differential GPS units. The arctic 2 metre DEM from the Polar Geospatial Center at the University of Minnesota¹ is used where these data exist and is supplemented by NRCAN Canvec data elsewhere. These products were knitted into a single DEM covering the survey area and all station elevations are determined from this.

Data are presented as pseudosections in Appendix II. Individual lines have linear (chargeability) and log (resistivity) colour schemes specific to that line. Stacked sections share a common linear (chargeability) and log (resistivity) colour scheme for all lines.

Both QA/QC databases, where all data appear and final databases where only the accepted, averaged data appear are appended to this report and have channels as described in Table 4. Databases are provided in Geosoft database and ASCII formats.

Table 4: List and description of channels in IP-resistivity databases.

Channel Name	Description
X	Local coordinate plot point - Station
Y	Local coordinate plot point - Line
Z	Local coordinate plot point - Depth
T1Y	Local coordinate of T1 (roving current electrode)
T2Y	Local coordinate (or designated coordinate) of T2 (stationary current electrode)
R1Y	Local coordinate of R1 - potential electrode closest to T1
R2Y	Local coordinate of R2 - potential electrode further from T1
Vp_raw	Primary voltage as measured 1260 into the on-time window (mV)
Vp	Primary voltage, with sign correction if required (mV)
I	Transmitter current (A)
Sp	Spontaneous potential (mV)
Contact	Contact resistance of potential electrodes (kOhm)
Stack	Number of transmitter cycles measured during the course of the reading
Date	Date of data acquisition
Hour	Time of data acquisition
QC_IP	Quality control for chargeability
QC_RES	Quality control for resistivity
IP_Avg	Calculated average chargeability (mV/V)
ErrM	Standard deviation of the average chargeability during the reading (mV/V)
ErrVp	Standard deviation of the primary voltage during the reading (mV/V)
IP[0]	Normalized voltage measurement in the 40-80 ms offtime window (mV/V)
IP[1]	Normalized voltage measurement in the 80-120 ms offtime window (mV/V)

¹ Porter, Claire; Morin, Paul; Howat, Ian; Noh, Myoung-Jon; Bates, Brian; Peterman, Kenneth; Keeseey, Scott; Schlenk, Matthew; Gardiner, Judith; Tomko, Karen; Willis, Michael; Kelleher, Cole; Cloutier, Michael; Husby, Eric; Foga, Steven; Nakamura, Hitomi; Platson, Melisa; Wethington, Michael, Jr.; Williamson, Cathleen; Bauer, Gregory; Enos, Jeremy; Arnold, Galen; Kramer, William; Becker, Peter; Doshi, Abhijit; D'Souza, Cristelle; Cummins, Pat; Laurier, Fabien; Bojesen, Mikkel, 2018, "ArcticDEM", <https://doi.org/10.7910/DVN/OHHUKH>, Harvard Dataverse, V1, 2019-08-02

IP[2]	Normalized voltage measurement in the 120-160 ms offtime window (mV/V)
IP[3]	Normalized voltage measurement in the 160-200 ms offtime window (mV/V)
IP[4]	Normalized Voltage measurement in the 200-240 ms offtime window (mV/V)
IP[5]	Normalized Voltage measurement in the 240-280 ms offtime window (mV/V)
IP[6]	Normalized Voltage measurement in the 280-360 ms offtime window (mV/V)
IP[7]	Normalized Voltage measurement in the 360-440 ms offtime window (mV/V)
IP[8]	Normalized Voltage measurement in the 440-520 ms offtime window (mV/V)
IP[9]	Normalized Voltage measurement in the 520-600 ms offtime window (mV/V)
IP[10]	Normalized Voltage measurement in the 600-680 ms offtime window (mV/V)
IP[11]	Normalized Voltage measurement in the 680-760 ms offtime window (mV/V)
IP[12]	Normalized Voltage measurement in the 760-840 ms offtime window (mV/V)
IP[13]	Normalized Voltage measurement in the 840-1000 ms offtime window (mV/V)
IP[14]	Normalized Voltage measurement in the 1000-1160 ms offtime window (mV/V)
IP[15]	Normalized Voltage measurement in the 1160-1320 ms offtime window (mV/V)
IP[16]	Normalized Voltage measurement in the 1320-1480 ms offtime window (mV/V)
IP[17]	Normalized Voltage measurement in the 1480-1640 ms offtime window (mV/V)
IP[18]	Normalized Voltage measurement in the 1640-1800 ms offtime window (mV/V)
IP[19]	Normalized Voltage measurement in the 1800-1960 ms offtime window (mV/V)
IP_Mask[0]	Geosoft mask value in the 40-80 ms offtime window (mV/V)
IP_Mask[1]	Geosoft mask value in the 80-120 ms offtime window (mV/V)
IP_Mask[2]	Geosoft mask value in the 120-160 ms offtime window (mV/V)
IP_Mask[3]	Geosoft mask value in the 160-200 ms offtime window (mV/V)
IP_Mask[4]	Geosoft mask value in the 200-240 ms offtime window (mV/V)
IP_Mask[5]	Geosoft mask value in the 240-280 ms offtime window (mV/V)
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IP_Mask[8]	Geosoft mask value in the 440-520 ms offtime window (mV/V)
IP_Mask[9]	Geosoft mask value in the 520-600 ms offtime window (mV/V)
IP_Mask[10]	Geosoft mask value in the 600-680 ms offtime window (mV/V)
IP_Mask[11]	Geosoft mask value in the 680-760 ms offtime window (mV/V)
IP_Mask[12]	Geosoft mask value in the 760-840 ms offtime window (mV/V)
IP_Mask[13]	Geosoft mask value in the 840-1000 ms offtime window (mV/V)
IP_Mask[14]	Geosoft mask value in the 1000-1160 ms offtime window (mV/V)
IP_Mask[15]	Geosoft mask value in the 1160-1320 ms offtime window (mV/V)
IP_Mask[16]	Geosoft mask value in the 1320-1480 ms offtime window (mV/V)
IP_Mask[17]	Geosoft mask value in the 1480-1640 ms offtime window (mV/V)
IP_Mask[18]	Geosoft mask value in the 1640-1800 ms offtime window (mV/V)
IP_Mask[19]	Geosoft mask value in the 1800-1960 ms offtime window (mV/V)
calcAppRes	Resistivity calculated using four electrode equation.
T1_UTME	UTM Zone 8N NAD83 Easting of T1
T1_UTMN	UTM Zone 8N NAD83 Northing of T1
T1_Z	Elevation of T1
T2_UTME	UTM Zone 8N NAD83 Easting of T2

T2_UTMN	UTM Zone 8N NAD83 Northing of T2
T2_Z	Elevation of T2
R1_UTME	UTM Zone 8N NAD83 Easting of R1
R1_UTMN	UTM Zone 8N NAD83 Northing of R1
R1_Z	Elevation of R1
R2_UTME	UTM Zone 8N NAD83 Easting of R2
R2_UTMN	UTM Zone 8N NAD83 Northing of R2
R2_Z	Elevation of R2
Line	Local Coordinate - Line
Stn	Local Coordinate - Station
Stn_UTME	UTM Zone 8N NAD83 Easting of Stn
Stn_UTMN	UTM Zone 8N NAD83 Northing of Stn
Topo	Surface elevation of Stn
Type	Geosoft indicator of averaged or unaveraged reading
Time	Length of the reading window
IP_Index	Necessary channel for Geosoft Database
ResCalc	Apparent resistivity calculated by Geosoft (without correction for proximal infinite) (Ohm*m)
M	Average chargeability calculated by the receiver
MF	Calculated Metal Factor
N	The dipole number in the array (calculated in geosoft)
Gfact	Calculated geometric factor based on 4 electrode equation
Final_IP	Final averaged chargeability
Final_Res	Final averaged resistivity
AppRes	Calculated apparent resistivity using georeferenced station locations

6 PRODUCTS

The following are attached to the digital version of this report.

<u>Folder / File</u>	<u>Description of Contents</u>
<i>GCX-20190919-Stu_IP_Field_Report.pdf</i>	This report in PDF format.
Data\GeosoftGDB*.gdb	Processed final and QC databases in Geosoft format.
Data\ASCIIIDB*.xyz	Processed final and QC databases in ASCII format.
Figures\Geosoft Packed Maps*.map	Figures in Geosoft packed map format.

Figures\PDFs*.pdf

Figures in letter (8.5" X 11")
and tabloid (11" X 17") PDF format

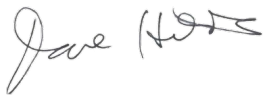
ShapeFiles*.shp

Selected ESRI shape files.

Raw\

Daily archive of instrument and gps dump
files.

Respectfully submitted,



Dave Hildes, P.Ge., Ph. D.

Project Manager, Geophysics

Aurora Geosciences Ltd.

Appendix I

Granite Creek Copper – Stu 2019 Geophysics Crew Log

Report Date 23-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather Nothing of note.

Logistics Comments Mobilization day - drove to camp with Liam bringing the ATVs. Liam didn't stick around, but returned immediately to Whitehorse after unloading.

Explored camp situation, unloaded truck, put away groceries, went through camp safety and orientation. Went up to the grid to have a look around, trail to Gran Zone is not passable, came up with alternate plan.

Production
Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	5
Total:	5	5

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp	1	1

Report Date 24-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Nothing of note
 Logistics Long toolbox meeting as we continued to go through start-of-job things. Set up for L108 and got a few
 Comments stations in. Back at 1845.
 Production L108. Production for project is in number of current injection points. Set up day.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	10
Total:	5	10

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	4	4
Total:	4	4

Report Date 25-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny with a light shower (15 minutes) in the afternoon. No effect on survey.
 Logistics Continued working on L108. Rodent chew in thorough the night slowed down the start of the day. Back just
 Comments after 1800.
 Production L108.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	15
Total:	5	15

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	35	31
Total:	35	31

Report Date 26-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather Sunny with light shower / hail. No effect on the survey.

Logistics Picked up and moved all the cables that had been laid out as decision was made to not keep to the cut line but rather bushwhack back to the intended line. Line cutters came and cut the the end of the line.

Comments Two current wire breaks during the night and two in the day.
 Read L108, SW of the road.
 Back at around 1845.

Production L108. Slow with all the cable reworking involved with not following the cut line.

Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	20
Total:	5	20

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	50	15
Total:	50	15

Report Date 27-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny, not too hot. No effect on production.
 Logistics Rodent chew through the night but other than that a good day, completed L108, 4.7 km of IP completed.
 Comments Worked late to finish the line. Back at 1900.
 Production L108. Cummulative production = 4.75 km.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	25
Total:	5	25

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	93	43
Total:	93	43

Report Date 28-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Nothing of note.
 Logistics Moved to L110, did some clean up on L108. Crew tired from yesterday, did an early day and back at 1700.
 Comments
 Production L110.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	30
Total:	5	30

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	93	
L110	19	19
Total:	112	19

Report Date 29-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Cloudy
 Logistics Continued on L110 and completed cleaning up L108. Had a good day.
 Comments
 Production L110.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	35
Total:	5	35

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	93	
L110	53	34
Total:	146	34

Report Date 30-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny.
 Logistics Completed L110 (9.4 km of IP completed), a good day. Noisy on the SW end of the line (some thundercloud activity?), lots of repeats. Late day, back at 1915.
 Comments
 Production L110. Cummulative production = 9.5 km.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	40
Total:	5	40

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L108	93	
L110	94	41
Total:	187	41

Report Date 31-Aug-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Nothing of note.
 Logistics Started surveying L106. Many breaks in the current wire, and had trouble with ATV getting stuck. Much
 Comments noiser than the previous lines have been (similar to the southern end of L110 surveyed late yesterday). Still
 clean up to do on L110.
 Production L106.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	45
Total:	5	45

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	18	18
L108	93	
L110	94	
Total:	205	18

Report Date 01-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather Nothing of note

Logistics Completed L106 - 11.6 km of IP completed. Still quite noisy. Finished the day with cleaning the NW part of the grid. Moved Tx equipment to new site by end of L98. Still have wire to clean up on L110 and L108.

Comments
 Line cutters completed the grid and left camp today.

Production L106. Cummulative production = 11.75 km.

Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	50
Total:	5	50

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	25
L108	93	
L110	94	
Total:	230	25

Report Date 02-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Mix of sun and cloud. Nothing to affect production
 Logistics Finished the clean up on the NW part of the grid (lines 110, 108 and 106). Moved transmitter and infinite to
 Comments new spot right by L98, will remain here for the rest of the job. Set up and read 700 metres on L98.
 Production L98.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	55
Total:	5	55

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L98	14	14
Total:	244	14

Report Date 03-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather Thunderstorm and rain (at times heavy) in the afternoon

Logistics Continued on L98. Broken current wire first thing in the morning. Had to stand down in the afternoon while waiting for a thunderstorm to pass. At the end of the day, had some bad readings ... wet cable problem?

Comments Three went into Carmacks to get more food and one drum of diesel.

Production L98. Open loops, thunderstorm.

Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	60
Total:	5	60

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L98	38	24
Total:	268	24

Report Date 04-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Mix of sun and cloud, thunderstorms in the afternoon.
 Logistics Longer day to complete L106, 15.35 km of IP completed. Had some cable issues in the morning and then
 Comments very bad noise with local thunderheads. Back at camp at 1900.
 Production L98. Cummulative production = 15.15 km.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	65
Total:	5	65

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L98	67	29
Total:	297	29

Report Date 05-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Mix of sun and cloud. Brief hail shower that made a few readings noisy.
 Logistics Started on L96. Some issues with a few wet(?) cable heads, took some time to troubleshoot. Cleaned L98 of
 Comments cables but still wire to spool up. Back at camp at 1730.
 Production L96.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	70
Total:	5	70

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L96	20	20
L98	67	
Total:	317	20

Report Date 06-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Nothing of note.
 Logistics A good day, worked late to finish L96, now 18.6 km of IP completed. Finished cleaning up L98 and
 Comments positioned cables on L94. While positioning cables discovered that L94 and L92 are quite close together.
 Production L96. Cummulative production = 18.4 km. A good day - quiet noise.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	75
Total:	5	75

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L96	63	43
L98	67	
Total:	360	43

Report Date 07-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny, windy, not too hot.
 Logistics Set up and started reading on L94. Cleaned some of the cables off L96 and started to lay out on L92.
 Comments No major issues, a good day.
 Production L94.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	80
Total:	5	80

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L94	28	28
L96	63	
L98	67	
Total:	388	28

Report Date 08-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny, warm.
 Logistics A good day, completed L94 (20.3 km of IP surveyed) and started L92. Some clean up on L96 but still wire on
 Comments that line.

On the way back to camp noticed smoke - after further investigation discovered a forest fire 3.8 km south of camp, 100 metres away from access road. Decided to evacuate camp and drove to Carmacks.

Production L94 & L92
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	85
Total:	5	85

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L94	71	43
L96	63	
L98	67	
Total:	431	43

Report Date 09-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Sunny and warm
 Logistics Went to talk to wildland fire as soon as they opened and they assured us we could go back to working and
 Comments that they would take care of the fire.

Noon by the time we got back to camp but had a very long day to complete L92. Arrived back in camp at 2100.

Production L92. Cummulative production = 23.9 km.
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	90
Total:	5	90

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L92	36	36
L94	71	
L96	63	
L98	67	
Total:	467	36

Report Date 10-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes
 Weather Mix of sun and cloud, some showers in the evening.
 Logistics 0930 toolbox meeting - late start to recuperate after late nights last few days. Cleaned up everything off the
 Comments lines.

Truck got very very stuck after taking a wrong turn and crew spent hours trying to free it. No success so gave up around 2000 and went back to camp. Hopefully when the delivery truck comes to pick up the quads tomorrow it can tow us out. Driver knows situation and will bring the big truck with chains.

Production None - clean up day
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	95
Total:	5	95

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		1

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L92	36	
L94	71	
L96	63	
L98	67	
Total:	467	

Report Date 11-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather Nothing of note.

Logistics Demobilization day - spent the morning cleaning and packing up camp.

Comments

Delivery truck arrived as well as Kluane personnel to close up camp. Both trucks and big winch that Kluane brought went to attempt rescue of stuck truck but no success. Between the two trucks there were enough seats and towing to capacity to demobilize entire crew and all gear other than the stuck truck. Arrived back in Whitehorse at 2230.

Aurora truck is still at the property.

Production
 Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel	5	100
Total:	5	100

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp	1	2

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L92	36	
L94	71	
L96	63	
L98	67	
Total:	467	

Report Date 16-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather

Logistics Comments Truck rescue crew went to site with Kluane drilling and a D300. Truck extraction was successful and crew drove back to Carmacks. Arrived late, truck stuck in 4-low.

Production Comments

Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel		100
Total:		100

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		2

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L92	36	
L94	71	
L96	63	
L98	67	
Total:	467	

Report Date 17-Sep-19 Prepared on 18-Sep-19 Prepared By Dave Hildes

Weather

Logistics Resolved the 4-low problem by cleaning away more of the mud and truck rescue crew returned to
 Comments Whitehorse.

Production
 Comments

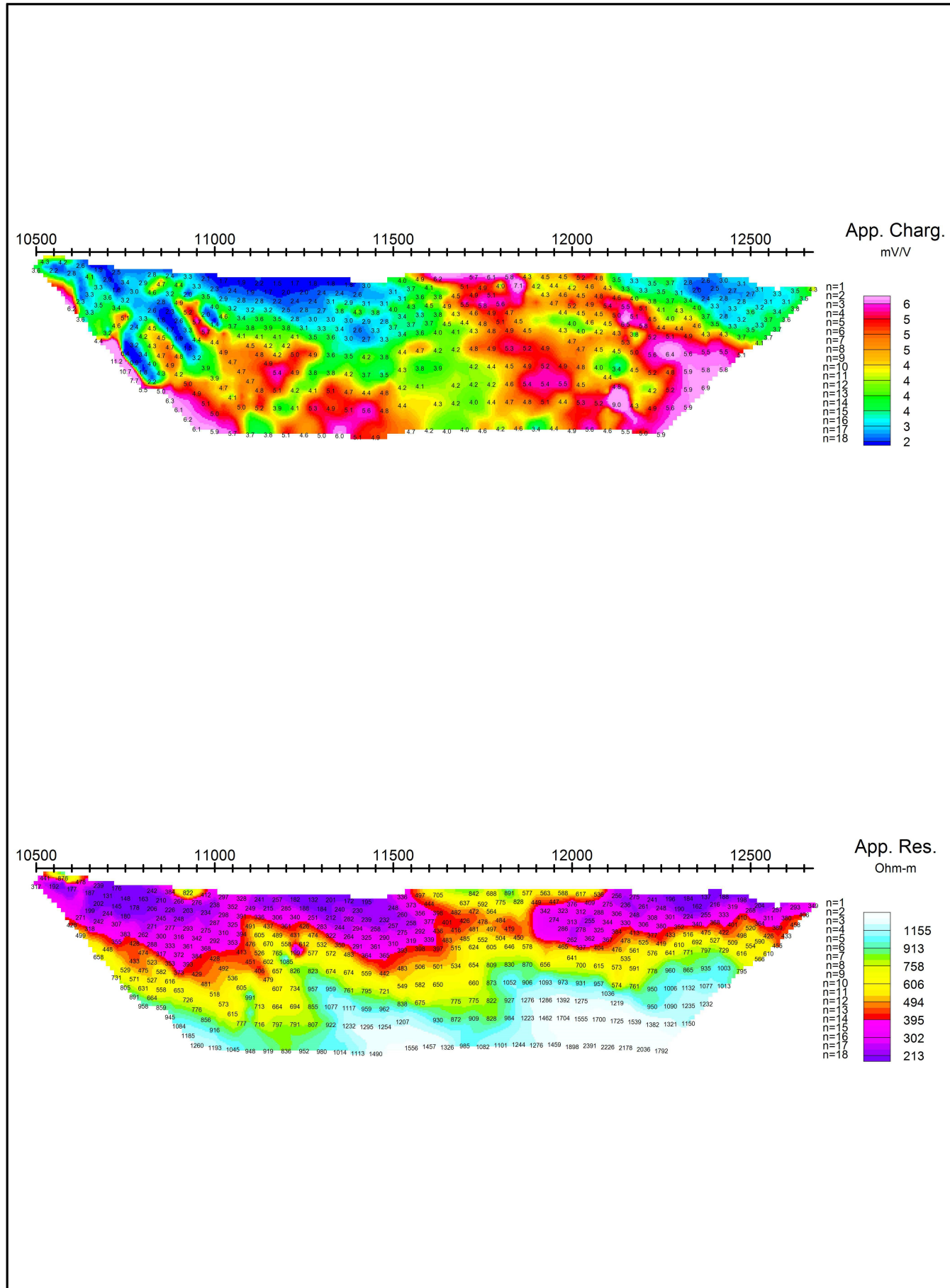
Personnel		
Type of Personnel	Qty in Camp Today	Total Person Days
Geophysics Personnel		100
Total:		100

Transport		
Transport Type	Trips Today	Trips Total
Hotshot Whitehorse to camp		2

Geophysics Production		
Grid Name	Total Production	Todays Production
IP Survey	Current injection points	Current injection points
L106	43	
L108	93	
L110	94	
L92	36	
L94	71	
L96	63	
L98	67	
Total:	467	

Appendix II

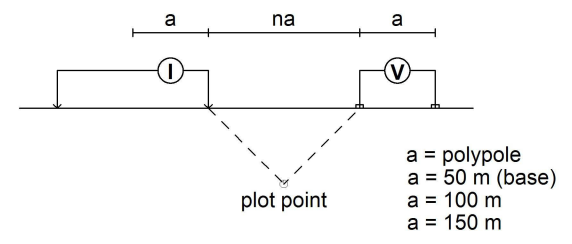
Granite Creek Copper – Stu 2019 Pseudosection Plots



PSEUDOSECTION PLOTS L92

APPARENT CHARGEABILITY & RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L96, 14500 (moving W)

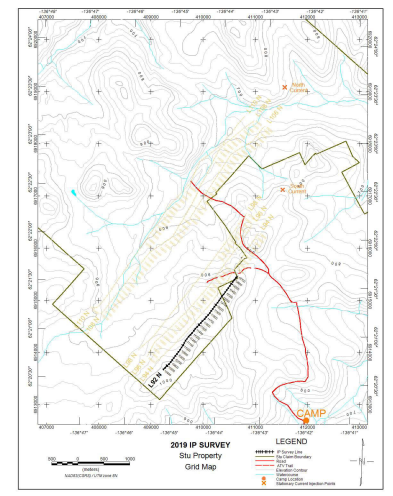
Receiver: GDD 24 channel

Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles

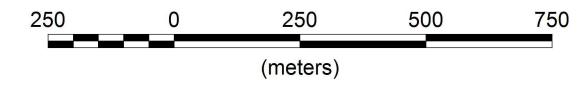
Transmitter: 2 X GDD Tx-II 3.6kW

Data File: GCX-20190919-Stu_IP.gdb

Dates Surveyed : Aug-Sept 2019



Scale 1:15000

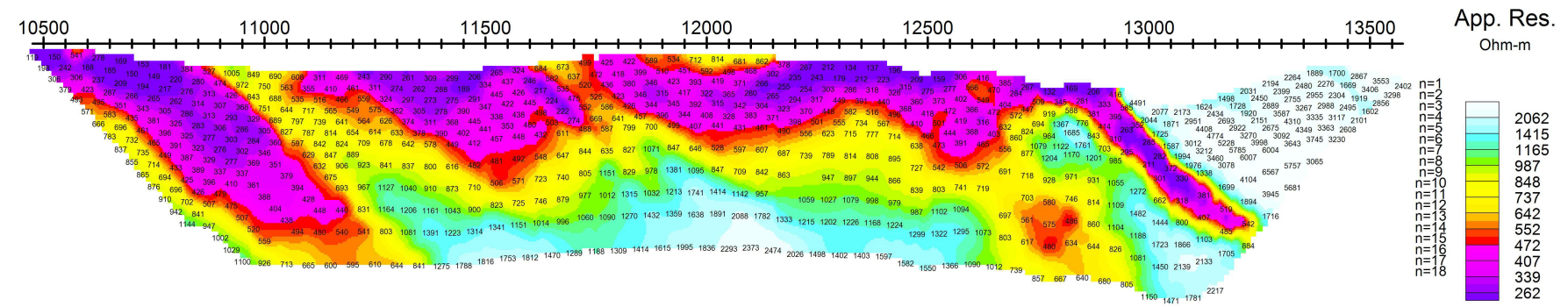
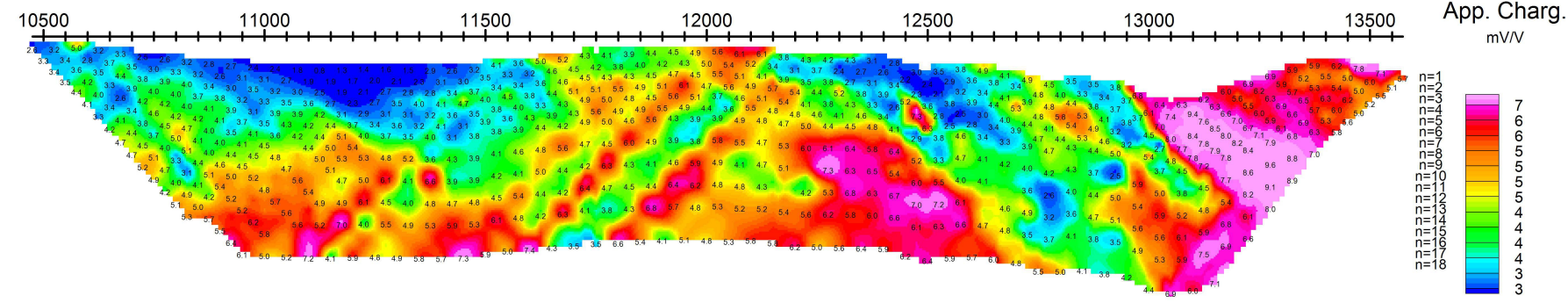


GRANITE CREEK COPPER LTD.

INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L92

Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

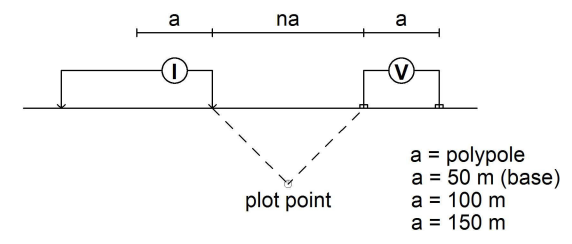
AURORA GEOSCIENCES LTD.



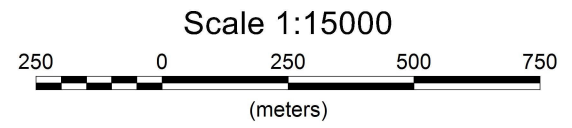
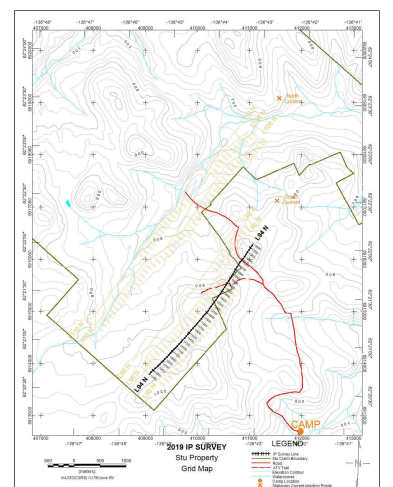
PSEUDOSECTION PLOTS L94

APPARENT CHARGEABILITY & RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L96, 14500 (moving W)
Receiver: GDD 24 channel
Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
Transmitter: 2 X GDD Tx-II 3.6kW
Data File: GCX-20190919-Stu_IP.gdb
Dates Surveyed : Aug-Sept 2019



GRANITE CREEK COPPER LTD.

INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L94

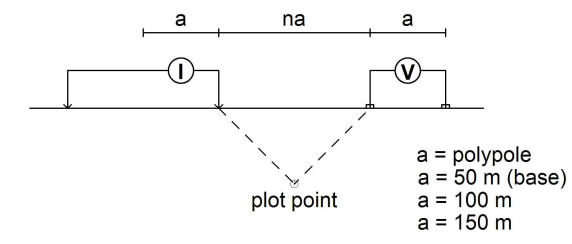
Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

AURORA GEOSCIENCES LTD.

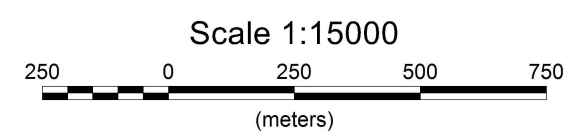
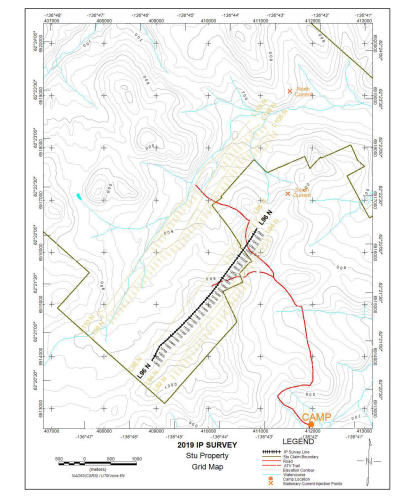
PSEUDOSECTION PLOTS L96

APPARENT CHARGEABILITY & RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L96, 14500 (moving W)
 Receiver: GDD 24 channel
 Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
 Transmitter: 2 X GDD Tx-II 3.6kW
 Data File: GCX-20190919-Stu_IP.gdb
 Dates Surveyed : Aug-Sept 2019

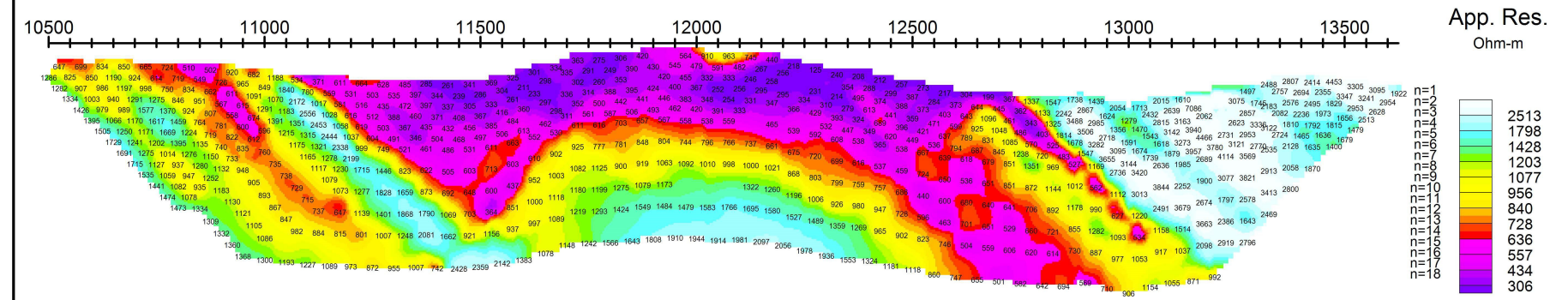
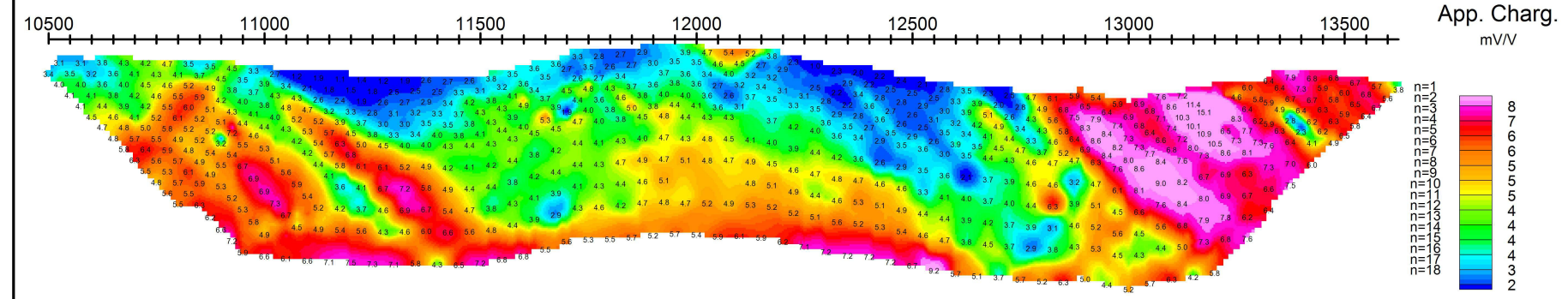


GRANITE CREEK COPPER LTD.

**INDUCED POLARIZATION SURVEY
 STU PROPERTY
 PSEUDOSECTION PLOTS L96**

Mining District: Whitehorse NTS: 115 I/07
 Date: Sept 19, 2019 Job: GCX-19072-YT

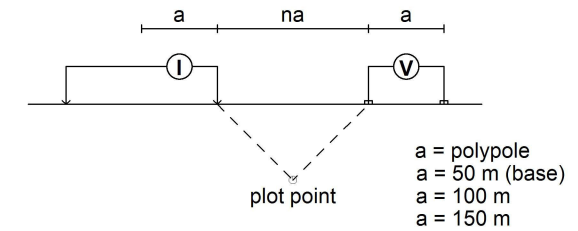
AURORA GEOSCIENCES LTD.



PSEUDOSECTION PLOTS L98

APPARENT CHARGEABILITY & RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L96, 14500 (moving W)

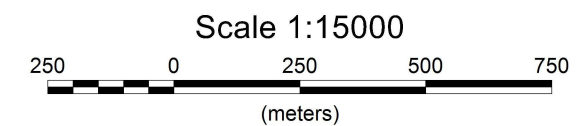
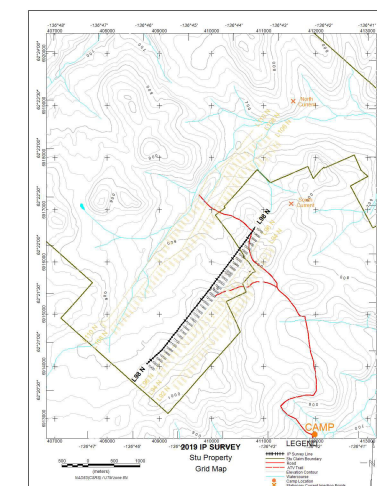
Receiver: GDD 24 channel

Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles

Transmitter: 2 X GDD Tx-II 3.6kW

Data File: GCX-20190919-Stu_IP.gdb

Dates Surveyed : Aug-Sept 2019



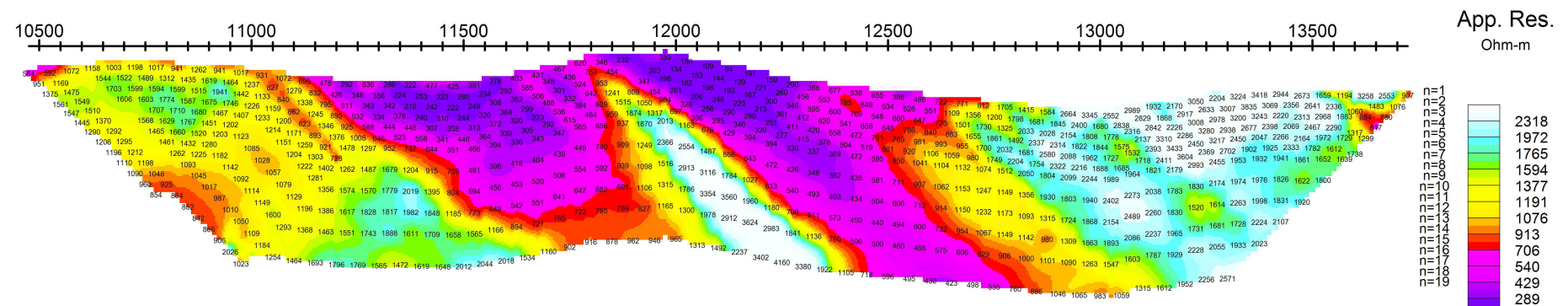
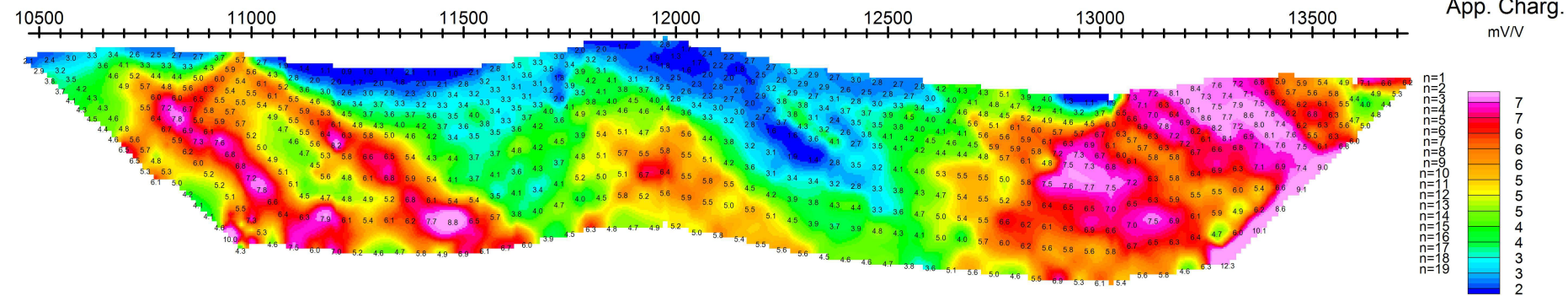
GRANITE CREEK COPPER LTD.

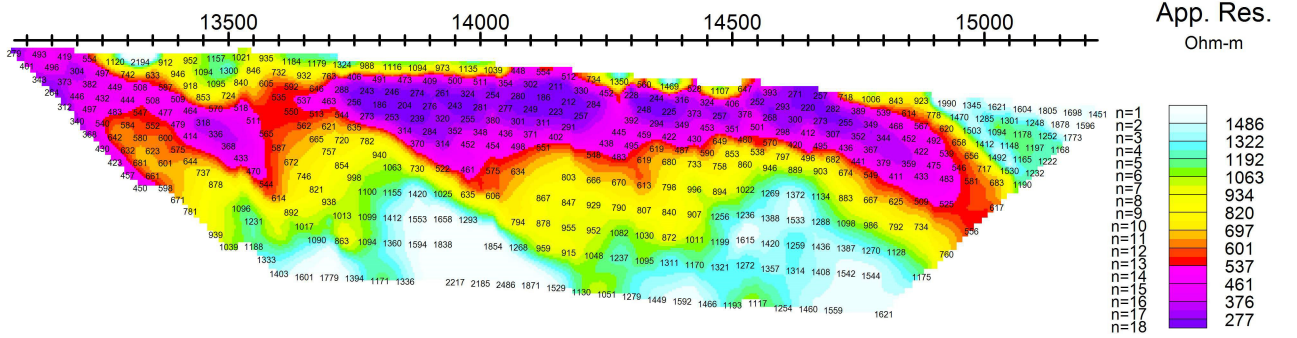
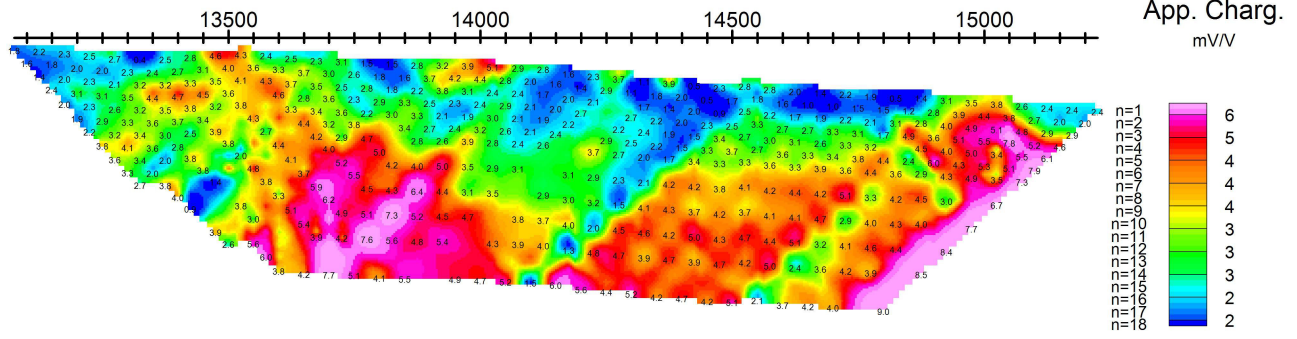
INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L98

Mining District: Whitehorse
Date: Sept 19, 2019

NTS: 115 I/07
Job: GCX-19072-YT

AURORA GEOSCIENCES LTD.

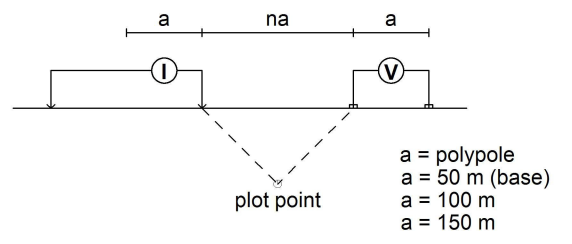




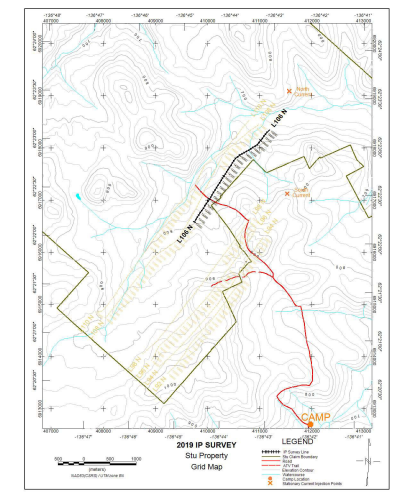
PSEUDOSECTION PLOTS L106

APPARENT CHARGEABILITY & RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L108, 16000 (moving W)
Receiver: GDD 24 channel
Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
Transmitter: 2 X GDD Tx-II 3.6kW
Data File: GCX-20190919-Stu_IP.gdb
Dates Surveyed : Aug-Sept 2019

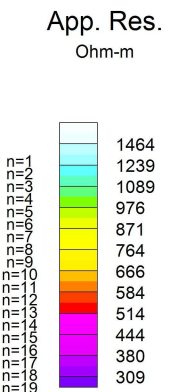
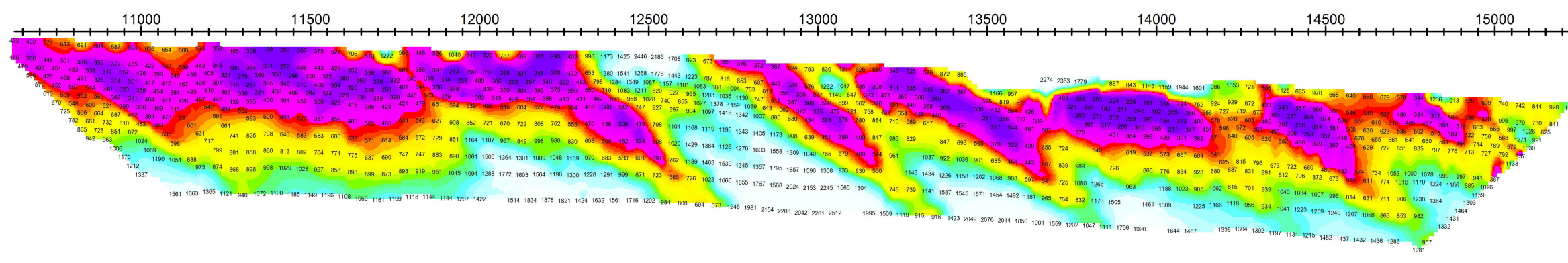
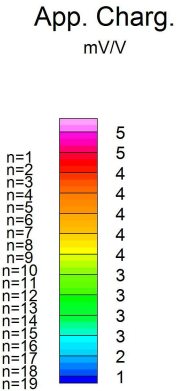
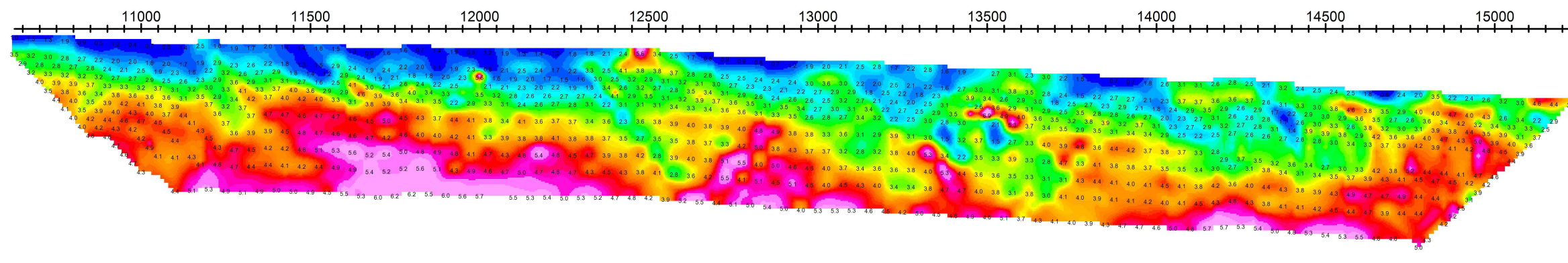


GRANITE CREEK COPPER LTD.

**INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L106**

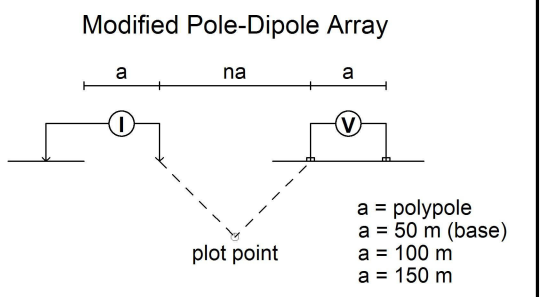
Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

AURORA GEOSCIENCES LTD.

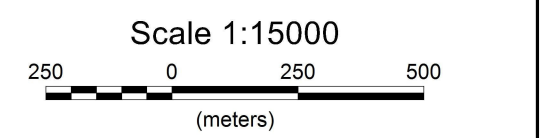
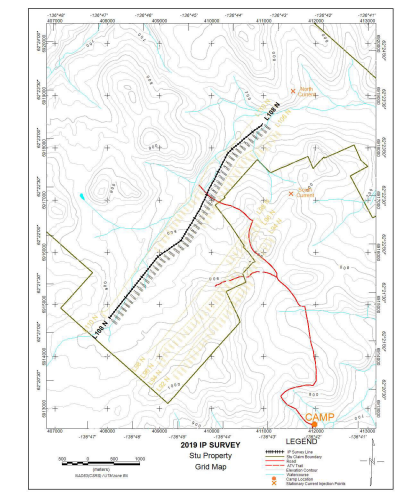


PSEUDOSECTION PLOTS L108

APPARENT CHARGEABILITY & RESISTIVITY

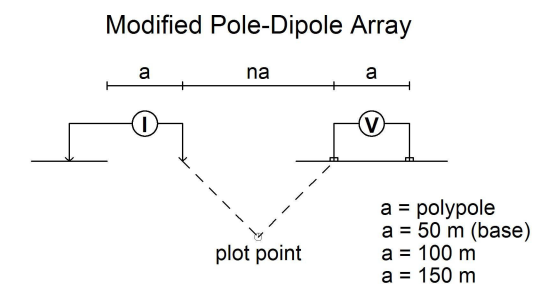


Stationary electrode at L108, 16000 (moving W)
 Receiver: GDD 24 channel
 Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
 Transmitter: 2 X GDD Tx-II 3.6kW
 Data File: GCX-20190918-Stu_IP.gdb
 Dates Surveyed : Aug-Sept 2019

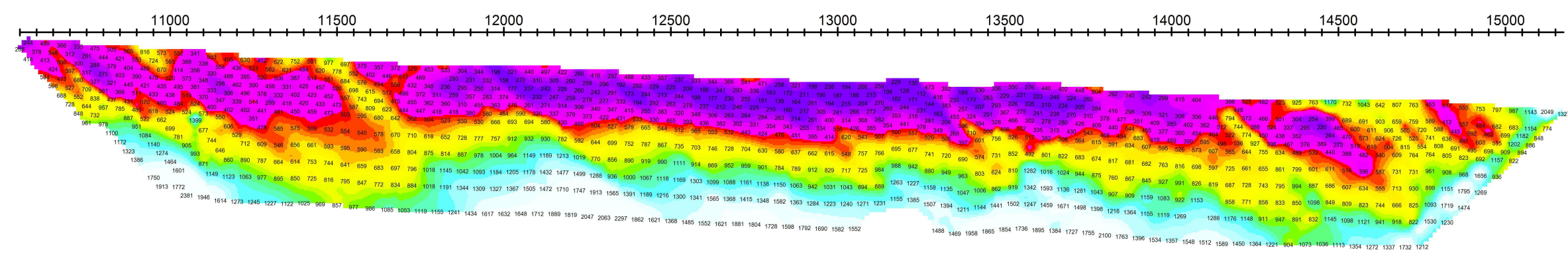
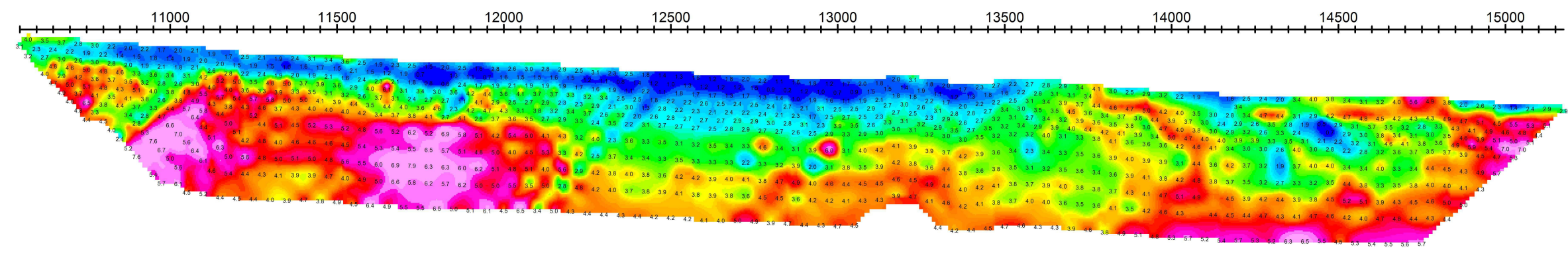
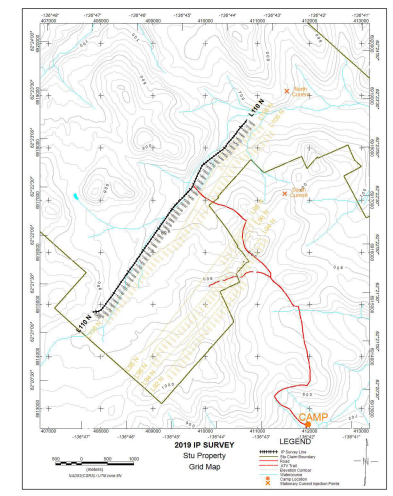


GRANITE CREEK COPPER LTD.
INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L108
 Mining District: Whitehorse NTS: 115 I/07
 Date: Sept 18, 2019 Job: GCX-19072-YT
AURORA GEOSCIENCES LTD.

**PSEUDOSECTION PLOTS
L110**
APPARENT CHARGEABILITY & RESISTIVITY



Stationary electrode at L108, 16000 (moving W)
 Receiver: GDD 24 channel
 Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
 Transmitter: 2 X GDD Tx-II 3.6kW
 Data File: GCX-20190918-Stu_IP.gdb
 Dates Surveyed : Aug-Sept 2019



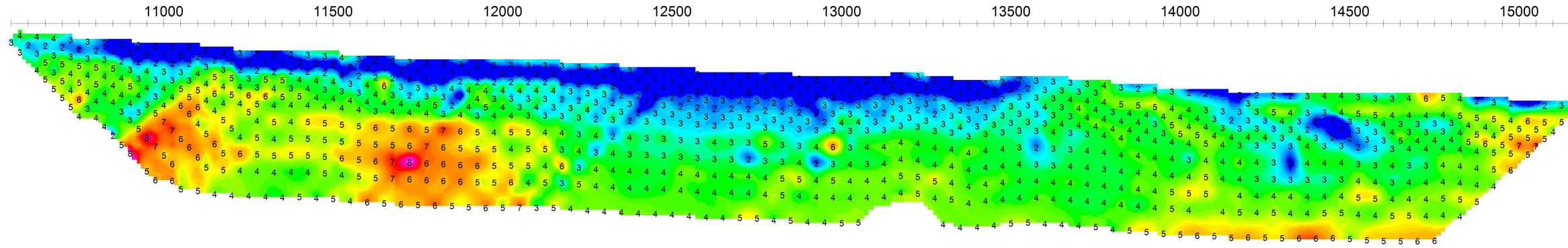
GRANITE CREEK COPPER LTD.
INDUCED POLARIZATION SURVEY
STU PROPERTY
PSEUDOSECTION PLOTS L110

Mining District: Whitehorse NTS: 115 I/07
 Date: Sept 18, 2019 Job: GCX-19072-YT

AURORA GEOSCIENCES LTD.

110

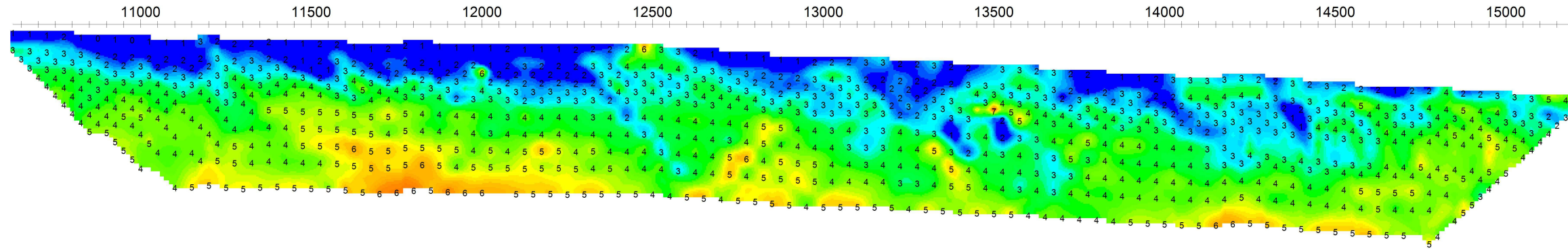
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n=18



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108

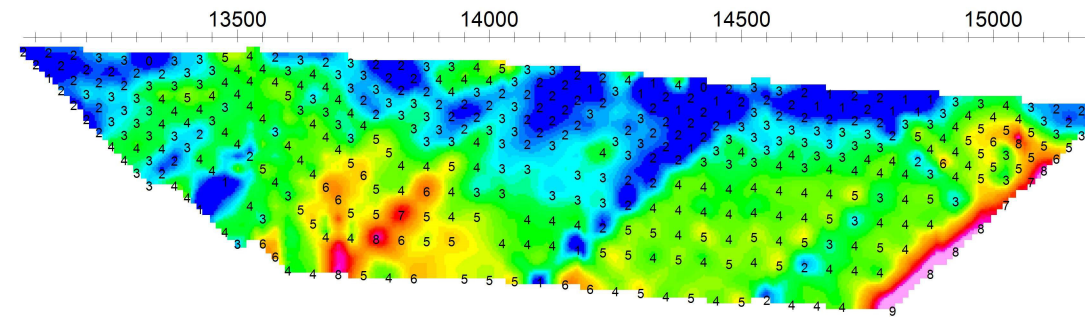
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106

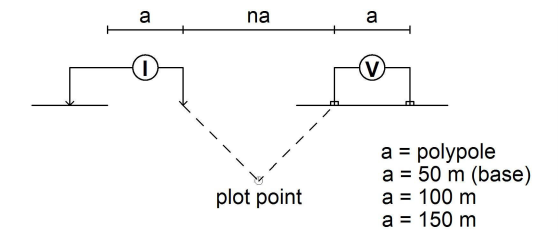
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STACKED PSEUDOSECTION PLOTS APPARENT CHARGEABILITY

Modified Pole-Dipole Array



Stationary electrode at L08, 16000 (moving W)

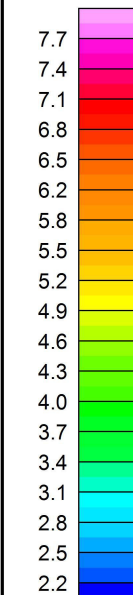
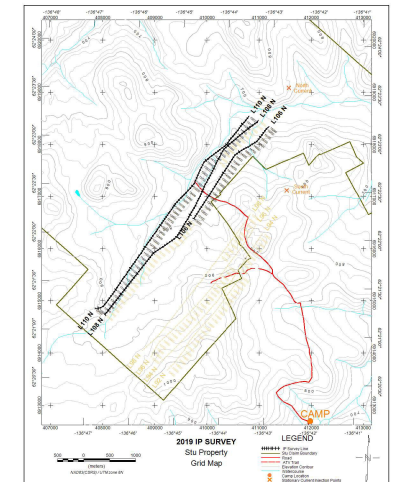
Receiver: GDD 24 channel

Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles

Transmitter: 2 X GDD Tx-II 3.6kW

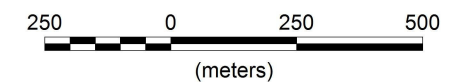
Data File: GCX-20190919-Stu_IP.gdb

Dates Surveyed : Aug-Sept 2019



Apparent Chargeability
(mV/V)

Scale 1:15000

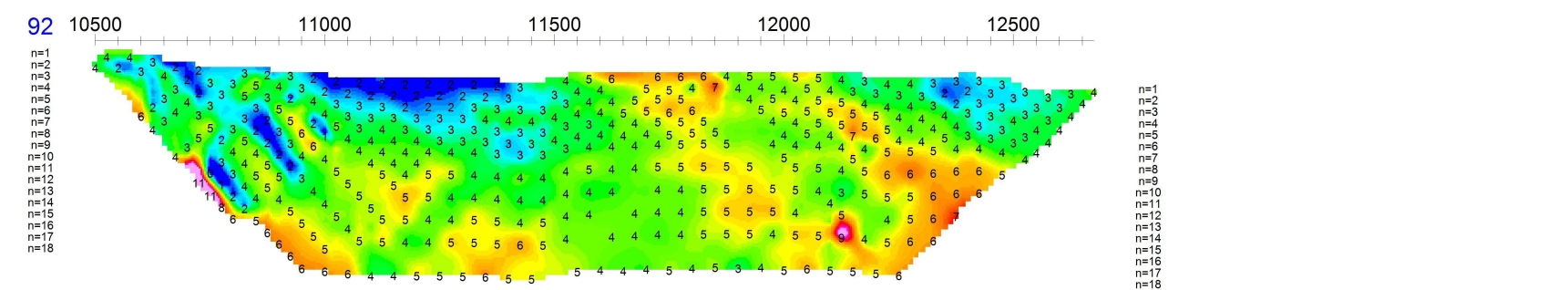
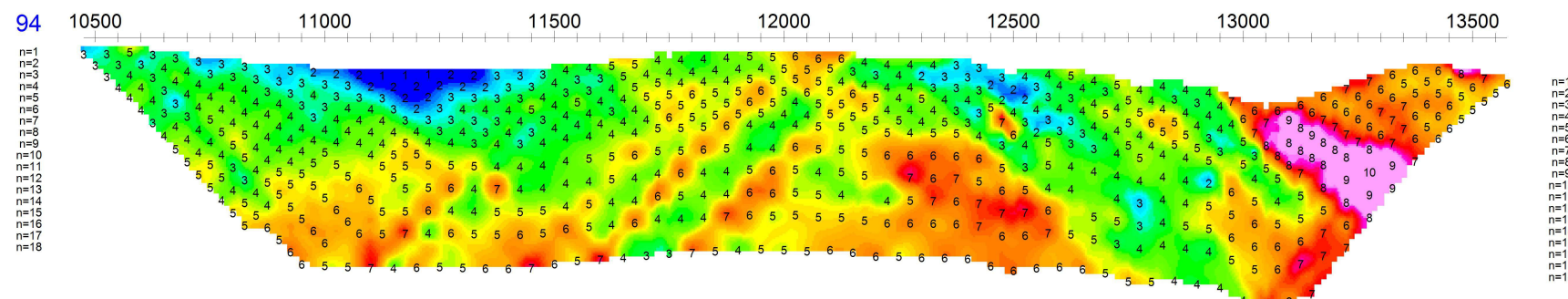
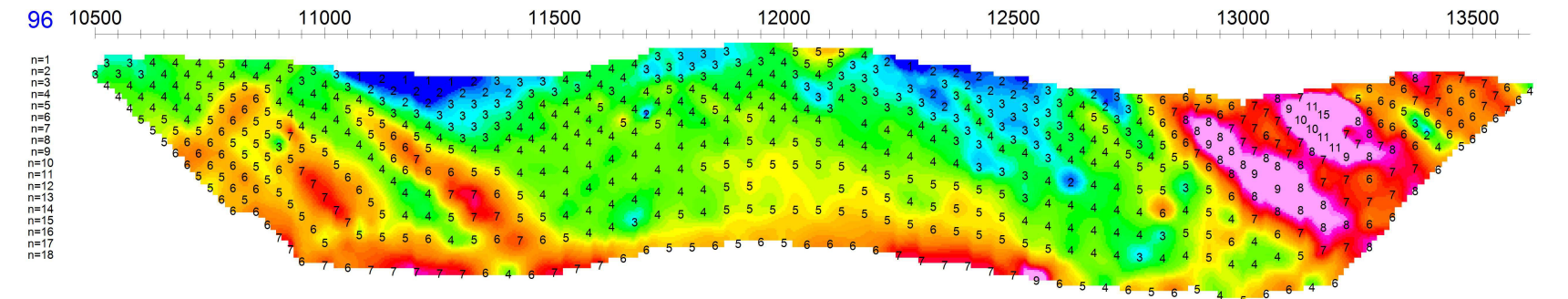
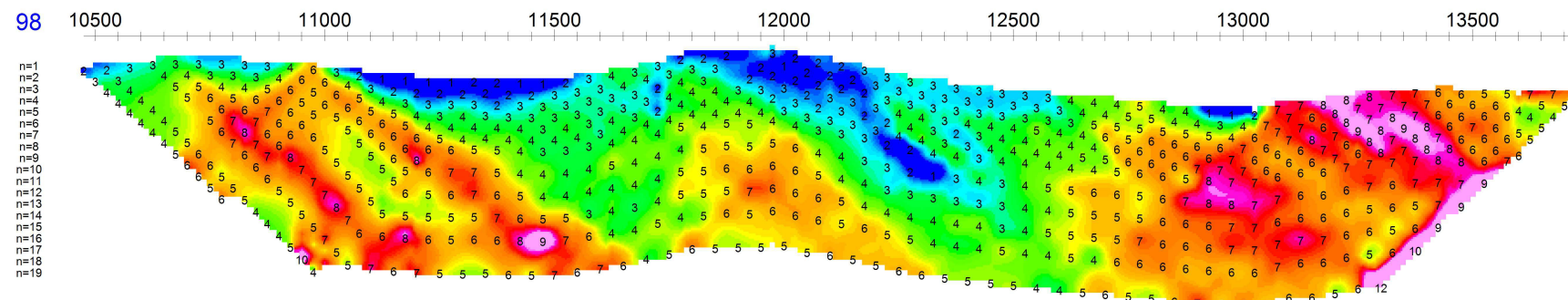


GRANITE CREEK COPPER LTD.

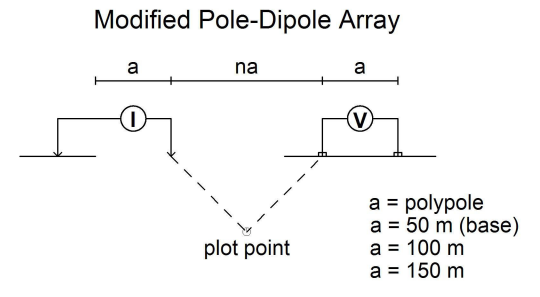
INDUCED POLARIZATION SURVEY
NW LINES - STU PROPERTY
STACKED PSEUDOSECTION PLOTS
APPARENT CHARGEABILITY

Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

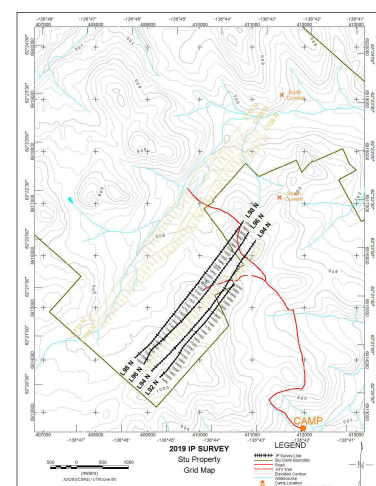
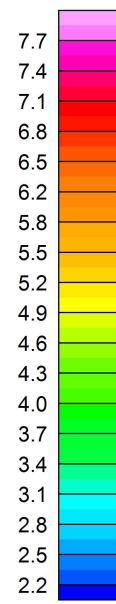
AURORA GEOSCIENCES LTD.



**STACKED PSEUDOSECTION PLOTS
APPARENT CHARGEABILITY**



Stationary electrode at L96, 14500 (moving W)
 Receiver: GDD 24 channel
 Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles
 Transmitter: 2 X GDD Tx-II 3.6kW
 Data File: GCX-20190919-Stu_IP.gdb
 Dates Surveyed : Aug-Sept 2019



Apparent Chargeability
(mV/V)
 Scale 1:15000
 250 0 250 500
 (meters)

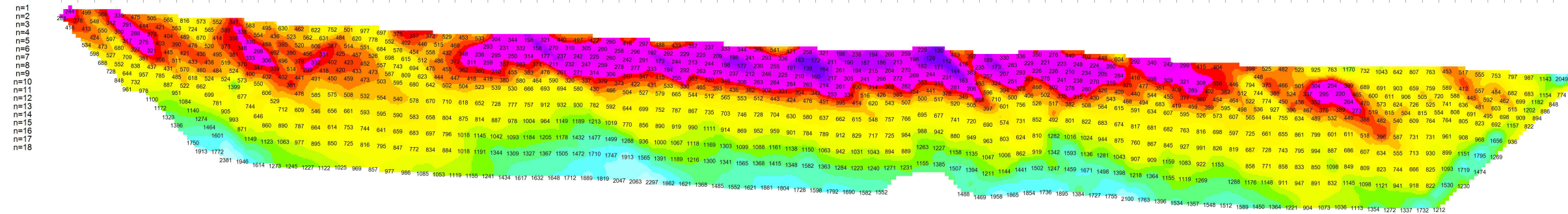
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**INDUCED POLARIZATION SURVEY
SE LINES - STU PROPERTY
STACKED PSEUDOSECTION PLOTS
APPARENT CHARGEABILITY**

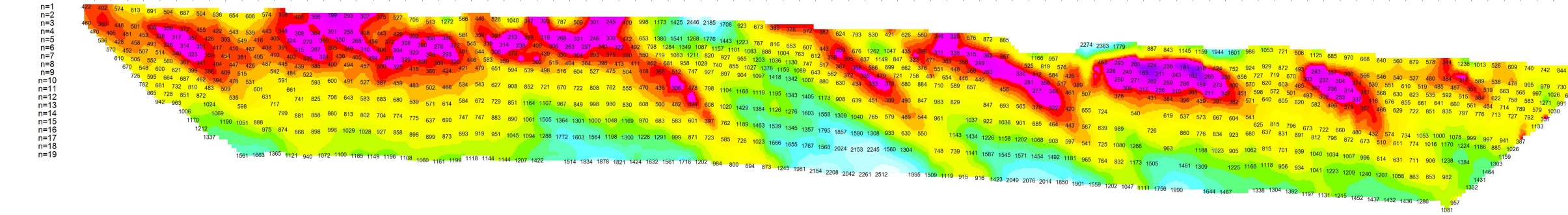
Mining District: Whitehorse NTS: 115 I/07
 Date: Sept 19, 2019 Job: GCX-19072-YT

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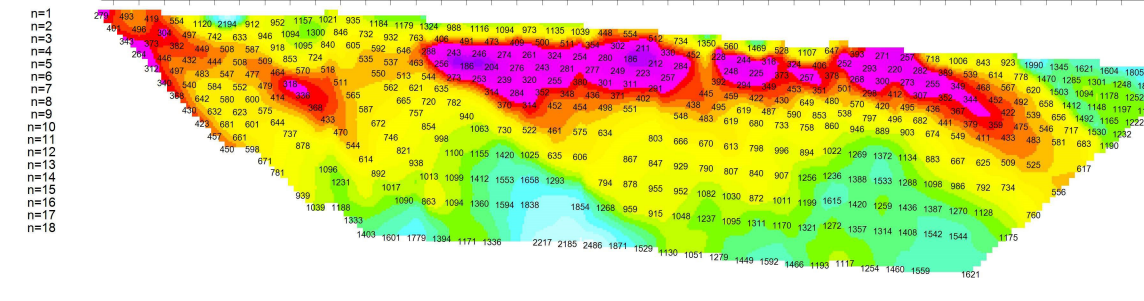
110



108

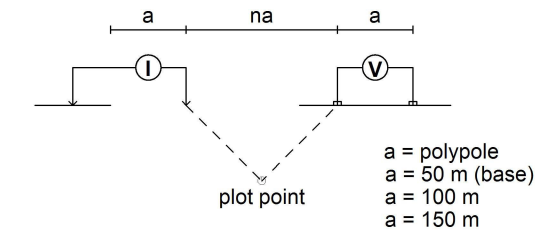


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STACKED PSEUDOSECTION PLOTS APPARENT RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L08, 16000 (moving W)

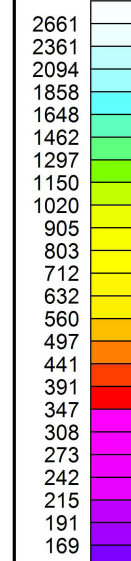
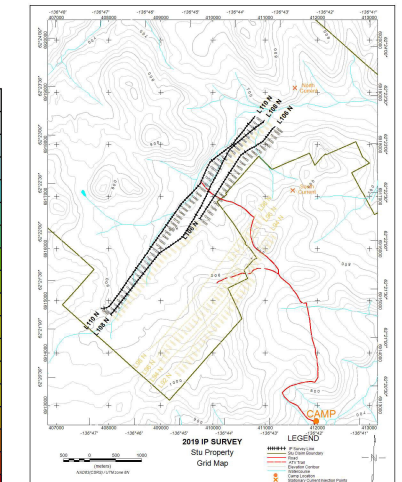
Receiver: GDD 24 channel

Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles

Transmitter: 2 X GDD Tx-II 3.6kW

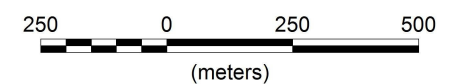
Data File: GCX-20190919-Stu_IP.gdb

Dates Surveyed : Aug-Sept 2019



Apparent Resistivity
(Ohm-m)

Scale 1:15000

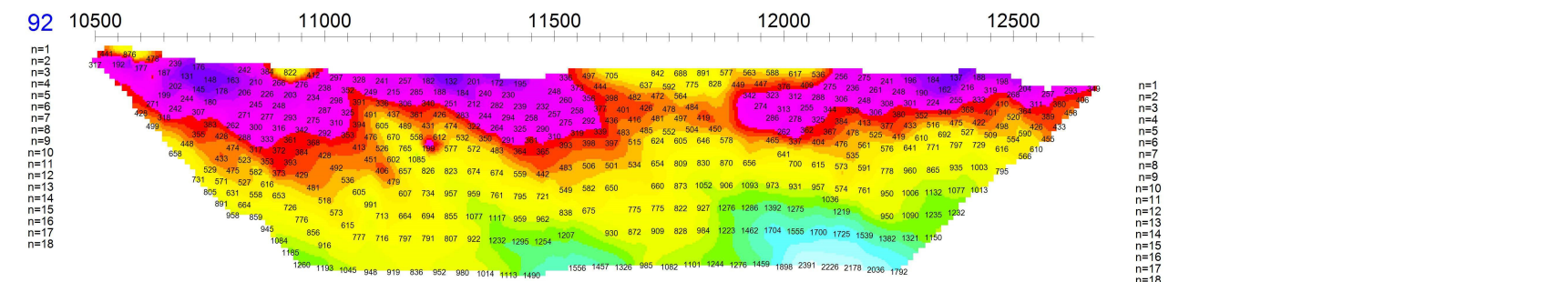
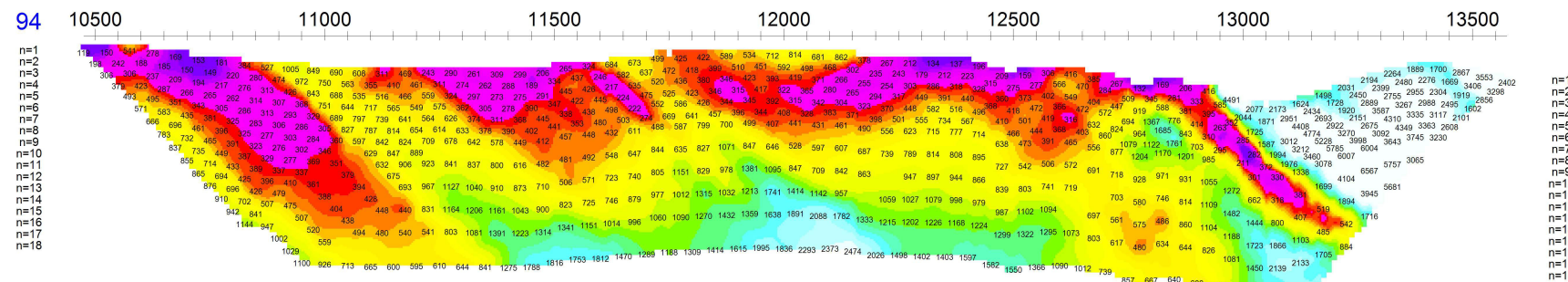
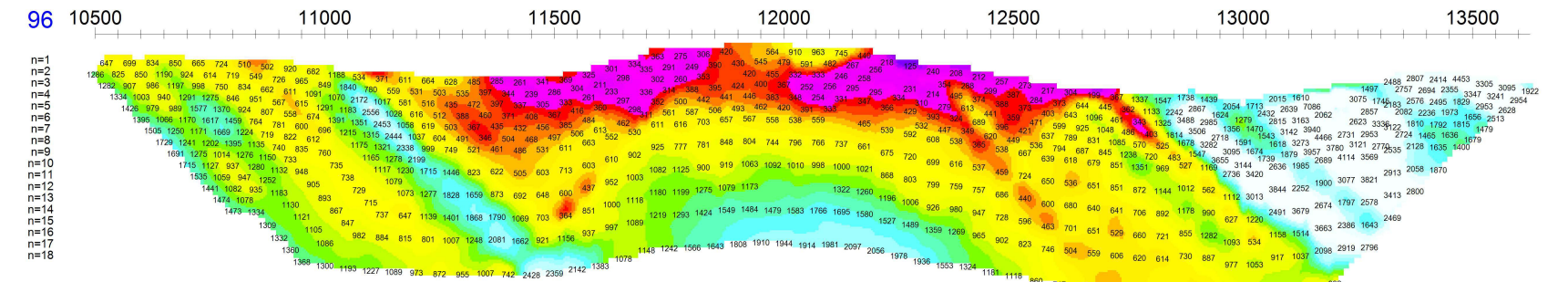
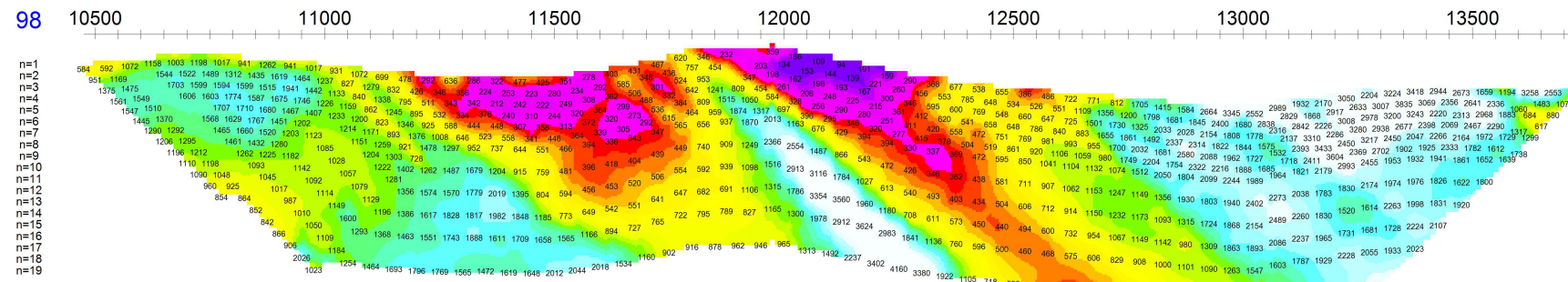


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INDUCED POLARIZATION SURVEY
NW LINES - STU PROPERTY
STACKED PSEUDOSECTION PLOTS
APPARENT RESISTIVITY

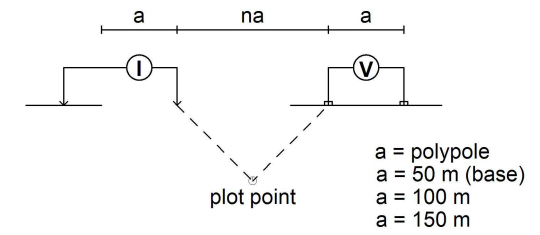
Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

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STACKED PSEUDOSECTION PLOTS APPARENT RESISTIVITY

Modified Pole-Dipole Array



Stationary electrode at L96, 14500 (moving W)

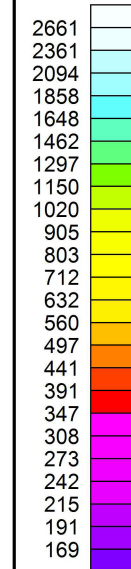
Receiver: GDD 24 channel

Receiver array: 6 X 50m, 4 X 100m, 3 X 150m dipoles

Transmitter: 2 X GDD Tx-II 3.6kW

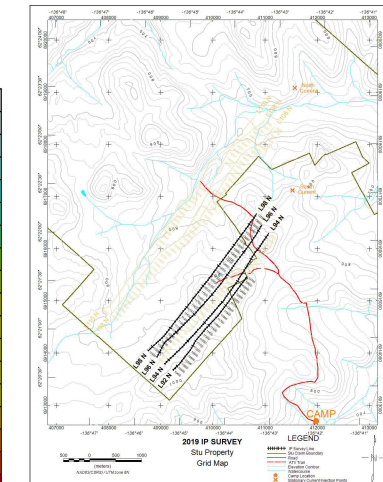
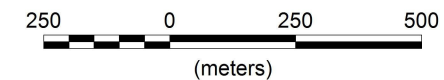
Data File: GCX-20190919-Stu_IP.gdb

Dates Surveyed : Aug-Sept 2019



Apparent Resistivity
(Ohm-m)

Scale 1:15000



n=1
n=2
n=3
n=4
n=5
n=6
n=7
n=8
n=9
n=10
n=11
n=12
n=13
n=14
n=15
n=16
n=17
n=18
n=19

n=1
n=2
n=3
n=4
n=5
n=6
n=7
n=8
n=9
n=10
n=11
n=12
n=13
n=14
n=15
n=16
n=17
n=18

n=1
n=2
n=3
n=4
n=5
n=6
n=7
n=8
n=9
n=10
n=11
n=12
n=13
n=14
n=15
n=16
n=17
n=18

n=1
n=2
n=3
n=4
n=5
n=6
n=7
n=8
n=9
n=10
n=11
n=12
n=13
n=14
n=15
n=16
n=17
n=18

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INDUCED POLARIZATION SURVEY
SE LINES - STU PROPERTY
STACKED PSEUDOSECTION PLOTS
APPARENT RESISTIVITY

Mining District: Whitehorse NTS: 115 I/07
Date: Sept 19, 2019 Job: GCX-19072-YT

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