



# Project Logistics Report



Gladiator Resources Limited

Dipole – Dipole Induced Polarisation Surveys

Kroda Prospect

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Project No. 18011

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## DIGITAL DATA ON DISC

All raw and processed data for all survey methods used.

### ***Distribution:***

Fender Geophysics Pty Ltd  
Gladiator Resources Ltd

## Executive Summary

Fender Geophysics PL conducted a dipole – dipole induced polarisation survey for Gladiator Resources Ltd at the company's Kroda prospect north of Alice Springs from 21 June to 9 July 2018.

The survey comprised three NW – SE 50 m spaced 2 km long lines with dipole spacings varying from 25 m to 100 m.

## 1. Introduction

Fender Geophysics PL (Fender) conducted a dipole – dipole induced polarisation (DDIP) survey for Gladiator Resources Ltd from 21 June to 9 July 2018 at the company's Kroda prospect in Northern Territory.

This survey operations and logistics report summarises the procedures and equipment used in the acquisition, verification and processing of the data.

## 2. Location and Access

The Kroda prospect is located approximately 300 km north of Alice Springs within EL 29896 (Figure 1). Access from Alice Springs is via the Stuart Highway and station tracks.

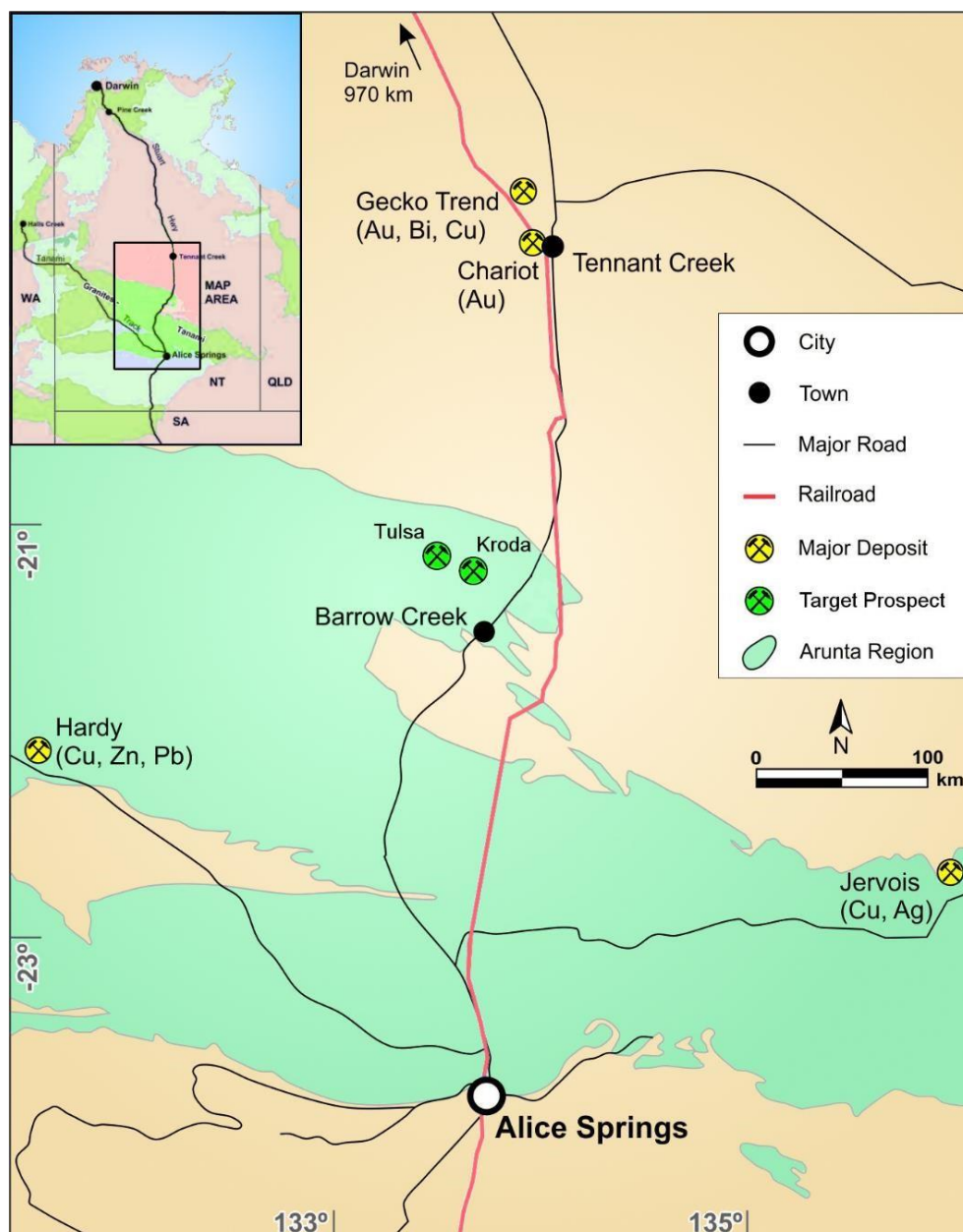


Figure 1: Kroda Prospect Location

### 3. Survey Details

A dipole – dipole induced polarisation survey was conducted at the Kroda prospect from 21 June to 8 July 2018. The survey comprised three 2000 m long NW –SE lines 50 m apart. The dipole spacing was 50 m on Line 50N; 25 m and 50 m on Line 100N; and 25 m and 100 m on Line 150N. The Survey layout is shown in Figure 2 and the survey specifications are listed in Table 1.



Figure 2: Survey Layout

Table 1: Dipole – Dipole IP Survey Specifications

Survey Type	Induced Polarisation
Array Type	Dipole-Dipole
Receiver Dipole Spacing	25 m, 50 m and 100 m
Line Length	2000 m
Line Separation	50 m
Number of Lines	3
Line km	6
TX Dipole spacing	25 m, 50 m, 100 m
Domain and Cycle	Time domain – 2 seconds or 0.125Hz
Total Number of Stations	80 - 320 per line
Survey Period	21/06 – 08/07/2018
Coordinate System	GDA 94 MGA Zone 54

Table 2: Dipole – Dipole Survey Receiver Line Details

Line	Start (NW)		End (SE)	
	MGAE	MGAN	MGAE	MGAN
50N	381459	7665691	382261	7664429
100N	381487	7665732	383207	7664527
150N	381557	7665744	383216	7664583

## 4. Survey Personnel

The personnel involved with the survey are listed in Table 7 below. Field crew was accommodated in Broken Hill at the Daydream Motel.

Table 3: Survey Personnel

Client Representative	Kris Butera
Consultant	Amanda Buckinham
Project Manager/Geophysicist	Andrew Slood
Survey Manager	Michael Drane
Field Technician	Aaron Hawley
Field Assistant	Sam Mulholland
Field Assistant	Justin Brown

## 5. Survey Equipment

The equipment used during the survey is listed below in Tables 10 and 11.

Table 4: Survey Equipment

IP Equipment	Serial / Registration #	Quantity
GDD 16 channel IP Receiver	1118	1
CDD 5 kVa Transmitter		1
Receiver Electrode Pots		40
Transmitter Electrode Plates		40
Rx Cables		40
Tx Wire		2.5 km
Remote Wire		3 km
Rx Connectors		30
UHF Radios		5
Handheld GPS Units		2
Honda EM65 Generator		1

## 6. Data Quality Control

Fender's data quality (QC) control begins in the field. Throughout the data reading procedures, receiver crew visually inspect standard deviations in the data and make sure it is at an acceptable level. Multiple readings are taken at each station. Acquired data is downloaded from the receiver unit onto a laptop at the conclusion of each day.

TerraTEM binary files are imported into Templot and decays are examined before exporting to a .tem format. Templot enables visual inspection of the decay curves for individual channels and the omission of any false anomalies, such as those caused by cultural effects e.g. fences.

Anomalous readings are additionally cross-referenced with field observations and aerial photographs to ascertain whether they may be caused by surface features. Further in-depth processing and interpretation of the data is conducted at Fender's head office during the survey and after it has been completed.

## 7. Deliverables

Data was downloaded from the receiver and viewed at the end of each day. Both the preliminary and final data were provided to client's consultant daily. Expense reports and production reports were provided regularly to client, and the Survey Manager maintained regular communications with client's local representative.

### 7.1 Preliminary Data

Preliminary Digital data was emailed to the client on a daily basis. Field production reports were provided to the client on a weekly basis and with invoices.

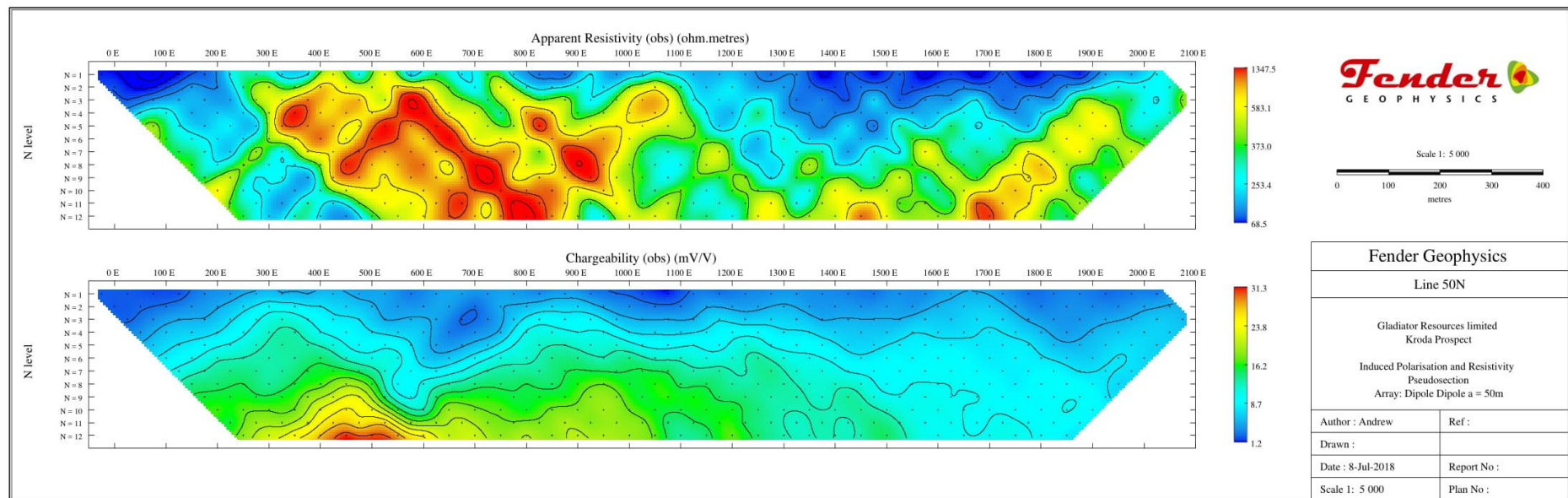
### 7.2 Final Data

The data were processed for quality control using Templot Software and provided in Amira format. Verification profiles and edited digital data were provided at the completion of the survey. At the conclusion of the survey a digital copy of all raw and processed data were provided on a USB.

- AMIRA Format
- Verification profile of each line/hole.
- Logistics Report

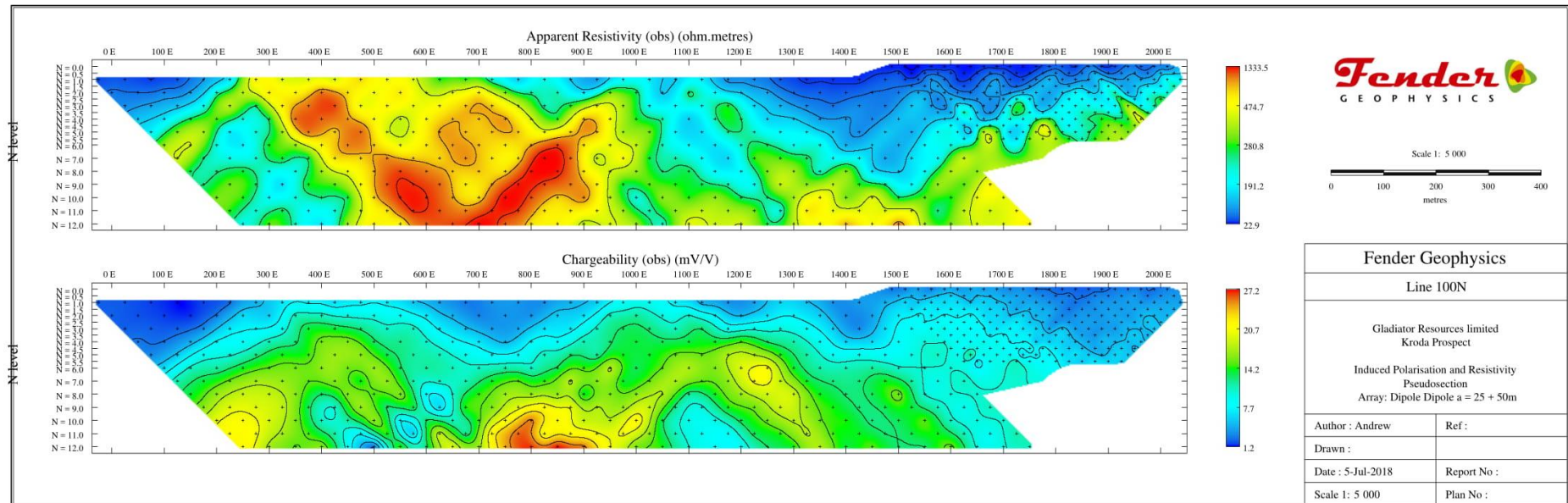


## 8. Verification Plots

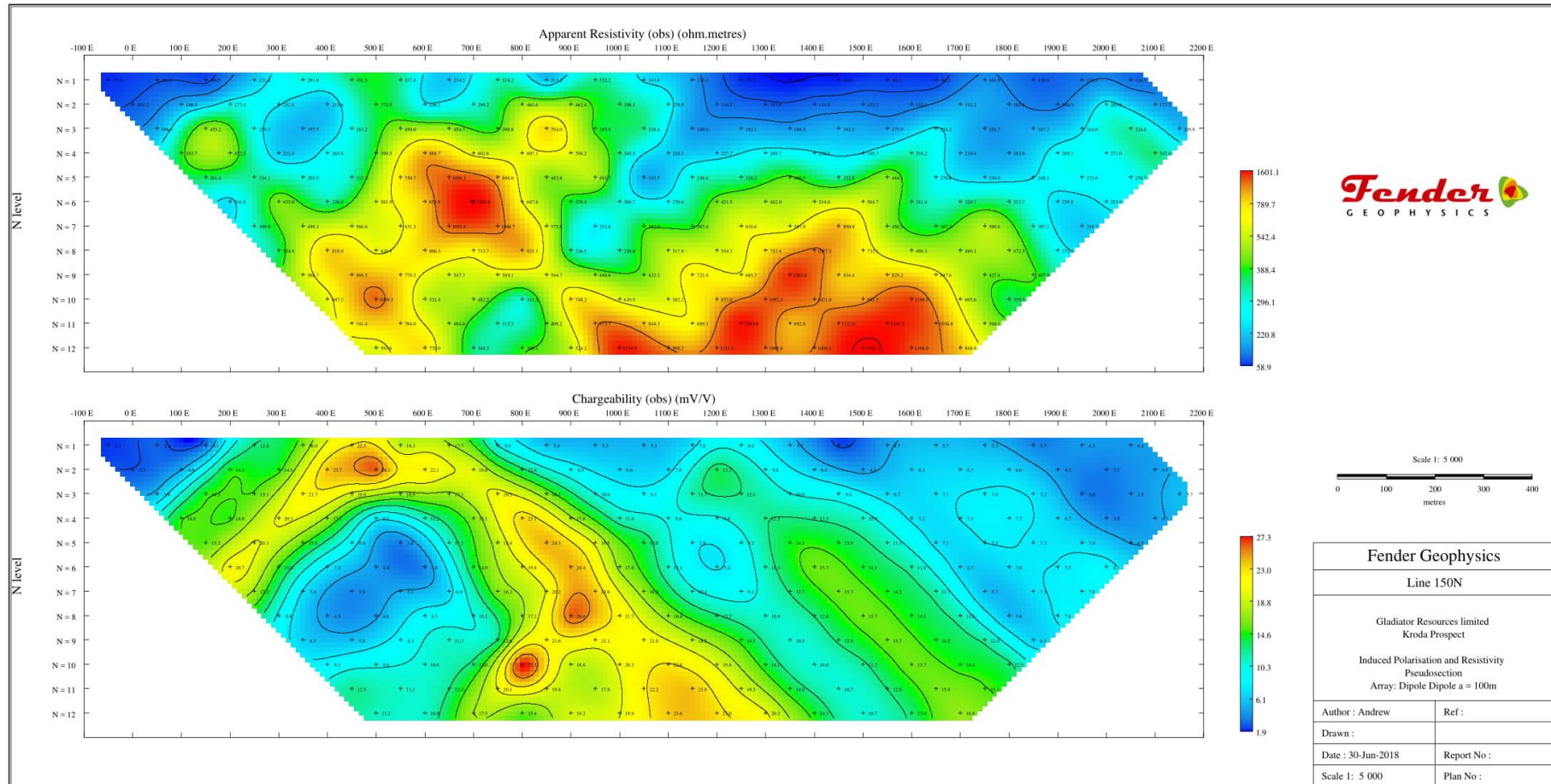


Line 50N Apparent Resistivity and Chargeability

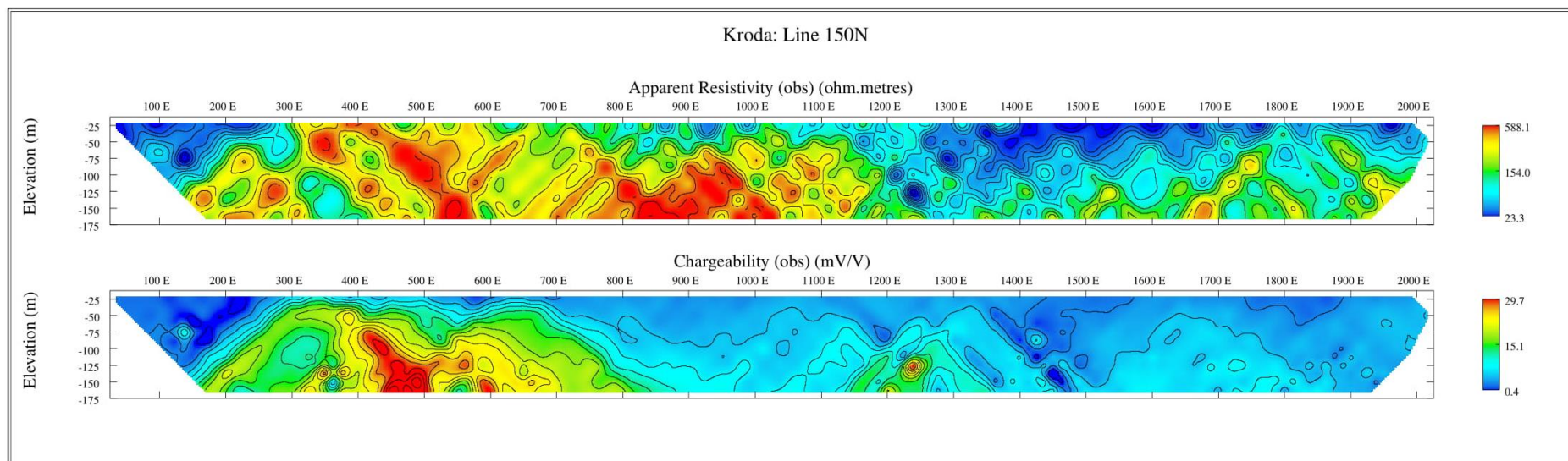





Line 100N Apparent Resistivity and Chargeability




Line 150N Apparent Resistivity and Chargeability 100 m Dipole Spacing





## 9. Appendix 1 – Weekly Production Reports

	Weekly Production Report			Survey Specs			
	Project Number:	18011		DDIP			
	Client:	Gladiator Resources		25,50 & 100m Dipole spacing			
	Project:	Barrow Creek (Kroda)		100m Line spacing			
	Project Manager:	Michael Drane					
Monday, 11 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Tuesday, 12 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Wednesday, 13 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Thursday, 14 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Friday, 15 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Saturday, 16 June 2018		Line	Start	End	Stations	Rate	Hours
						Prod	
						Standby	
						Mobe	
		Total Stations			0	B-Down	
Sunday, 17 June 2018		Line	Start	End	Stations	Rate	Hours
Daniel and Phil depart Mount Isa with equipment  Arrive in Tennant Creek for the evening						Prod	
						Standby	
						Mobe	8
		Total Stations			0	B-Down	
Weekly Production Summary				Stations Total	0.0 Prod	0.0	
				Production Days	0.0 Stanby	0.0	
				Stations Per Day	0.0 Mobe	8.0	
					B-Down	0.0	



	Weekly Production Report			Survey Specs					
	Project Number:	18011		DDIP					
	Client:	Gladiator Resources		25, 50 & 100m Dipole Spacing					
	Project:	Barrow Creek (Kroda)		50m Line Spacing					
	Project Manager:	Michael Drane							
<b>Monday, 18 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Phil and Daniel arrive in Alice Springs Daniel flies from Alice Springs to Adelaide Michael, Justin and Aaron fly in to Alice Springs								Prod	
								Standby	
								Mobe	8
				Total Stations		0	B-Down		
<b>Tuesday, 19 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Dropped Phil at Airport and Picked Sam up from Airport Crew picked up 50m Rx cables from Ipec Toll and Genset from ABC ABC transport Remaining survey items collected in Alice Springs								Prod	
								Standby	
								Mobe	8
				Total Stations		0	B-Down		
<b>Wednesday, 20 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Mob from Alice to Barrow Creek. Set up camp for the remainder of the day. Rearranged trucks ready for site.  Weed and Seeded both vehicles								Prod	
								Standby	
								Mobe	8
				Total Stations		0	B-Down		
<b>Thursday, 21 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Called Landowner, received permission for access on site  Set up a section of line 1, 25m Tx and Rx spacing Read initial stations 3 access tracks cross all lines but poor access along lines mostly wooded, very dry, red sandy soil absorbs water fast				150	2000	1900	5	Prod	10
								Standby	
								Mobe	
				Total Stations		5	B-Down		
<b>Friday, 22 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Dug in an extra plate on 15 stations, set out Rx Read part of line 1, 150N				150	1900	1550	15	Prod	10
								Standby	
								Mobe	
				Total Stations		15	B-Down		
<b>Saturday, 23 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Packed up at setup Rx along with collecting plates Read part of line 1, 150N  Rx and they were already put back on the line. Had a few pot issues today but al resolved.				150	1575	1400	8	Prod	10
								Standby	
								Mobe	
				Total Stations		8	B-Down		
<b>Sunday, 24 June 2018</b>				Line	Start	End	Stations	Rate	Hours
Read 16 stations on line 1, 150N Packed up unused Rx, pots plates and Tx Held a Safety meeting in the evening				150	1400	2200	16	Prod	10
								Standby	
								Mobe	
				Total Stations		16	B-Down		
\$									
<b>Weekly Production Summary</b>						Stations Total 44.0 Prod 40.0			
						Production Days 4.0 Stanby 0.0			
						Stations Per Day 11.0 Mobe 24.0			
						B-Down 0.0			


	Weekly Production Report			Survey Specs					
	Project Number:	18011		DDIP					
	Client:	Gladiator Resources		25, 50 & 100m Dipole Spacing					
	Project:	Barrow Creek (Kroda)		50m Line Spacing					
	Project Manager:	Michael Drane							
<b>Monday, 25 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Set up around 18 stations with Tx, Rx and plates Read 13 stations of line 1, (150N)				150	1025	725	13	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>13</b>	B-Down	
<b>Tuesday, 26 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Set up 12 stations with Tx, Rx and plates Read 16 stations of line 1, (150N)				150	725	450	16	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>16</b>	B-Down	
<b>Wednesday, 27 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Set up remaining stations with Tx, Rx and plates Read 9 stations of line 1, (150)  Some anomalous readings. Additional repeats taken.				150	450	150	9	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>9</b>	B-Down	
<b>Thursday, 28 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Tested the stations first with wire and the loom, then just Tx wire then just Tx swapping the pots Read the rest of the line 1. Set up for 100m dipoles on line 1, (150) ready for tomorrow  3 man crew. Aaron off site on supply run.				150	150	50	4	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>4</b>	B-Down	
<b>Friday, 29 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Read 17 stations of line 1, (150) at 100m dipoles Had a issues with the Tx in the morning showing open loop a join had been pulled apart, possibly cattle. Re watered all plates first thing today.				150	2100	500	17	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>17</b>	B-Down	
<b>Saturday, 30 June 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Read 5 stations of line 1, (150) at 100m dipoles Only extended to -200, didn't want to enter the no go area and jeopardise future work. Packed up the whole line, collected all gear and made a laydown  Out crop at 400-430, trending NW lookd like dipping at 90 degree				150	500	0	5	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>5</b>	B-Down	
<b>Sunday, 1 July 2018</b>				<b>Line</b>	<b>Start</b>	<b>End</b>	<b>Stations</b>	<b>Rate</b>	<b>Hours</b>
Set up line 2 (100).  Ready to commence reading tomorrow.  Completed weekly safety meeting in the evening.				100			0	Prod	10
								Standby	
								Mobe	
				<b>Total Stations</b>			<b>0</b>	B-Down	
\$									
<b>Weekly Production Summary</b>							Stations Total	64.0 Prod	70.0
							Production Days	7.0 Stanby	0.0
							Stations Per Day	Mobe	0.0
								B-Down	0.0

	Weekly Production Report			Survey Specs					
	Project Number:	18011		DDIP					
	Client:	Gladiator Resources		25, 50 & 100m Dipole Spacing					
	Project:	Barrow Creek (Kroda)		50m Line Spacing					
	Project Manager:	Michael Drane							
Monday, 2 July 2018				Line	Start	End	Stations	Rate	Hours
Read 22 stations of line 100N, 25m dipoles Unfortunately receiver battery ran flat would of fitted in a few more stations otherwise.				100	2025	1500	22	Prod	10
								Standby	
								Mobe	
					Total Stations		22	B-Down	
Tuesday, 3 July 2018				Line	Start	End	Stations	Rate	Hours
Change the setup of the line from 25m to 50m Dipoles Continued to set up with a much gear we had Read 10 stations of line 100N High chargeability feature becoming apparent.				100	1500	1050	10	Prod	10
								Standby	
								Mobe	
					Total Stations		10	B-Down	
Wednesday, 4 July 2018				Line	Start	End	Stations	Rate	Hours
Set up remiander of the line except last few Rx Read 11 stations of line 100N				100	1050	550	11		10
								Standby	
								Mobe	
					Total Stations		11	B-Down	
Thursday, 5 July 2018				Line	Start	End	Stations	Rate	Hours
Line 100N read and completed Packed up the line Started setup on line 50N				100	550	0	12	Prod	10
								Standby	
								Mobe	
					Total Stations		12	B-Down	
Friday, 6 July 2018				Line	Start	End	Stations	Rate	Hours
Set up to 1000N with Tx and Rx on line 50N Read 16 stations of line 50N				50	2025	1250	16		10
								Standby	
								Mobe	
					Total Stations		16	B-Down	
Saturday, 7 July 2018				Line	Start	End	Stations	Rate	Hours
Read 18 Stations of line 50N  No outcrop observed on this line.				50	1250	450	18	Prod	10
								Standby	
								Mobe	
					Total Stations		18	B-Down	
Sunday, 8 July 2018				Line	Start	End	Stations	Rate	Hours
Read 9 Stations of line 50N, completed the line. All equipment retrieved from the field. Started packing trailers				50	450	0	9	Prod	10
								Standby	
								Mobe	
					Total Stations		9	B-Down	

\$

Weekly Production Summary			
		Stations Total	98.0 Prod 70.0
		Production Days	7.0 Stanby 0.0
		Stations Per Day	14.0 Mobe 0.0
			B-Down 0.0



	Weekly Production Report			Survey Specs					
	Project Number:	18011		DDIP					
	Client:	Gladiator Resources		25, 50 & 100m Dipole Spacing					
	Project:	Barrow Creek (Kroda)		50m Line Spacing					
	Project Manager:	Michael Drane							
Monday, 9 July 2018				Line	Start	End	Stations	Rate	Hours
Packed all equipment. Travelled back to site to inspect access to Tulsa Grid Access to Tulsa very limited. Existing track off main track not located. Several potential tracks checked, but none led close to the grid.  Mobed partway to Darwin								Prod	
								Standby	
								Mobe	12
				Total Stations		0	B-Down		
Tuesday, 10 July 2018				Line	Start	End	Stations	Rate	Hours
Mobilised to Darwin  Cleaned and packed all equipment  Sam to fly out next morning. Michael, Aaron and Justin staying in Darwin								Prod	
								Standby	
								Mobe	8
				Total Stations		0	B-Down		
Wednesday, 11 July 2018				Line	Start	End	Stations	Rate	Hours
Sam travels home to Queensland								Prod	
								Standby	
								Mobe	
				Total Stations		0	B-Down		
Thursday, 12 July 2018				Line	Start	End	Stations	Rate	Hours
								Prod	
								Standby	
								Mobe	
				Total Stations		0	B-Down		
Friday, 13 July 2018				Line	Start	End	Stations	Rate	Hours
								Prod	
								Standby	
								Mobe	
				Total Stations		0	B-Down		
Saturday, 14 July 2018				Line	Start	End	Stations	Rate	Hours
								Prod	
								Standby	
								Mobe	
				Total Stations		0	B-Down		
Sunday, 15 July 2018				Line	Start	End	Stations	Rate	Hours
								Prod	
								Standby	
								Mobe	
				Total Stations		0	B-Down		
				\$					
Weekly Production Summary				Stations Total		0.0 Prod		0.0	
				Production Days		0.0 Stanby		0.0	
				Stations Per Day		0.0 Mobe		20.0	
						B-Down		0.0	