

Title holder (s): OM (Manganese) Ltd (100%)

**Operator:** As above

Tenement Manager: Bichard Exploration Administration Services Pty Ltd

# EL23459 Renner Springs Project

Annual report for EL23459 for period 4<sup>th</sup> March 2010 to 3<sup>rd</sup> March 2011 (Year 8)

Final report for EL23459 for period 4<sup>th</sup> March 2003 to 3<sup>rd</sup> March 2011 (Year 1-8)

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## **Abstract**

Exploration licence EL23459 makes up the southern portion of OM (Manganese) Ltd's Renner Springs project area. The area has several occurrences of manganese mineralisation within its boundaries discovered during intensive base metal mineralisation during the 1980's. During the eighth year of its tenure, EL23459 was subject to a 22 hole (1,526m) RC drill program and a 900m x 600m Gradient Array IP survey over the Carruthers Prospect.

Over the 8 year term of EL23459, exploration activity has included ground EM by original owner with hand held instrument, excavation of one costean, a helicopter borne SkyTEM survey, satellite imagery (Quickbird), two RC drill campaigns, a combined aeromagnetic and radiometric survey, aerial photography, regional geology mapping at 1:20,000 scale and prospect scale mapping at 1:4,000 scale of selected areas, and a gradient array IP survey over Carruthers prospect.

EL23459 is being replaced by SEL28604 application, with the exception of two blocks located in the southwest corner which will expire on 3<sup>rd</sup> March 2011.

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# **Electronic file list**

File Name	File type	Content
EL23459_201103_01_final report.pdf	pdf	This report
EL23459_201103_02_collars.txt	Tab del txt	Drill hole collars location data
EL23459_201103_03_assays.txt	Tab del txt	Sample assay results
EL23459_201103_04_geol_logs.txt	Tab del txt	Down hole geology logs
EL23459_201103_05_DHsurvey.txt	Tab del txt	Down hole survey data
EL23459_201103_06_logging_codes.pdf	pdf	OMM geology logging codes
Plate1_20k_Geology.pdf	pdf	Geology map
Plate2_20k_Map_Legend.pdf	pdf	Geological legend accompanying Plate 1
Plate3_4k_Geology.pdf	pdf	Geology map
Plate4_10k_Drilling.pdf	pdf	Drillhole location plan
Carruthers_Gradient_Grid1_Chareability	jpg	Gradient array chargeability plan
Carruthers_Gradient_Grid1_Resistivity	jpg	Gradient array resistivity plan
Field.zip	gdd	Gradient array field data
Processed_Data.zip	dat	Gradient array processed data
2345 GPX Survey.zip	various	Air mag and rad data
SGS RS & HS 2008 SK812SG	various	SkyTEM data
Vector Research RennerSprings_SkyTEM (6).zip	various	Reprocessed SkyTEM data

#### Introduction

Exploration licence EL23459 was granted to Neil Henry Scriven on the 4<sup>th</sup> of March 2003. The original grant area of EL23459 in 2003 was 95.3 sq km has since been reduced to the current area of 84.5 km (29 blocks). The licence was purchased from Mr Scriven in late 2007 and the title transferred to OM (Manganese) Ltd (OMM) in early 2008.

The licence is located approximately 10 kilometres south west of Renner Springs Roadhouse. The roadhouse is located approximately 160 kilometres north of Tennant Creek. Figure 1 shows the location of the licence in relation to the Bootu Creek manganese mine.

The western boundary of the exploration licence is approximately 20 km east of the Alice Springs-Darwin railway. Access to the exploration licence from the Stuart Highway is by a rough station track in the north and by a serviced dirt road designed to maintain the natural gas pipeline in the south. A north south road traverses the centre of the exploration licence commencing on the east west natural gas service road.

The physiography of the exploration licence consists of hilly terrain in the central east of the exploration licence, of which the highest point is Mount Willieray (361m). Several incised creeks head west across the exploration licence before dissipating into the sand covered plains commencing in the west of the exploration licence.

EL23459 is being surrendered in favour of SEL28604 at the end of year 8.

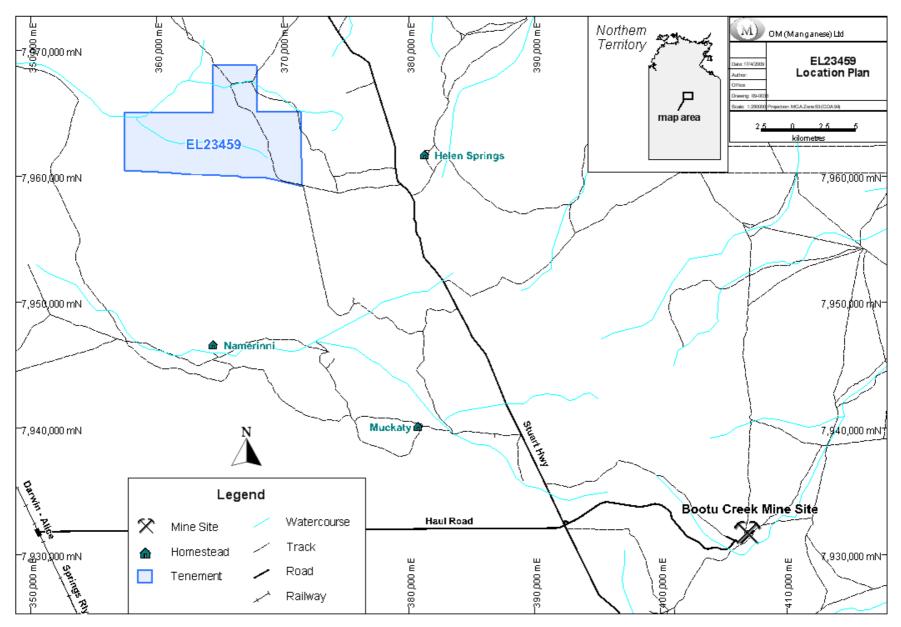


Figure 1 Plan showing the location of EL23459 in relation to Bootu Creek mine site and local Stations.

# 1 Previous Exploration Activity

## 1.1 Exploration Activity 2003/2004

Exploration carried in the 2003/04 by Neil Scriven consisted of:

- Literature research which located manganese occurrences previously mapped on the exploration licence and field inspection to locate those manganese occurrences.
- EM survey of known manganese occurrences using an EM31 instrument

## 1.2 Exploration Activity 2004/2005

Exploration carried out in 2004/05 by Neil Scriven consisted of:

- Locating an isolated manganese occurrence first identified in mapping by Keystone Resources in the 1980's.
- EM34 survey of the area around 1980's percussion hole W38. A further survey planned for the manganese occurrences in the north of the exploration licence was abandoned due to mechanical failure. Open hole percussion drilling of 5 holes (112m) carried out in the vicinity of manganese occurrences located in the north of the exploration licence.
- RNPC1-3 failed to intersect any manganese, RNPC4 intersected 6m @ 16.3%Mn and RNPC5 intersected 6m @ 11.9%Mn.

Hard copy of geophysical data logs, assay results and photos are included in the Neil Scriven 2004/2005 annual report.

## 1.3 Exploration Activity 2005/2006

Exploration activities in 2005/06 by Neil Scriven consisted of an

- e34 program which essentially joined the manganese outcrops in the north of the licence to the drill hole which encountered economic manganese mineralisation in the south (W38).
- Reconnaissance was also carried out in the central eastern portion of the licence to try to locate barium rich cherts located in the 1980's. Traverses of area failed to locate the cherts.

Three areas of interest were outlined by the ground EM survey based on the criteria of moderate to strongly anomalous vertical and horizontal readings together with moderate to strongly anomalous difference and edge effects.

- An area in the Carruthers/Bourke dome underlain by non outcropping Bootu Creek Formation, based on NTGS regional mapping. The area is located on the western side of 7966680N.
- An area to the east of line 7965500N shows anomalous readings in the vertical (shallow) mode and also has a good edge effect.

 The area around drill hole W38, which was drilled in the 1980's and intersected significant manganese mineralisation at depth.

Hard copy of ground EM profiles and plans are included in the Neil Scriven 2005/2006 annual report.

## 1.4 Exploration Activity 2006/2007

Exploration activity in 2006/07 consisted of

- a follow up e31 electro magnetic survey of the target areas identified by the e34 electro magnetic survey conducted in 2005/06
- clearance and subsequent issue in late 2006 of an AAPA authorisation certificate covering the areas prospective for manganese.

The EM anomalies found on both lines 7966680N and 7965480N could be attributed to the same stratigraphic boundary in the Carruthers dome. Both EM anomalies are shallow and are in areas which are devoid of vegetation.

The third area followed up using the e31 instrument was the area around former drill hole W48. The traverses resulted in high readings in several of the traverses indicating a shallow conductor. Significantly in the vicinity of drill hole W48 the readings are offset from the hole and may indicate it was drilled in the wrong place.

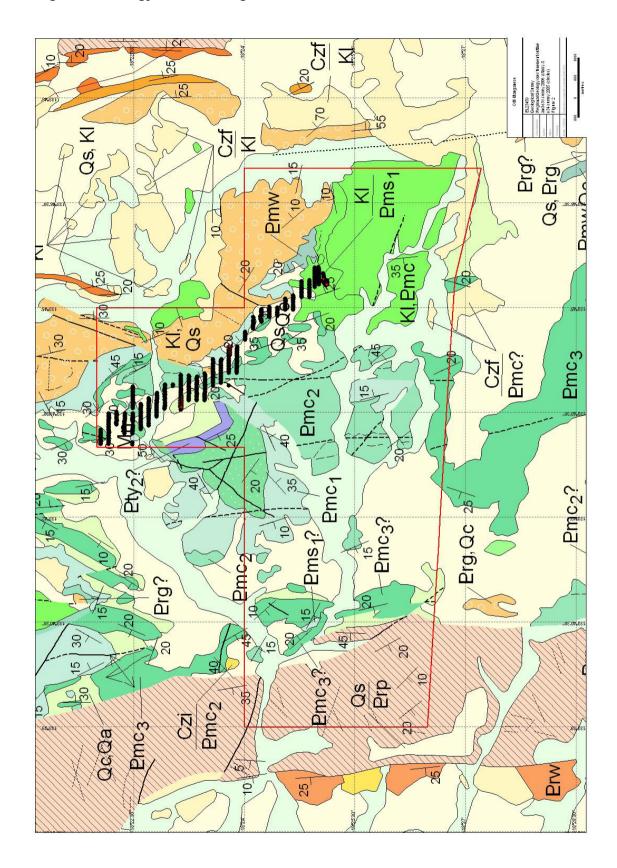
Extrapolation of the anomalous readings in order to correlate the anomalous readings with manganese mineralisation located in W38 300 metres to the east gave the following conclusion.

- The strike of the EM anomaly through the traverses is 035°.
- The strike approximately lines up with an e34 anomaly on line 29 consisting of adjacent high/low 100/40 reading in the vertical plane. The high low readings can indicate shallow manganese mineralisation.
- If the possible shallow manganese mineralisation is further projected to be located opposite the Mn mineralised drill hole W38 then a dip of 25 - 30° for the manganese mineralisation is predicted.

Hard copy of ground EM profiles and plans are included in the Neil Scriven 2006/2007 annual report. A location plan of the ground EM lines is shown figure 2.

Subsequent annual reports were written and submitted by OMM.

Figure 2 Geology Plan showing Ground EM lines



## 1.5 Exploration Activity 2007/2008

The exploration program for year 5 included:

- · The excavation and sampling of a costean,
- clearing of selected drill sections,
- a review of satellite imagery,
- an extensive helicopter-borne SkyTEM survey.

#### 1.5.1 Costean Excavation

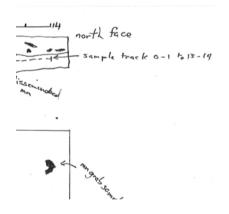
A single costean was excavated by Neil Scriven through a low lying outcrop at located at 7967880N-365050E and near the northern boundary of the EL.

North and south wall sketches of the costean and assay results from wall sampling follow. The orientation of the manganese mineralisation is not conclusively defined by the costean, but appears to be dipping shallowly to the east.

Access tacks and drill pads for follow up drilling required for structural orientation and to quantify the width and grade of the mineralisation encountered near the costean and around W38RDH was completed following excavation of the costean.

Costean mapping by Neil Scriven and assay results from wall sampling are shown in figure 3 and table 1.

Figure 3. Costean Wall Sketch and Channel Sampling



**Table 1** Costean Channel Sampling Results

RENNER SPRINGS 240308 (EL23459 Costean)															
XRF780	Mn	Fe	SiO2	Al2O3	P	Pb	S	TiO2	MgO	K2O	BaO	CaO	Cu	Zn	LOI
UNITS	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
floor sample	27	6.3	33.8	5.1	0.015	0.019	0.015	0.171	0.594	3.336	2.455	0.195	0.043	0.008	8.84
wall 0-1	23.8	8.62	33.7	6.79	0.018	0.03	0.016	0.205	0.902	3.486	1.994	0.119	0.084	0.004	9.12
wall 1-2	11.4	4.42	58	7.66	0.009 X		0.011	0.229	0.917	2.748	1.02	0.094	0.026 >	(	6.46
wall 2-3	16.5	4.86	48.4	9.57	0.011	0.011	0.014	0.28	1.339	3.49	1.275	0.124	0.035	0.001	8.13
wall 3-4	16.9	3.54	49.6	9.66	0.009	0.005 X	(	0.311	1.354	4.053	1.326	0.111	0.03 >	(	7.6
wall 4-5	14.5	11.3	41.2	8.14	0.019	0.013 X		0.268	1.164	3.556	1.678	0.078	0.05	0.002	8.41
wall 5-6	13.9	8	45	9.71	0.013	0.012 X		0.31	1.407	3.873	1.706	0.091	0.036	0.002	8.03
wall 6-7	16.9	8.4	43.2	6.59	0.019	0.024 X		0.242	0.839	3.044	1.801	0.095	0.046	0.002	8.3
wall 7-8	16.5	8.31	41.2	7.09	0.017	0.013 X		0.222	0.965	3.035	1.888	0.122	0.046 >	(	8.54
wall 8-9	15.9	5.96	43.6	9.67	0.01	0.038	0.025	0.303	1.38	3.71	1.811	0.158	0.045	0.002	8.78
wall 9-10	20.6	6.81	41.3	6.16	0.017	0.016	0.03	0.206	0.898	2.883	1.909	0.14	0.035	0.004	8.39
wall 10-11	11.7	7.25	54.8	6.57	0.017	0.01	0.021	0.192	0.943	2.531	1.103	0.098	0.025	0.001	6.84
wall11-12	19.7	6.76	42.5	6.07	0.012	0.015 X		0.206	0.764	3.133	1.829	0.126	0.04	0.004	7.8
wall 12-13	17	7.03	42.4	9.51	0.013	0.009 X		0.314	1.228	3.574	1.513	0.127	0.032	0.003	8.58
wall 13-14	22.8	7.73	33.4	7.04	0.018 X	Х		0.193	0.769	2.995	1.524	0.132	0.041	0.002	11.1
wall 14-15	28.1	1.7	45.8	1.49	0.315 X		0.029	0.04	0.124	1.91	1.42	0.131	0.001	0.091	6.37

#### 1.5.2 SkyTEM Survey

The helicopter-borne SkyTEM survey was conducted by GeoForce Pty Ltd and results were interpreted by Southern Geoscience Consultants. The SkyTEM survey was flown in December 2007 as part of a regional program covering the entire Renner Springs project area including EL9975, EL9998, EL23459 and EL23624 and together with the Helen Springs project area covering EL23495, EL23698 and EL24052.

Flight lines covering EL23459 totalled around 24% of the total 2,300 line kilometre survey. Flight lines were flown east-west on 200 metre spaced lines and in filled to 100m on selected anomalies

Initial results outline the stratigraphy and major structural features but remain ambiguous with regards to outlining the known manganese mineralisation in the vicinity of the recent costean at the north end of the EL and around W38RDH (drilled by Keys Resources) which intersected 9m @ 36.7% Mn from 63m.

An image from the SkyTEM survey of Renner Springs area is shown in Figure 4 and shows the location of the costean and W38RDH.

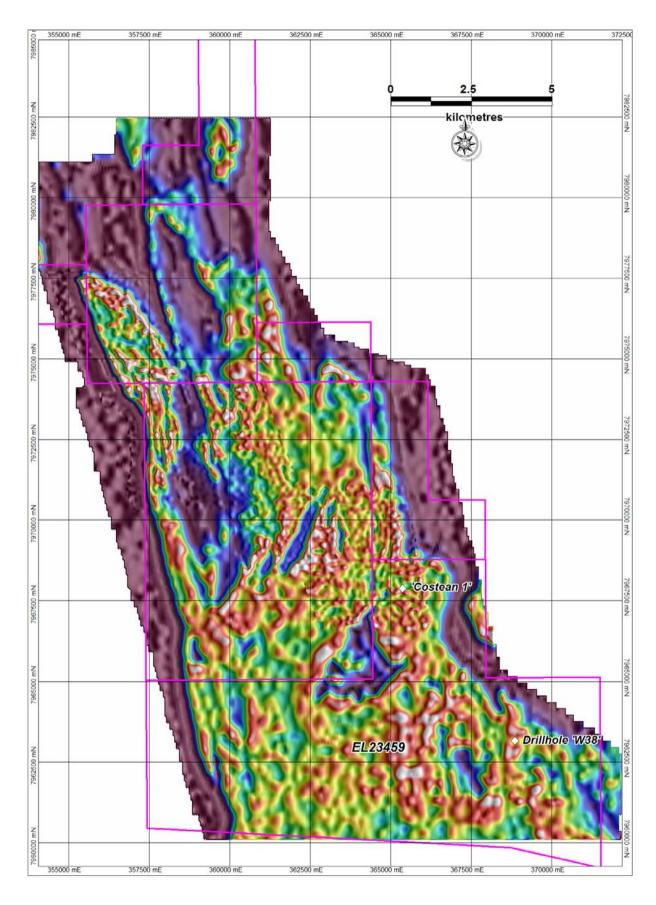


Figure 4 SkyTEM Image (EM\_channel\_9\_74)

### 1.6 Exploration Activity 2008/2009

The exploration program for year 6 included:

- acquisition of high resolution satellite imagery over the project area
- an RC drilling program
- an aerial geophysical survey.
- Reprocessing of SkyTEM data collected in year 5.

#### 1.6.1 Quickbird Satellite Imagery Acquisition

Archival (2005 & 2007 vintage), high resolution, RGB satellite imagery was purchased from Geoimage Pty Ltd with imagery cell size ofs 0.6m<sup>2</sup>. The imagery was purchased to aid in locating existing tracks and searching for obvious manganiferous outcrop.

#### 1.6.2 RC Drilling Program

McKay Drilling from Kalgoorlie was contracted to drill 17 holes (1242m) targeting, three known manganese occurrences:

- The costean excavated during the 2007/2008 field season (6 holes)
- A small outcrop of manganese at 367926mE 7964295mN (2 holes)
- The Key Resources diamond drill hole, W38 (9 holes)

Only a single hole, RSRC0049, from the W38 area, contained manganese of notable thickness with 5m @33.3% Mn from 72 metres.

#### 1.6.3 Aerial Geophysical Survey

GPX Geophysical Exploration Services were contracted to acquire both radiometric and aeromagnetic data across all of OMM's tenement holdings.

The supplied gridded imagery of the magnetic data shows very little detail in the TMI, 1VD or 1VD RTP datasets.

The radiometric data shows that the exploration licence is dominated by rocks containing significantly elevated potassium count.

### 1.6.4 Reprocessing of 2007/2008 SkyTEM data

The data collected during 2007/2008 produced gridded images showing the licence dominated by EM conductor which is coincident with the potassium signature observed in the radiometric data as mentioned above. Beyond that observation the image is quite noisy and so, in late February 2009, all of OMM's EM datasets were sent to Vector Research for reprocessing using the Target TEM algorithms.

### 1.7 Exploration Activity 2009/2010

Exploration activities conducted during the past year included:

- Further reprocessing of SkyTEM data collected in year 5.
- Aerial Photography
- Mapping

#### 1.7.1 Reprocessing of 2007/2008 SkyTEM data

During the report period, Vector Research further developed their Target TEM algorithms, enabling the data to be modelled in 3D. Our data was processed again in early 2010 and is currently being analysed.

Target TEM is designed to discriminate anomalously conductive and anomalously resistive features from conductive overburden and conductive host rocks. The dataset processed in 2009 has further defined zones of localised conductivity in the north and eastern part of the tenement which, in conjunction with the results of the mapping discussed below, warrant drill testing.

#### 1.7.2 Aerial Photography

On April 24<sup>th</sup> 2009 a program of aerial photography was conducted by United Graphic and Photo Services under contract to Survey Graphics Mapping Consultants. 89 images were captured to produce imagery at a nominal scale of 1:20,000 with an approximate ground pixel size of 0.3m.

Initially, photo images were ortho-rectified using 50 metre DEM. This was improved with registration with respect to point data collected by OMM geologists using submetre differential GPS. Each frame was converted to a seamlessly mosaic and the final image colour balanced.

#### 1.7.3 Mapping

Dr. Tim Blake was contracted to conduct mapping over the Renner Springs area at 1:20,000 scale. Pdf map of his geological interpretation over the tenement area is included as Plate 1 together with a separate pdf legend for the map as Plate 2. The MapInfo layers generated by Blake are included in the electronic file list as zipped file Appendix1\_20k\_geology\_files.rar

More detailed mapping was conducted by Dr Joe Drake-Brockman over areas of interest and others with known mineralisation. He used 1:4000 scale base maps and pdf file Plate 3 displays his geological interpretation over EL23459. The MapInfo layers generated by Drake-Brockman are as included in the electronic file list as zipped file Appendix2\_4k\_geology\_files.rar

# 2 2010-2011 Exploration Activity

Exploration activities undertaken in 2010/2011 included -

- 14 hole (1,080m) RC drill program at Carruthers prospect,
- 8 hole (446m) RC drill program at Willieray prospect, and a
- 900m x 600m Gradient Array IP survey over the Carruthers Prospect.

### 2.1 RC Drill Program

Two prospects identified in recent prospect scale mapping were selected for RC drill testing.

#### 2.1.1 Carruthers Prospect

Carruthers Prospect (previously referred to as W38, after the discovery hole drilled by Keys Resources) was tested by RC drilling to the south of the relatively unsuccessful first pass RC drill campaign of 2008. A total of 14 holes (1,080m) returned several encouraging ore grade intersections including -

RSRC0057	4m @ 26.8% Mn	from 71m
RSRC0058	3m @ 43.2% Mn	from 69m
RSRC0060	4m @ 29.3% Mn	from 62m
RSRC0067	4m @ 25.2% Mn	from 65m

The manganese mineralisation is relatively deep and remains open to the south. Ground geophysics has commenced and will be extended to outline potential extent of the mineralisation.

#### 2.1.2 Willieray Prospect

An 8 drill hole (446m) RC reconnaissance program testing manganese outcrops identified in recent mapping failed to intersect any significant mineralisation. No further work is planned at this prospect.

# 2.2 Ground Geophysics

A Gradient Array IP ground geophysics survey extending 900m x 600m was completed over the projected prospect area by contractors GPX Surveys. The survey was conducted on 100m spaced east-west lines at 25m station spacing.

The survey successfully outlined the manganese mineralisation intersected in recent RC drilling at Carruthers Prospect and remains open to the south.

Follow up Dipole-Dipole IP survey lines, extension of the Gradient Array IP and further RC drilling is planned for 2011.

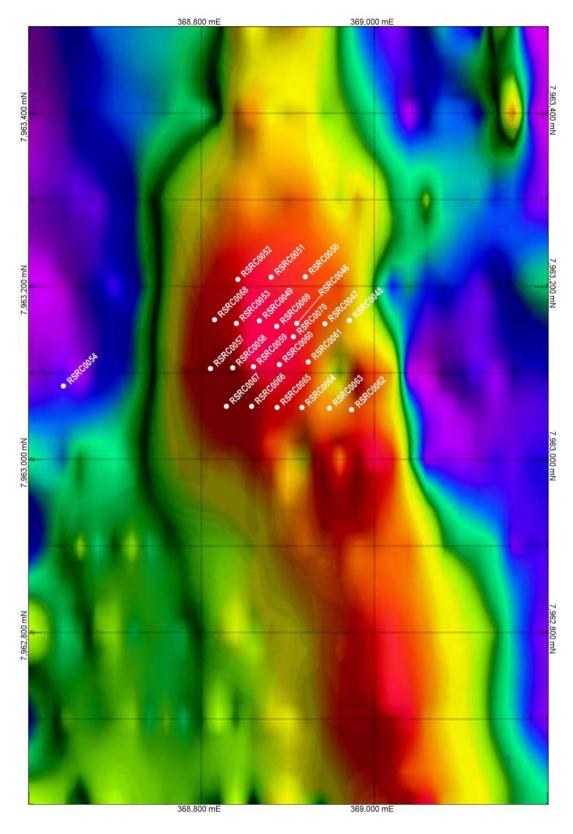


Figure 5 Carruthers Prospect Gradient Array Chargeability image with drilling.

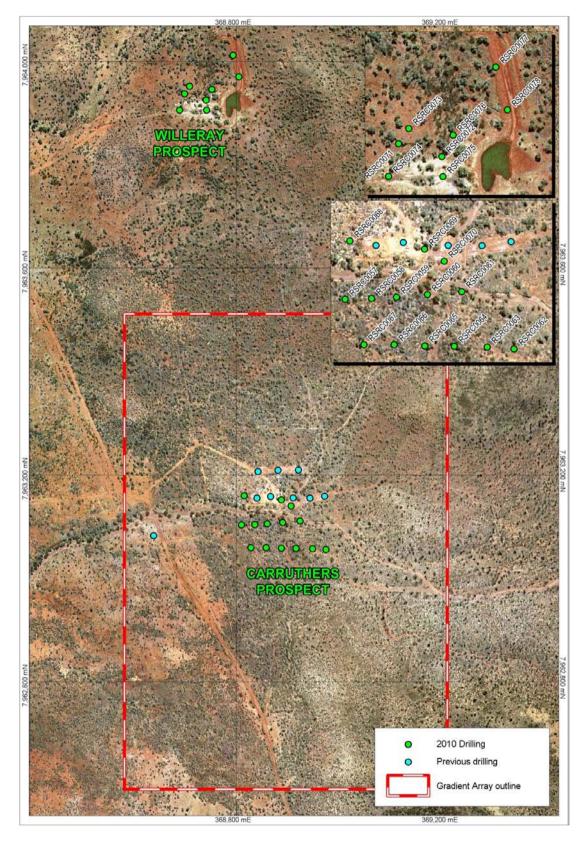


Figure 6 Plan showing the location works undertaken during the report period.