

# **ANNUAL TECHNICAL REPORT**

## ***Exploration Licence 28616***

### ***Moline Exploration Project***

**For Period Ending 19th January 2018**

**Distribution:**

1. DME Darwin NT
2. PNX Metals, Adelaide
3. Kirkland Lake Gold, Darwin

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## Digital Data

FileName	FileType
EL28616_2017_A_01_reportbody	pdf
EL28616_2017_A_02_rockchips	txt
EL28616_2017_A_03_pXRFsoils	txt
EL28616_2017_A_04_dhcollar	txt
EL28616_2017_A_05_dhlith	txt
EL28616_2017_A_06_dhassay	txt
EL28616_2017_A_07_dhsurv	txt
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EL28616_2017_A_13_rockchip_lab_reports	zip
EL28616_2017_A_14_soils	txt
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EL28616_2017_A_17_IP_Mango	txt
EL28616_2017_A_18_IP_Waterhole	zip
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## 1 EXECUTIVE SUMMARY

Exploration Licence 28616 is an amalgamation of seven previous Exploration Licences (EL22966, EL22967, EL22968, EL22970, EL23605, EL24127 and EL24262) that surrounds the Moline goldfield and is now part of the Moline Project. The tenement is about 245 km from Darwin via the Stuart Highway and then the Kakadu Highway. This annual technical report covers the Moline exploration activities from 20<sup>th</sup> January 2017 to 19<sup>th</sup> March 2018.

Gold mineralisation at Moline occurs within greywacke, siltstone and carbonaceous phyllite of the Mt Bonnie Formation. In addition, it occurs in the meta-greywacke and slate of the Burrell Creek Formation. Base metal mineralisation is also being targeted, with potential skarn, VMS, or hydrothermal vein types plausible. The Evelyn Ag-Pb-Zn historical workings are a local example of skarn mineralisation.

PNX undertook a significant exploration program during the reporting period, including surface soil and rock chip sampling, IP surveying and RC drilling. 1313 portable XRF sieved soil measurements were taken, 55 soil samples using 80-mesh sieves and 40 rock chips were collected for laboratory analysis of Au and base metals.

Three blocks were chosen for initial gradient array tests which are either partially or wholly within EL28616. The data was collected by Zonge in frequency domain with 3-point coupling, 50m Rx dipoles, NE-SW orientation, 100m line spacing at 0.125Hz. Results were modelled by consultant geophysicists at Terra Resources. Two reverse circulation holes for 240 metres were drilled targeting potential mineralisation from this modelling at the Mango prospect opposite the Moline golf course.

## 2 COPYRIGHT

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Any information included in the report that originates from historical reports or other sources is listed in the “References” section at the end of the document.

This report may be released to open file as per Regulation 125(3)(a).

### 3 INTRODUCTION

Exploration Licence (EL) 28616 surrounds the Moline goldfield and is located approximately 200km SE of Darwin along the Kakadu Highway. EL28616 is the amalgamation of EL22966, EL22967 EL22968, EL22970, EL23605, EL24127 and EL24262. This is the sixth annual report for EL28616 since the amalgamation of these tenements, and documents the exploration activities conducted for the year ending 19 March 2018.

### 4 LOCATION AND ACCESS

EL28616 is located approximately 200 km SE of Darwin, but is further by road. Access is from Pine Creek (220 km SE of Darwin) along the Kakadu Highway (approximately 45 km) east of Pine Creek. Access within the tenements is possible during the dry season using old mining tracks and station tracks. Topography consists of low hills and ridges, usually with good rock outcrop, which drain into the Mary River via Bowerbird, Evelyn, Eureka and O'Neil Creeks. The Mary River forms the northern boundary of the Moline project area, with Wandie Creek close to the southern boundary. Vegetation consists of open savannah woodlands.

The location of the EL28616 is shown in Figure 1.

EL28616 "Moline" falls within the Mt Evelyn 1:250,000 map sheet and on the Ranford Hill 1:100,000 map sheet.

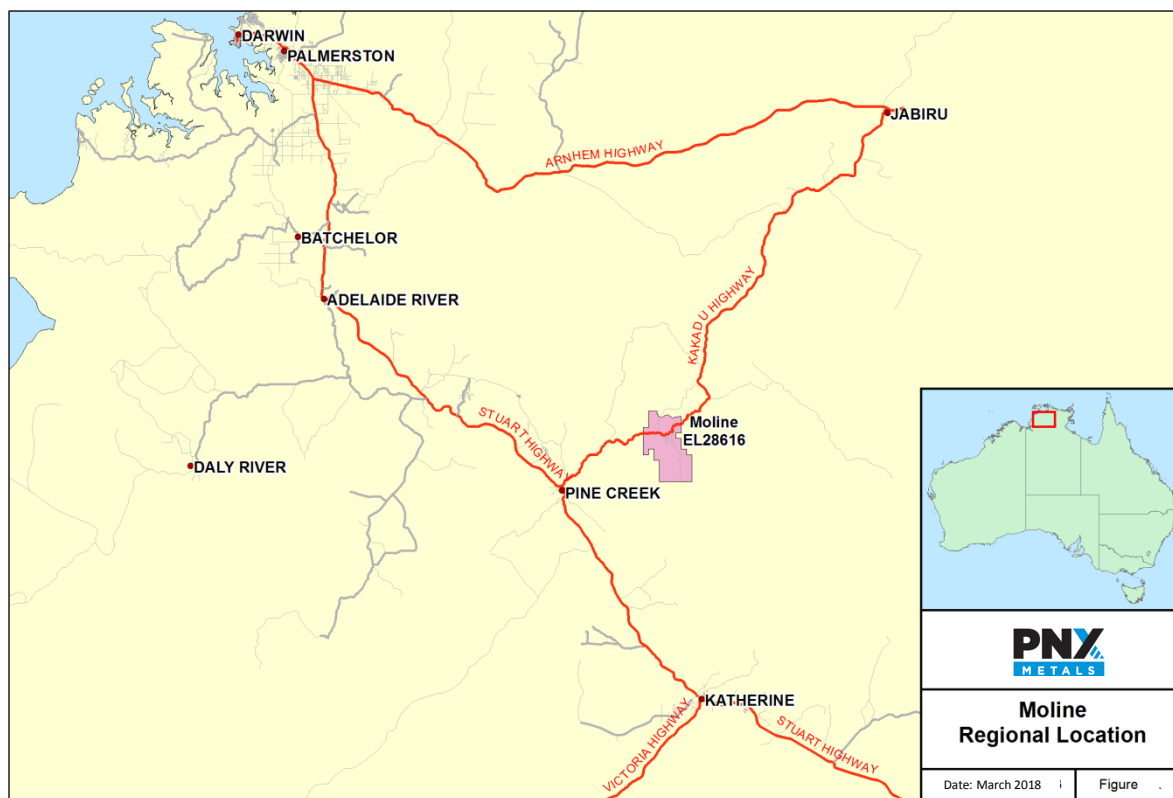


Figure 1: EL28616 Moline Project Locality

## 5 TENEMENT DETAILS

EL28616 Moline comprises approximately 262 square kilometres representing the amalgamation of EL22966, EL22967, EL22968, EL22970, EL23605, EL24127 and EL24262. These tenements were acquired by Crocodile Gold Corporation from the liquidated GBS Gold in November 2009 and amalgamation into EL28616 was granted on the 20 January 2012.

Northern Territory Portions 00649 and 01631 which include Perpetual Pastoral Lease 1134 Mary River Wildlife Ranch Pty Ltd are the underlying cadastre.

During the reporting period, PNX Metal earned 51% interest in EL28616 from Newmarket Gold Holdings NT (a subsidiary of KL Gold) who are now joint titleholders for EL28616. Exploration operations are managed by PNX (previously Phoenix Copper Ltd), who entered into an earn agreement in late 2014 whereby it can earn up to 90% interest in EL28616 and adjacent mining leases through staged expenditure commitments over four years.

## 6 GEOLOGICAL SETTING

### 6.1 REGIONAL GEOLOGY

EL28616 is situated within the Pine Creek Orogen (figure 2), a tightly folded sequence of Lower Proterozoic rocks, 10km to 14km in thickness, laid down on a rifted granitic Archaean basement during the interval ~2.2-1.87Ga. The sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with locally significant inter-layered cherty tuff units. Pre-orogenic mafic sills of the Zamu Dolerite event (~1.87Ga) intruded the lower formations of the South Alligator Group (Ahmad et al 1993).

During the Top End Orogeny (Nimbuwah Event ~1.87-1.85Ga) the sequence was tightly folded, faulted and pervasively altered with metamorphic grade averaging greenschist facies with phyllite in sheared zones.

The Cullen intrusive event introduced a suite of fractionated calc-alkaline granitic batholith into the sequence in the period ~1.84-1.1.78Ga. These high temperature I-type intrusives induced strong contact metamorphic aureoles ranging up to (garnet) amphibolite facies, and created regionally extensive biotite and andalusite hornfels facies. Less deformed Middle and Late Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat lying Palaeozoic and Mesozoic strata along with Cainozoic sediments and proto-laterite cementation overlie parts of the Pine Creek Orogen lithologies. Recent scree deposits sometimes with proto-laterite cement occupy the lower hill slopes while fluvial sands, gravels and black soil deposits mask the river/creek flats areas.

There is a tendency for gold mineralisation to be focused in anticlinal settings within strata of the South Alligator Group and lower parts of the Finniss River Group. This sequence evolved from initial low energy shallow basinal sedimentation to higher energy deeper water flysch facies.

Gold mineralisation appears to be related to the I-type members of the Cullen Batholith, formed as a result of fractionation and differentiation processes during magma emplacement. That ultimately led to the evolution of hydrothermal fluids responsible for gold mineralisation in the adjacent meta-sediments (Bajwah, 1994).

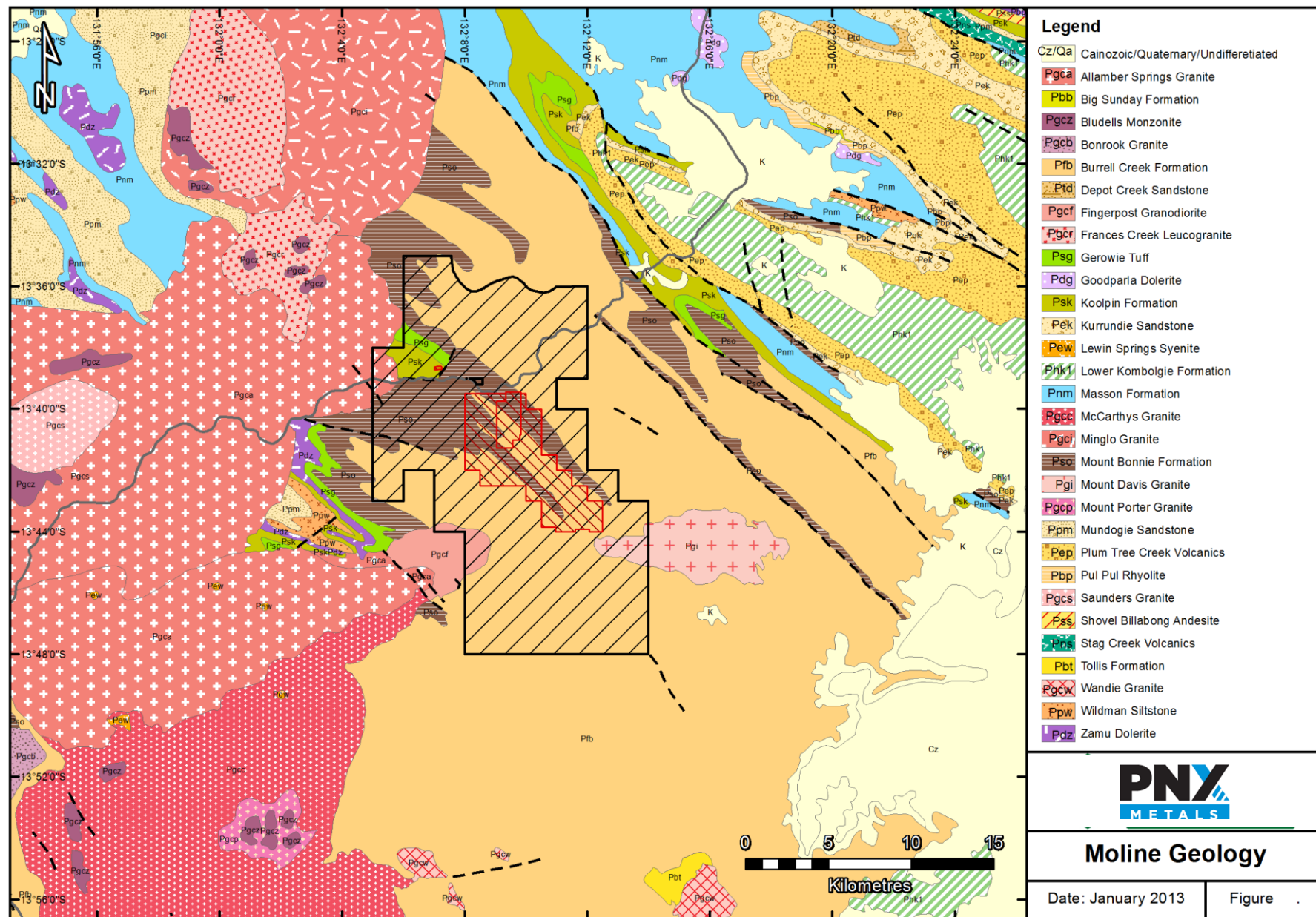


Figure 2: Regional Geology of EL28616, Moline Project



## 6.2 LOCAL GEOLOGY

The tenement area is dominated by massive greywacke of the folded Burrell Creek Formation, the Mt Bonnie Formation outcrops in the northern section of the tenement with the Mt Davis Granite present adjacent to lithologies of the Koolpin and Gerowie Tuff formations in the western part of the tenement.

The Burrell Creek Formation is typically a cyclic greywacke-dominated assemblage with minor dark siltstone and mudstone packages. The Mount Bonnie Formation is dominated by a shallow marine sequence of interbedded and graded siltstone, chert and greywacke.

The sediments are regionally metamorphosed to greenschist facies (phyllites in the argillaceous lithologies), with a thermal metamorphic overprint forming hornfelses at granite contacts in the west.

The metasediments are tightly folded into shallow southeast-plunging anticlines and synclines, generally overturned to the northeast, with dips commonly ranging from 50 to 80 degrees southwest on the fold limbs.

Over the Moline Project, gold mineralisation occurs within greywacke, siltstone and carbonaceous phyllite of the Mt Bonnie Formation. It is also confined to meta-greywacke and slate of the Burrell Creek Formation, which are the most prospective lithologies in the Pine Creek Orogen.



## 7 PREVIOUS EXPLORATION

EL28616 lies on, and surrounds, the Moline goldfield. The Moline goldfield was originally opened up as “Housechildt’s Rush” in the 1880’s, when it was worked mainly by Chinese miners in small open pits, with hand crushing of selected ore. The Northern Hercules reef was worked underground between 1891 and 1900, and again from 1954 to 1957, for a total production of about 33,000 ounces of gold, and an average recovery of about 27 g/t Au.

The field was reinvestigated between 1981 and 1990 by a consortium of Greenbushes, Amoco and Cyprus, with comprehensive regional exploration including programs of geological mapping, rock chip sampling, soil sampling, drainage sampling and aeromagnetics. Some of this regional work extended into areas now held under EL28616.

Gold mining was resumed by open pit methods between February 1989 and February 1992, and approximately 1.6 million tonnes were treated yielding an average of 2.14 g/t of gold. The ore was extracted from four main pits (Hercules, Moline, School, Tumbling Dice) and from at least 17 other satellite pits.

Mineralisation containing copper, lead, zinc and silver is also widespread, particularly in zones of hornfelsing close to the granite contacts. The most significant base metal deposit was at Evelyn Mine which produced 83,000 tonnes averaging 260 g/t Ag, 5.8% Pb and 6.1% Zn between 1966 and 1970.

During **2004** exploration activities included a review of previous exploration data, metal detecting and field exploration with the use of a bulldozer.

Terra Gold Mining (wholly owned subsidiary of GBS Gold Australia) obtained the licence during 2004 and from **2004 to 2005** work relating to EL28616 consisted of sorting, cataloguing and evaluating a large map database which related to exploration and mining in the Moline Field during the 1981 to 1998 period. This database had apparently been lost, but was eventually recovered from Northern Gold’s warehouse at Brocks Creek in November 2004.

From **2005 to 2006** exploration activities included a review of historic data, a review of the Geocraft Moline database and consequent database compilation for the Moline Project, identifying the Rockwall Waterhole prospect, Strongbow trend, High Chinese – Low Chinese trend, Simple Dreams prospect, Tumbling Dice (Swan-Emu-Crow-Divot line) and the Paw Paw deposit. Additional work included geological mapping and surveying of the tenements. Au and As BLEG soil sampling results were presented with follow up reconnaissance work highlighting three areas of interest: High Chinese; extensions to Paw Paw (NW and SE) and extensions to Strongbow (NW and SE).

Exploration during the **2006 to 2007** reporting period consisted of a literature review and field reconnaissance mapping. Two geochemical soil sampling programs, one of 55 samples and one of 370 samples were undertaken but not analysed until the following reporting year. Two diamond holes (HEX001 and HEX002) were drilled within EL23605 for a total of 321m. During drilling, 321 samples were retrieved and analysed for Au, As, Ag, Cu, Pb and Zn. Both holes were drilled into the Burrell Creek Formation. A number of quartz veins systems were encountered at

various depths with disseminated sulphides and greywacke and siltstone as common lithologies. Wall rock alterations were observed, particularly in the vicinity of quartz vein systems.

The first significant quartz vein system was intersected at a depth of 60m in drill hole HEX001. Samples retrieved from a depth of 60 to 62m contained gold contents ranging from 1.05 g/t to 1.88 g/t Au. This intersection also returned higher As values ranging from 220ppm to 9660ppm. Another small zone of gold mineralisation was intersected at a depth of 87m and returned an assay result of 1.44 g/t Au.

Drillhole HEX002 also intersected rocks of the Burrell Creek Formation with some Mount Bonnie Formation beds. However, HEX002 was weakly mineralised probably due to poorly developed quartz vein system at various stratigraphic horizons. A notable intersection was observed from 148.96m to 150.05m and assayed 2.76 g/t Au.

From **2007 to 2008** exploration on the pre-amalgamated EL28616 tenement included a 50m by 400m spaced soil sampling program with 2483 soil samples collected, infilling the 370 samples taken the previous year. This sampling program aimed to further identify mineralisation along strike from the Moline Dam and Hercules gold deposits. Results revealed a NW trending Au anomalous trend covering a 6km by 2km zone, along strike from the existing Moline Dam gold deposit. Rocks within the anomalous zone were from the Burrell Creek and Mt Bonnie Formations which were folded along a NW trending axis and cut by shear zones. Further north, the Moline group of gold deposits were confined to shear zones within a similar NW trending anticlinal structure. It appears that the anomalous zone was the continuation of mineralised structures at Moline. The soil anomaly weakened down the SE trend.

Base metal assays showed variable concentration in soil samples and did not correspond to Au concentrations. An additional 309 soil samples were also taken over the Evelyn mine area to the West of the tenement to test for base metal mineralisation.

Crocodile Gold acquired the Moline Project tenements as part of the takeover from GBS Gold Australia (liquidated) in November 2009. During the **2009 to May 2010** exploration period, Crocodile Gold conducted a project review, conducted a review of existing satellite imagery and purchased new satellite imagery. Field reconnaissance mapping over the pre-amalgamated EL28616 also occurred during this period.

**During 2011**, a VTEM survey was flown over the Moline Project with an interpretation of the data resulting in the generation of potential exploration targets. Figure 4 illustrates the VTEM survey of Moline project area.

Exploration activities conducted over EL28616 during the **2012** reporting year included analysis and interpretation of the VTEM geophysical flown in 2011, a review of historical geophysics and interpretation, historical data review as well as reconnaissance field visits.

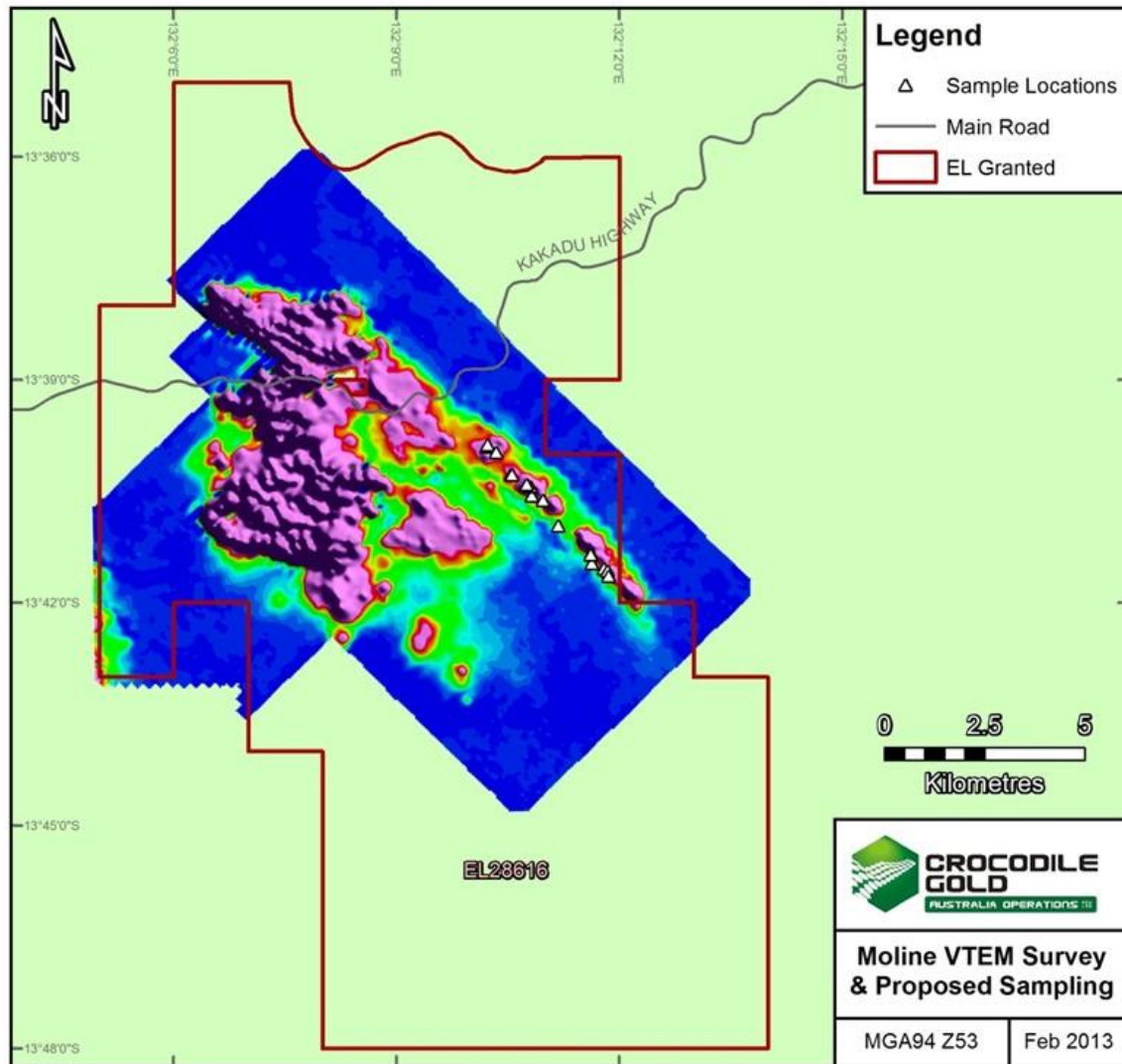


Figure 4: Moline Project VTEM Survey 2011

During the **2013** reporting year, exploration activities for the reporting period include a review of CGAO stockpiles and Moline bulk sampling which entailed field reconnaissance visits to inspect some of the historically mined areas within EL28616. Geologists completed several field trips to inspect and look over some of the historic pits but field observations found no discernable stockpiles.

Additional activities in **2013** included a review of historic geochemical and geophysical data looking at target generation over the exploration lease. Observations and conclusion from this work were:

1. **Hercules trend** – open pits possibly follow folded lithology contacts slightly discordant to dominant the NNW-trending shear fabric
2. **Moline trend** – possibly located on the northern extent of a ~2km-long NNW-trending dome as interpreted from VTEM and TMI images
3. **Tumbling Dice Trend** – known open pits follow a NNW-trending shear zone developed within an antiformal hinge zone

4. The geology is dominated by sedimentary rocks attributed to the Koolpin, Gerowie Tuff, Mount Bonnie, and Burrell Creek Formations.
5. Folds are tight to isoclinal, inclined and commonly overturned – likely multiple deformation events
6. Fold axes plunge mostly towards the southeast and there are NNW-trending domes in some areas
7. Numerous NNW-trending shear zones are associated with the axial plane of some major folds
8. Most gold deposits are located within the *Mount Bonnie Formation*

Historic data and reports were also compiled and uploaded into the document review database and a separate Moline “Dataroom” created. The BLEG, Lag and Grab Sampling data within EL28616 and the Moline mining leases were further reviewed and information incorporated into a Project wide ranking exercise.

In **2014**, PNX Metals Ltd (then Phoenix Copper) entered into an agreement whereby it can earn up to 90% interest in the Moline tenements through staged expenditure commitments. PNX began investigations, including data review, reconnaissance field visit and some rock chip sampling. Twenty Eight rock chip samples were taken around the Evelyn and El Dollarado historical mines, with results confirming very high base metals values, with little context to what they meant.

Exploration activities for **2015** included geological and geophysical targeting and data compilation. PNX undertook a profile analysis of the EM and magnetic data in an attempt to identify potential base metal sulfide bodies, as well as evaluate historical deposits to determine whether any un-mined material remains and to identify new prospects based on the existing datasets.

During the **2016** reporting period PNX collected 429 pXRF surface geochemical, and 6 rockchip samples. In addition, geological mapping and georeferencing historical data was carried out.

## **8 EXPLORATION IN THE CURRENT PERIOD (2017)**

### **8.1 SUMMARY**

A large amount of work has been carried out on EL28616 during the year. Fieldwork in 2017 was undertaken at ElDollarado, Eitherway, Mango, Waterhole, Little Wandie, MoLT-17 & 18, South Evelyn, Skinners, Otherside, Swan and MAGCST05 prospects, all of which were priority geophysical targets and geochemical anomalies resulting from 2016 field work and historic data review (Figure 5). 1313 pXRF readings over 100x25m and/or 50m x 25m spaced traverses and 40 rockchip samples were collected, a gradient array and pole-dipole IP survey was carried out at Mango and Waterhole, and 240m of RC drilling was completed at Mango. In addition, geological mapping and field checking historical data was carried out.



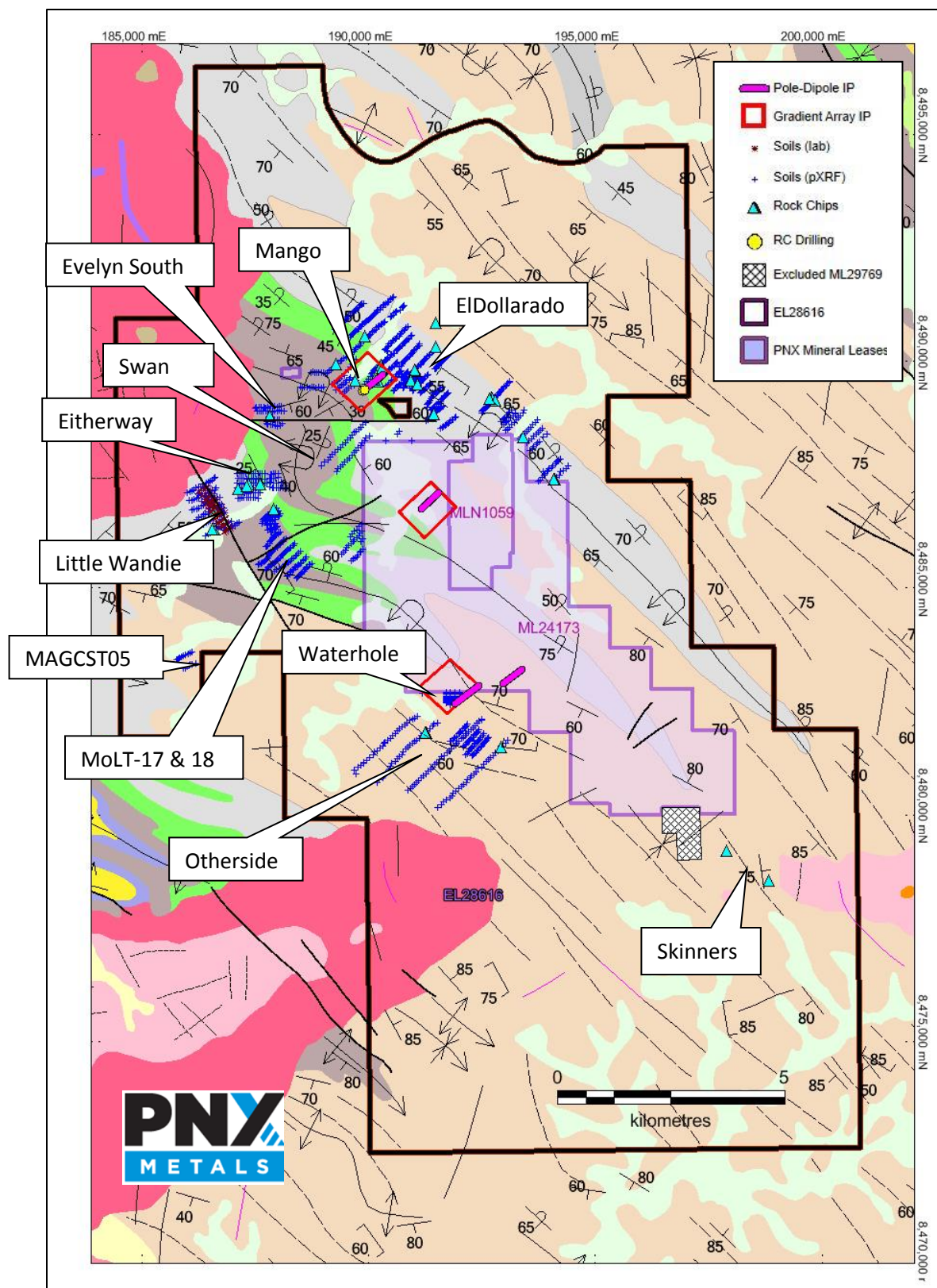


Figure 5: PNX exploration index map overlaid on NTGS 1:250K Geology

## 8.2 SOIL SAMPLING

A total of 1313 portable XRF (pXRF) measurements were taken on sieved soil fractions (excluding standards, duplicates and blanks) on EL28616. These were measured using a Niton XL3t500 device on the fine fraction resulting from using a 60-mesh sieve, for reading times of 50 seconds to collect data for 34 elements. Figure 6 displays all 2017 and historical Zn soil geochemical data gridded on the NTGS 1:250K geological map.

A small program occurred where 55 soil samples were collected using the 80-mesh fraction at the Little Wandie prospect and submitted for laboratory gold analysis (FA50) at NAL in Pine Creek.

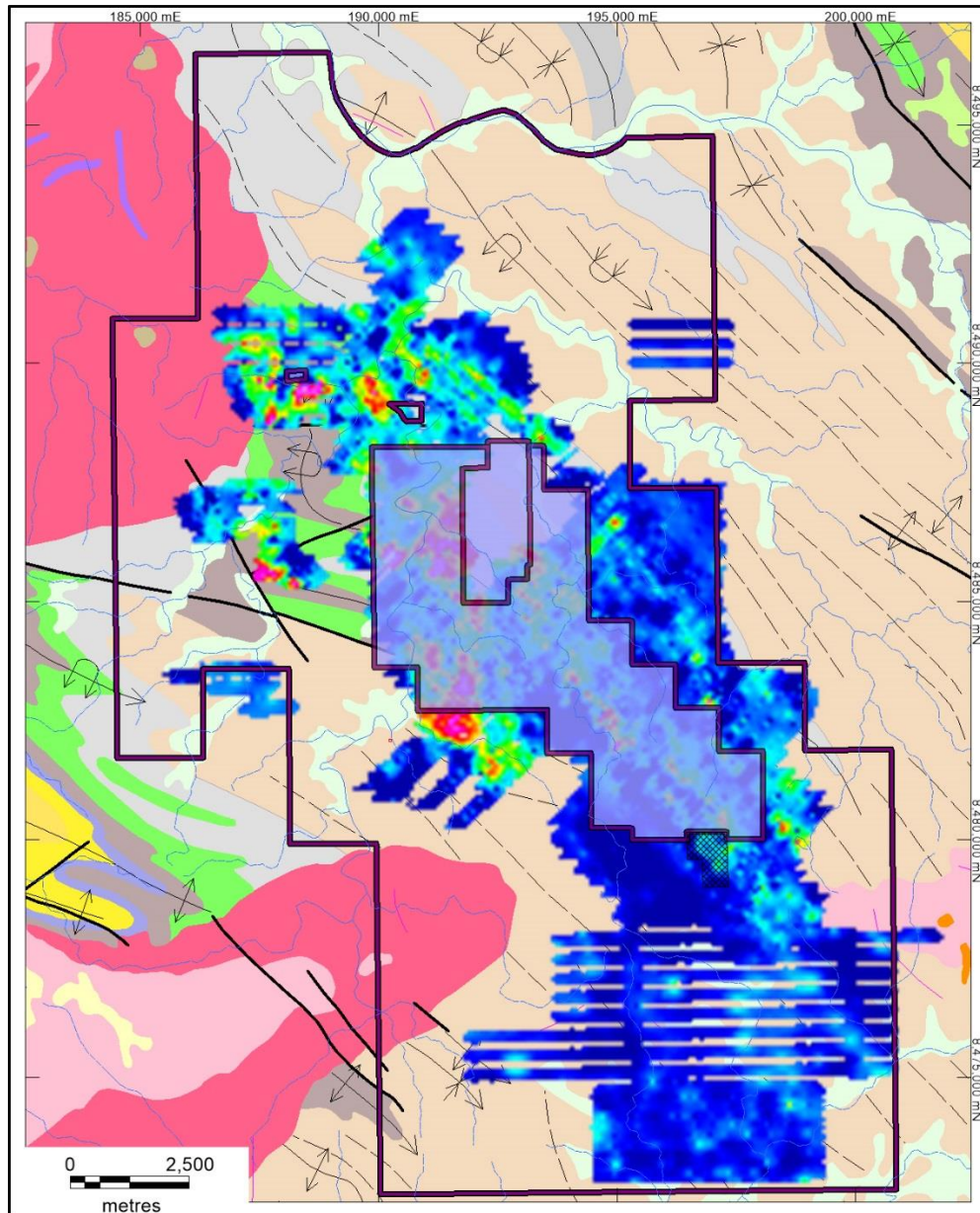


Figure 6: Zn Soil Geochemistry on 1:250K NTGS Geology



### **8.2.1 ElDollorado (Au + Base Metals)**

Subsequent to the work undertaken in 2014 pXRF geochemical soil campaign by PNX adjacent to an old historic working by “Len” at ElDollorado, 527 pXRF samples and 18 rockchip samples were collected along the ElDollorado mineralised trend.

The ElDollorado trend and to the North and NW of ElDollorado is interlayered cherts, laminated siltstones/shales with quartz veining, and crosscutting veinlets were observed. Haematitic alteration, with minor BIF bands and layers of boudinage textures was evident.

The map below (Figure 7) shows the patchy Zn surface geochemical anomalism from all PNX pXRF data from 2014 along the ElDollorado trend(s) situated in the Mt Bonnie formation. Several EM geophysical targets were also investigated, however graphitic shales were the cause for the magnetic anomalism, especially at MoLT005 which is associated with a zinc anomaly (Figure 7). The base metal mineralisation appears patchy and is currently a lower priority, however further investigation is required. Rockchip results contained no significant Au or base metal mineralisation.

### **8.2.2 Mango (Au + Base Metals)**

40 additional pXRF measurements were collected at Mango to better define the extent of a Pb-Zn anomaly identified in 2016. The Zn anomaly measures 750m length by 50m wide trending north (Figure 7), The Zn-Pb anomaly is in situ residual soils of haematitic altered siltstone and greywacke parallel and crossing Koolpin Fm and Gerowie Tuff contact zone. Historical workings in the form of a covered shaft were discovered, but no information on this has been sourced. Two rockchip samples collected from quartz outcropping near an old concealed mine shaft were devoid of Au.

The Pb-Zn geochemical anomalism was later followed with ground IP gradient array survey and pole-dipole surveying to define two RC drilling targets, with results discussed below

### **8.2.3 Waterhole (Au + Base Metals)**

Historic rockchip and drilling data suggest Waterhole highly prospective. Observed quartz veining with limonite trending E - W, with observed shallow to deep dipping bedding striking ENE – WNW indicating stratigraphy is tightly folded (Figure 8). North - South lines of pXRF readings were collected and delineation of a strong zinc anomaly +500ppm was achieved. The lithology appeared to be steep dipping laminated greywackes and shales becoming shallower to the SW.

The base metal geochemical anomalism was followed up with ground IP gradient array survey and pole- dipole surveying to define two RC drilling targets, with results discussed below

### **8.2.4 Otherside (Au + Base metals)**

A regional survey of 185 pXRF readings delineated a patchy moderate zinc anomaly 300m wide and 700m long associated with NW trending residual soils of Burrell Creek formation shales and greywackes (Figure 8).

The zinc anomaly is closed off by bordering creek lines, thus the Zn geochemical anomalism should be followed up with ground geophysics (IP or SAM) to identify new drilling targets. In addition, locating and compiling historical drilling data is required.

Three brecciated and stockwork quartz vein rockchip samples were collected however results showed very weak Au and base metal mineralisation.

#### **8.2.5 Stockyard (Au + Base Metals)**

Historic drilling data and costean sampling data indicated base metal potential at Stockyard prospect. Historic drillholes included PDH04 – 5ft @ 3.73 g/t Au, 11 oz/t Ag and 0.85% Cu; and PDH02 – 15ft @ 1.79% Zn and 0.4 oz/t Ag. A historic rockchip sample from costean tailings was noted at 77% Pb.

Stockyard prospect lies over folded Gerowie Tuff and Koolpin Fm stratigraphy and is under explored. 40 pXRF samples were collected at end of field season indicating Zn and As geochemical surface anomalism. The area was extremely dense in vegetation and it is recommended to be burnt off to continue on with geochemical surveying and mapping programmes in following field seasons.

#### **8.2.6 Eitherway (Au + Base Metals)**

Observations at Eitherway prospect consisted of a relatively flat lying area with an abundance of quartz and breccia scree, unfortunately no observable outcrop. Geophysical imagery suggests extensive chevron folding of Koolpin Fm and Gerowie Tuff at Eitherway and was recommended as a priority geophysical target.

102 pXRF soil samples, and four rockchip samples of siliceous gossanous material, were collected for analysis. Results concluded no indication of Au or base metal mineralisation, therefore Eitherway is considered a lower priority target.

#### **8.2.7 MoLT-18 & 17 (Au + Base Metals)**

185 pXRF readings were collected over high priority geophysical targets MoLT\_17 and MoLT\_18, which occur along a NW mineralised corridor from an old historic pit called Dingo. The pXRF readings in hematitic soils of Mt Bonnie Fm detected +500ppm Zn and minor As anomalism. The anomaly occurs on a gradual slope from outcropping greywackes and Fe rich metased (high strain) zone that is following the NW-SE Dingo corridor. Furthermore, associated with the aforementioned Zn anomalism, a low-level zone of +100ppm Zn and Pb pXRF readings were detected in haematitic Mt Bonnie metaseds proximal to Gerowie Tuff contact, a favourable stratigraphic setting for VMS mineralisation.

Grass was extremely dense and difficult to traverse in this prospect, and observation of the lithology limited. Burning off will be required to continue to define the high Au pathfinder and base metal anomalies of this prospect.

#### **8.2.8 Swan (Au + Base Metals)**

The Swan prospect occurs mainly in the PNX mineral leases, however 39 pXRF samples were collected in EL28616, delineating the extent of As and base metal anomaly, which occurs along the Gerowie Tuff contact trending NW from the historic Swan Pit.

Swan base metal mineralisation is concentrated in the mineral lease to the SE which has been subject to IP gradient array survey and pole to dipole modelling with RC drilling a possibility.

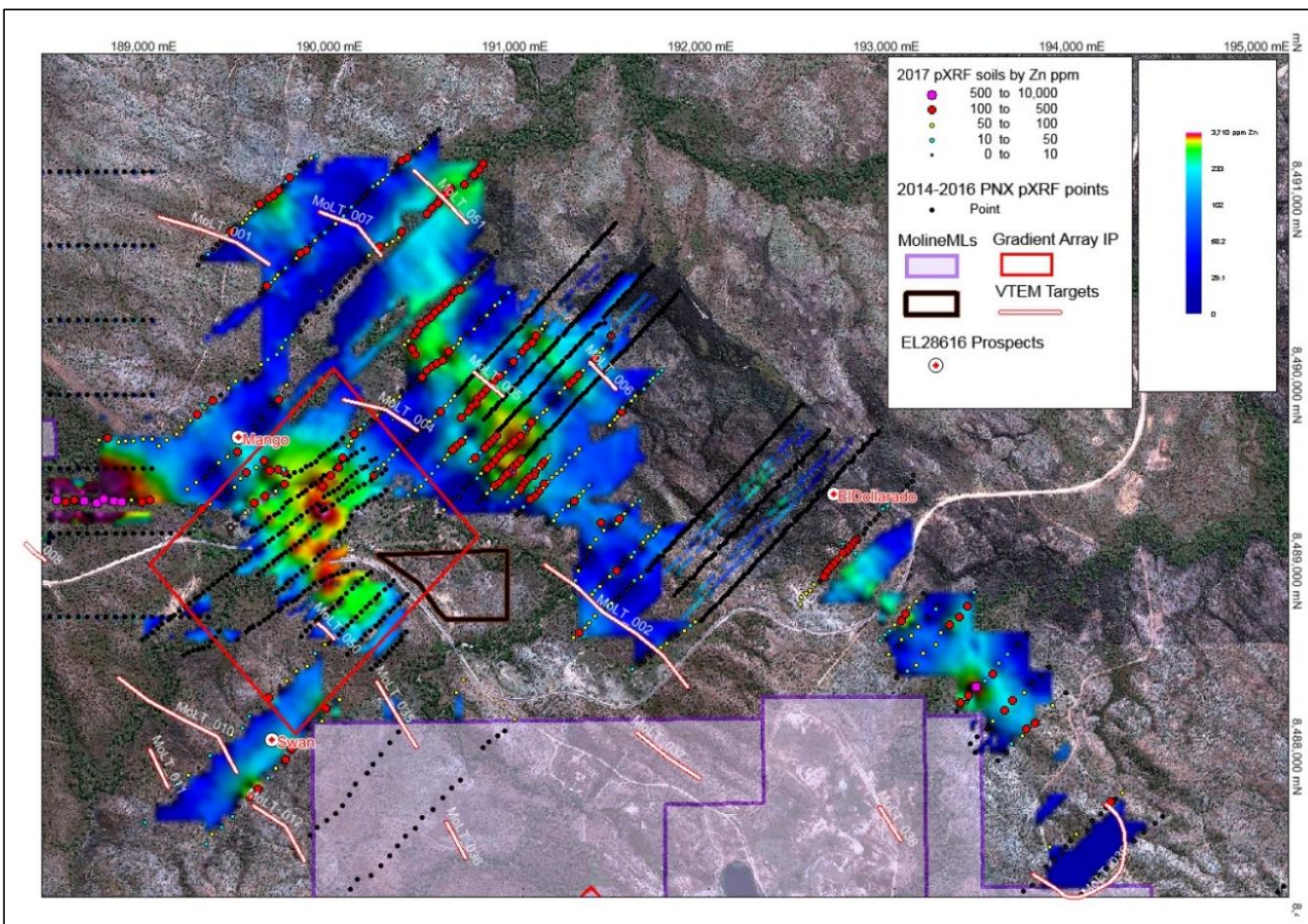


Figure 7: Mango and ELDollarado Zn geochemistry and all pXRF surface data points and strong VTEM target locations



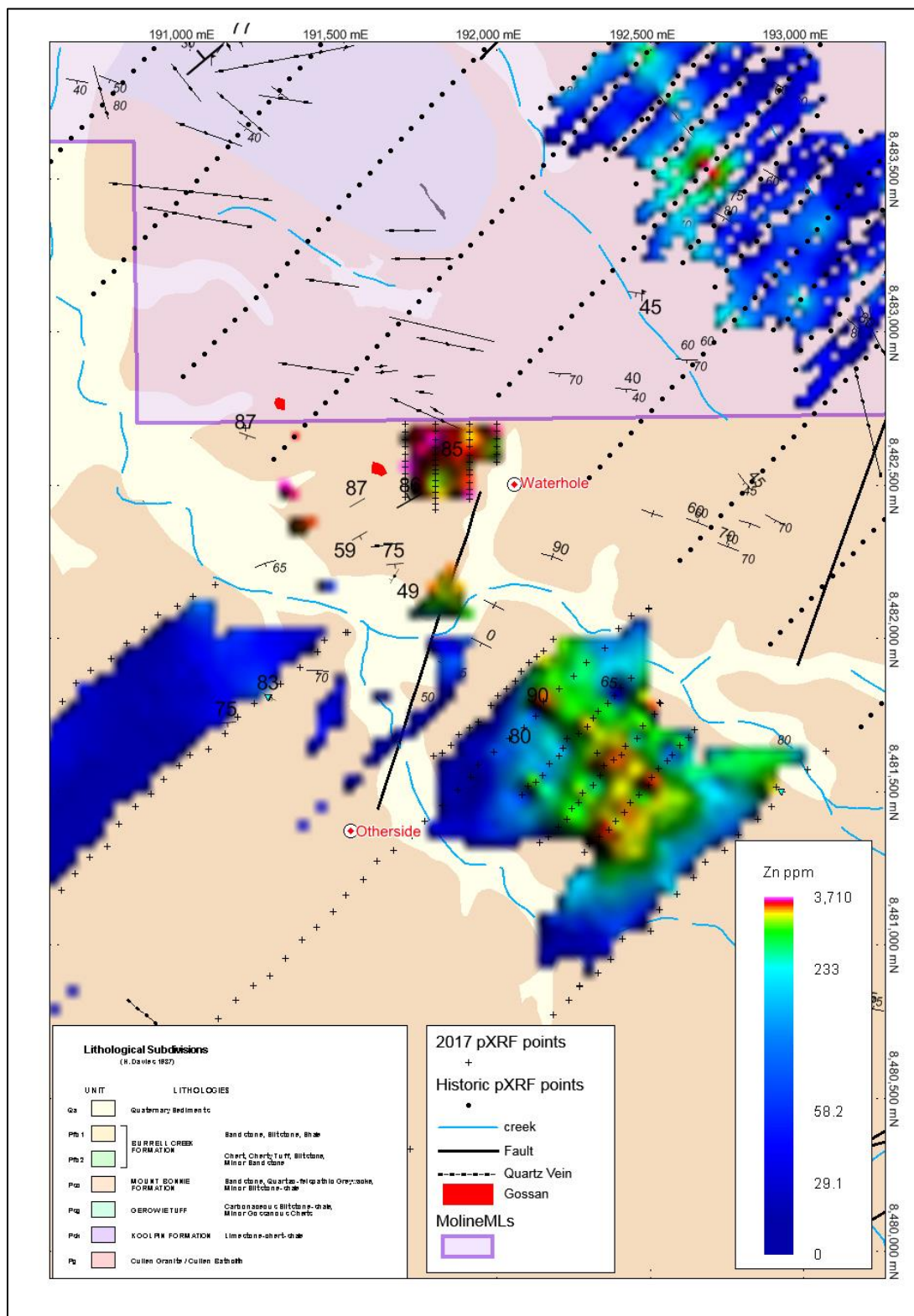


Figure 8: Otherside and Waterhole Zn geochemistry and pXRF sample locations on NTGS 1:250K Geology

### 8.2.9 MAGCST05 (Au)

MAGCST05 was a high mag anomaly near a historic costean MGACST05. 18 pXRF readings were collected over two lines with no base metals or pathfinder elements detected. Structural and geological observation failed to find any indication of mineralisation.

### 8.3 ROCKCHIP SAMPLING

PNX collected 40 rock chip samples at various prospects, including Mango, Skinners, MoLT 18, Evelyn South, Eldollarado, Otherside, Little Wandie, Waterhole and Eitherway (figure 5). Significant results are tabulated below and locations are displayed in figure 5.

Table 1: Moline rock chip results

Prospect	SampleID	Zone	East	North	Comments	Au (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)
Little Wandie	MRK00045	MGaz53	186553	8486302	20cm wide chloritic qtz vein	1.54	71	471	34	10661
Skinners	MRK00060	MGaz53	197881	8479211	malachite in qtz sandstone matrix	4.5	116160	2333	297	43320
Evelyn South	MRK00070	MGaz53	187805	8488790	gossanous costean spoils	1.26	840	1147	210	1659

#### 8.3.1 Little Wandie (Au)

Historic rock chip locations containing 4.42 g/t Au and 2.23 g/t Au were visited for validation. MRK00045 1.54 g/t Au was collected from a chloritized vein high in arsenic (figure 9) cross cutting NW trending Mt Bonnie Fm chloritized siltstones, (similar analogy to Hercules deposit).

Extending NW from the mineralised veining containing 1.54g/t Au, a weak arsenic anomaly along chloritized Mt Bonnie Fm siltstone ridgeline was delineated from the pXRF readings. This weak arsenic anomaly was subsequently followed up with 55 soil samples collected, sieved using -80 mesh and for Au at Pine Creek using FA50 analysis. Au was not detected therefore Little Wandie is given lower priority.

#### 8.3.2 Skinners (Au + Base Metals)

Observations at Skinners revealed a mineralised trend of scorodite (qz) with As, Zn, Pb and Bi interlayered with strongly chlorinated mudstone, siltstone and sandstone within the Burrell Creek Fm (figure 10).

A variety of historic >1g/t Au rockchips locations were visited, all occurring in drainage and creek lines making it difficult to validate the lithology of the historic rockchips, however MRK00060 – 4.5 g/t Au, 11.61% Cu, 0.23% Pb was collected from a definite trend of scorodite rich quartz with malachite within a drainage line.

The mineralised zones are 1-2m wide and patchy, however could be considerable in strike length if proven continuous. There are a lot of old workings noted in the malachite and sulphide rich quartz creeks and drainage lines. Skinners prospect is worthy of further investigation to determine economic potential of Au and base metal resources.



Figure 9: Chloritized vein high in arsenic



Figure 10: Scoroditic mudstone with bismuth

### 8.3.3 Evelyn South (Capers) (Au + Base Metals)

Rockchip MRK00070 - 1.26 g/t Au was collected from an old shallow E - W costean containing Fe gossanous float. One metre pXRF readings were collected along the goethitic shales, siltstones and Fe rich gossanous costean tailings detecting a zinc anomaly.

Proximal to Evelyn South a favourable mineralisation horizon consisting of carbonaceous shale and chert with stockwork carbonate and quartz veining was observed. This prospect requires further field investigation to determine possible Au and base metal mineralisation.

## 8.4 GRADIENT ARRAY IP

Based on the geochemical and mapping results, a number of targets were identified for follow-up Induced Polarisation surveying, to test whether chargeable features may be causing the geochemical anomalism. Three blocks were chosen for initial gradient array tests (Figure 5), two of which are either partially or wholly within EL28616 (Waterhole and Mango prospects respectively). The data was collected by Zonge in frequency domain with 3-point coupling, 50m Rx dipoles, NE-SW orientation, 100m line spacing at 0.125Hz. Chargeability images for Waterhole and Mango are shown in Figures 11 and 12. Full results are in the digital appendices.

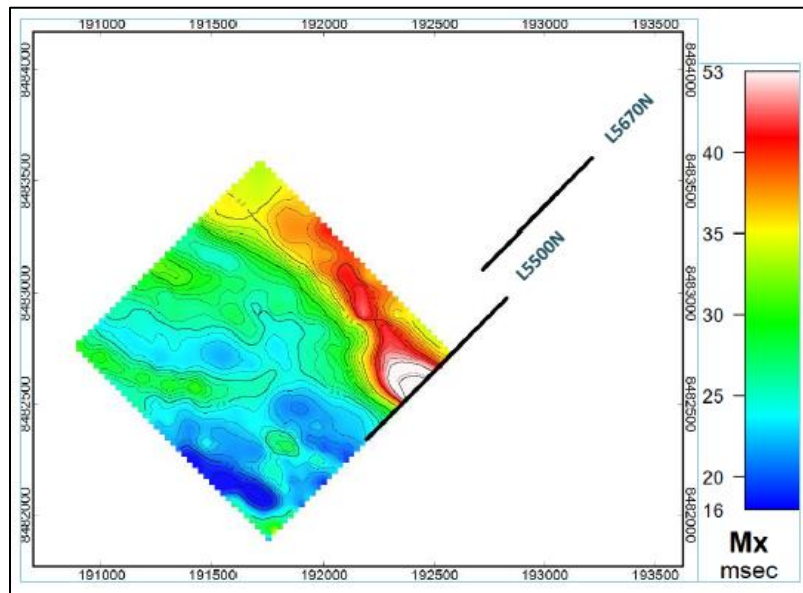


Figure 11: Waterhole Chargeability showing PDIP lines

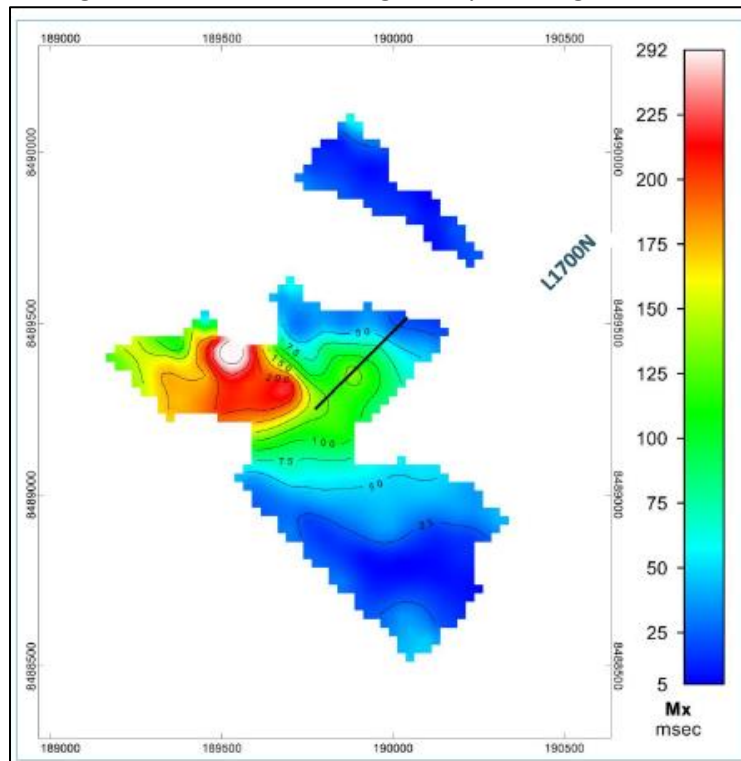


Figure 12: Mango Chargeability showing PDIP line.

## 8.5 POLE-DIPOLE IP

All gradient array surveys detected highly chargeable features, which were then followed up with selected 2D pole-dipole (PDIP) lines (Figure 5), which were again collected by Zonge in time domain, NE-SW orientation, 50m Rx dipoles and 0.125Hz. Results were modelled by consultant geophysicists at Terra Resources and results are shown in Figures 13 and 14. Two drill holes were recommended at each target based on the results. Full results are in the digital appendices.



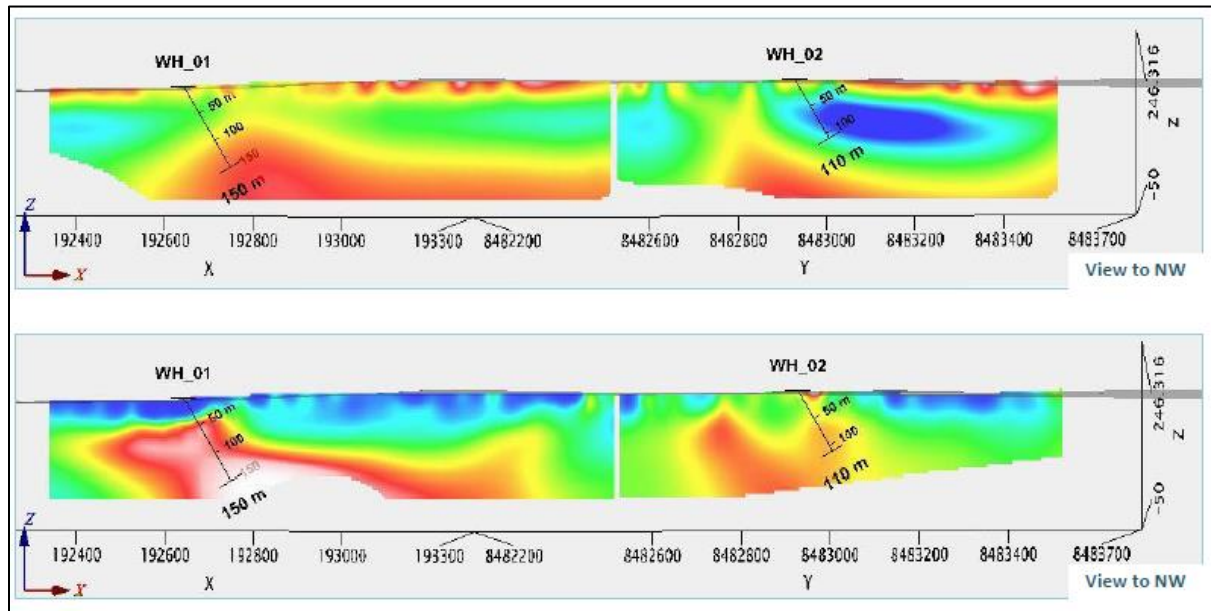


Figure 13: Waterhole PDIP resistivity and chargeability models showing recommended drill holes

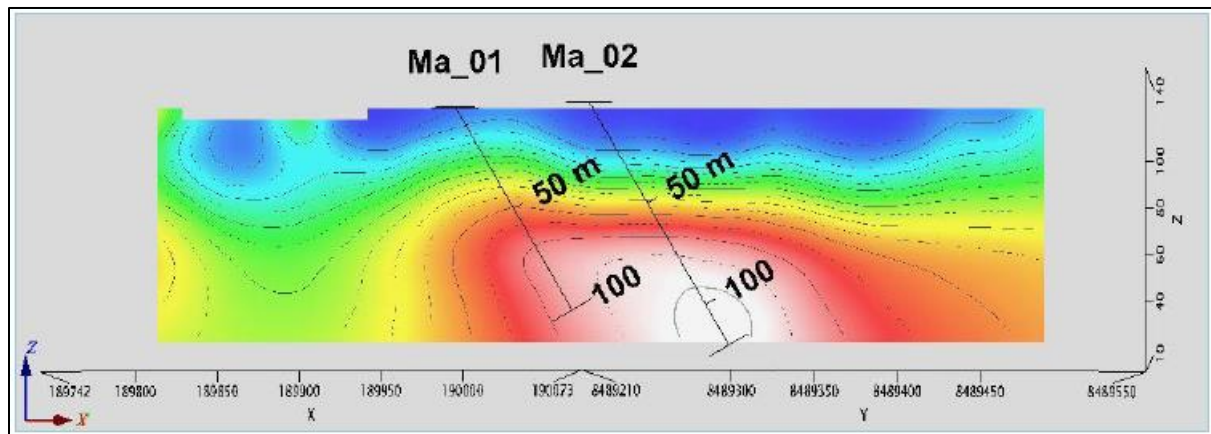


Figure 14: Mango PDIP chargeability showing proposed drill holes

## 8.6 MAGNETIC MODELLING

A 3D magnetic inversion model was created for the Waterhole-Simple Dreams area, to provide further context and targeting information to the IP results. This resulted in the creation of 4 isoshells (5-11 SI x 10-3 SI) as shown in Figure 15. The model shows a weakly magnetic body that coincides with a chargeability high (from IP) and a conductivity high (from VTEM). The magnetic body has a depth to centre of about 300m. Full results are in the digital appendices.



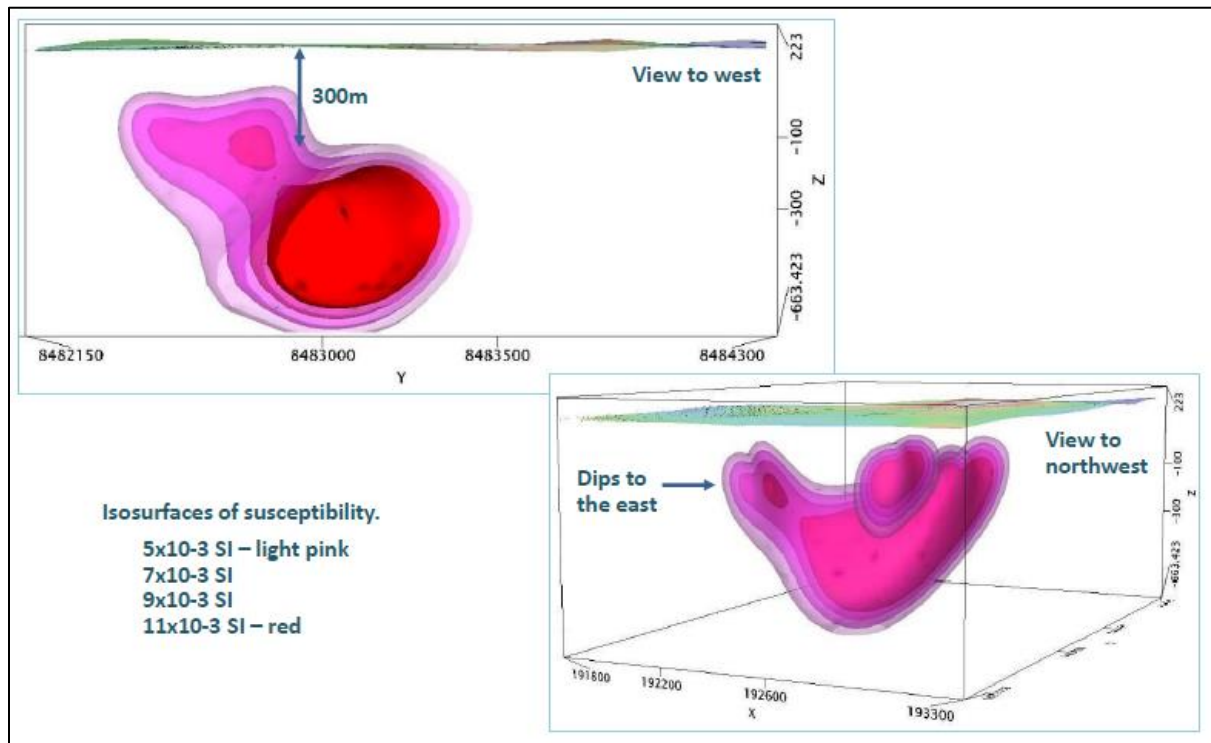


Figure 15: Waterhole magnetic model

## 8.7 MAGNETIC IMAGE PROCESSING

The regional open file magnetic data was merged with the 2011 VTEM-derived magnetic data to produce new merged images covering the whole Moline project.

## 8.8 RC DRILLING

The Mango target was tested in late 2017 with two holes drilled as recommended from the PDIP modelling (Figures 2 and 7). The two RC holes totalling 240m (Table 2) were drilled by local contractors Geodrilling based out of Batchelor. One metre samples were collected from a cone splitter mounted at the base of the cyclone, with samples geologically logged, pXRF tested and submitted to the NAL facility for analysis in Pine Creek. Where no visible sign of mineralisation was observed, composite samples at typically 3m intervals were collected from the residual sample spoils using a spear. All holes were surveyed using a single shot camera at typically 30m downhole intervals.

All lithological data was logged, magnetic susceptibility, conductivity and pXRF measurements taken. Despite some weak base metal anomalism in the regolith, there were no significant base metal results, and the chargeability is attributed to carbonaceous shales. Samples for gold analysis (FA50) were sent to NAL laboratories in Pine Creek however results indicated no significant gold mineralisation.

Table 2: Moline drilling summary

Hole_ID	IP Target	Type	EOH Depth	Grid	East	North	Azi_Grid	Dip
MORC029	MA01	RC	108	MGaz53	189864	8489340	45	-60
MORC030	MA02	RC	132	MGaz53	189905	8489380	45	-60

Drilling was also planned, approved and prepared for Waterhole, however, was not completed before the wet season.

## 8.9 DATA COMPILATION

Though a significant amount of historical geochemical, geological and drilling data exists on EL28616, most of it is not available digitally. PNX has undertaken extensive georeferencing of images and trawling through datasets to identify items of interest. An accurate transformation from the Moline grid (as used in the 1990's) has been established to locate some historical data, but there is a lot of information yet to be digitised.

## 9 RECOMMENDATIONS AND CONCLUSIONS

Work during 2017 has been encouraging, particularly in the Stockyard, Waterhole, and Otherside area, where open-ended geochemical anomalism has been detected. Similar targets elsewhere, including Skinners and Evelyn South gold and base metal targets require field verification and assessment.

MoLT17\_ and MoLT\_18 are worthy of further investigation due to indications that zinc and arsenic (gold pathfinder element) occur in association with favourable structural settings along the known Dingo mineralised corridor. Evelyn South (Capers) needs follow up geochemical sampling and mapping based on the interesting Fe-rich gossanous rockchip containing 1.26 g/t Au.

Compilation and validation of historical data also needs to continue. Targets such as Little Wandie, Eitherway, ElDollorado have been relegated to a lower priority, however historical data may identify further potential to these prospects as well as generate new target areas.

The program of surface geochemical sampling using pXRF and laboratory gold analyses needs to continue. The known association of zinc with gold mineralisation at Stockyard and elsewhere provides a two-pronged focus for both gold and base metals. The strategy will be to prioritise the geochemical anomalies for ground geophysical testing to refine drill targets. The chosen geophysical method will be investigated more thoroughly.

RC drilling of highest priority targets after seeking necessary approvals and clearances for drilling will be undertaken (~2 weeks during first pass work Aug-Nov 2018), including the Waterhole targets which are drill-ready, will also be a focus for PNX moving forward.

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