



# Geophysics and Drilling Collaborations Program: Round 17 Summary Report

2024–2025



*Courtesy of URO Corporation*

**Northern Territory Geological Survey**  
Department of Mining and Energy

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Acronym	Full form
@	at
%	percent
AC	Air Core drillhole
AGG	Airborne gravity gradiometry
DD	Diamond drillhole which may include a mud-roller or reverse circulation pre-collar
GAIP	Gradient array induced polarisation
GDC	Geophysics and Drilling Collaborations co-funding grants program, under the Resourcing the Territory program, administered by the Northern Territory Geological Survey
GIS	Geographic Information Systems
GST	Goods and Services Tax
g/t	Grams per tonne
HeliTEM	Helicopter-borne time-domain electromagnetic
IP	Induced polarisation
IOCG	Iron Oxide – Copper – Gold
km	kilometres
m	metres
MT	Magnetotellurics
MVT	Mississippi Valley Type
mV/V	millivolts per volt
ppm	parts per million
RC	Reverse Circulation drillhole
REE	Rare earth elements
TREO	Total rare earth element oxides
VTEM	Versatile time domain electromagnetics

# Overview

This report summarises the results of round 17 of the Geophysics and Drilling Collaborations (GDC) program 2023–24. The GDC program allocates up to \$3 million annually from the \$9.5 million *Resourcing the Territory* program to co-fund eligible selected programs that address geoscientific knowledge gaps, advance exploration activity, and support the discovery and development of resources in the Territory.

This round introduced refinements to project categories and expanded eligible activities. These included the innovative targeting category adding up to \$100 000 for seismic re-processing to assist in visualizing sub-surface geology and undercover targeting. A new category “advancing critical minerals” was added to support assessment of critical minerals endowment or recoverability using new or existing sample sets. The category included:

- Up to \$50 000 for re-analysis of existing sample sets and/or mine waste to include previously untested critical minerals.
- Up to \$50 000 for early-stage metallurgical test work and/or characterisation to assess potential recoverability of critical minerals from mineralised material.

The newly acquired data from round 17 programs complements and builds to the regional datasets available, assisting companies in future exploration planning. Several regional geophysical surveys were completed improving resolution over large areas. The programs generated numerous new exploration targets for follow up in later programs. Technical successes included the successful proof of concept demonstrated for direct-targeting blind pegmatites using ambient noise tomography generated models.

# Key statistics

- Sixty-one grant applications received from 35 companies.
- Ten companies applied for co-funding for the first time.
- A total co-funding of \$4.02 million (inclusive of GST)<sup>1</sup> was awarded to 41 projects from 29 companies.
- Projects encompassed 12 greenfields drilling, eight brownfields diamond drilling, 10 regional-scale geophysical surveys, eight innovative targeting projects, and three advancing critical minerals (new category for round 17).
- Seven companies received co-funding for the first time.
- Twenty-three programs were completed (Figure 1) with a total expenditure of \$1.77 million inclusive of GST.
- Eighteen programs were withdrawn by 17 companies.

<sup>1</sup> The program experiences underspend due to withdrawals and variations on estimated costs. To account for the long-term average completion rate, the total awarded amount each year is set in excess of the \$3 million allocation.





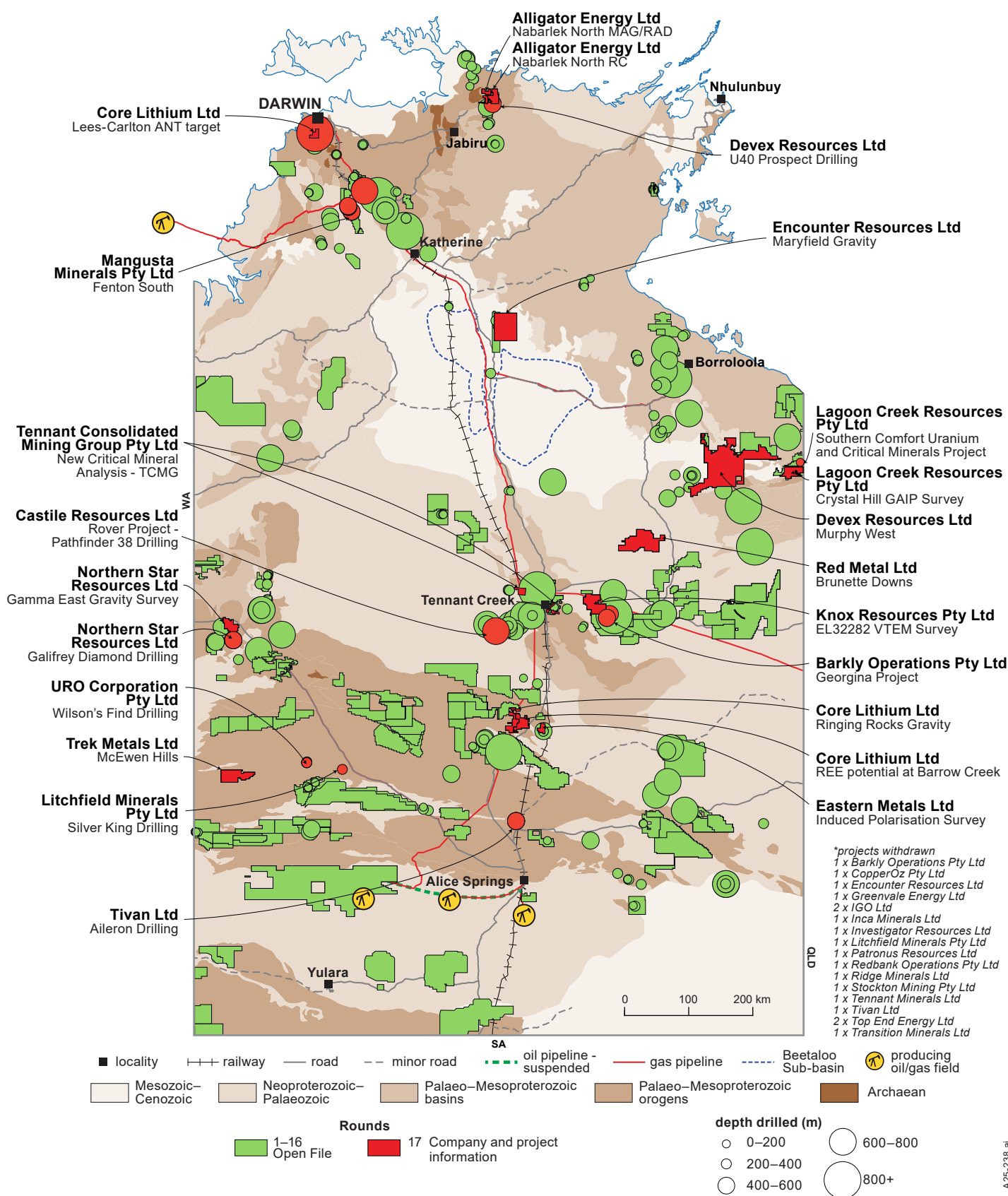


Figure 1: Successful applications to round 17 (2024) of the Geophysics and Drilling Collaborations Program.

# Round 17 project totals

Table 1: Drill program totals.

Drilling Projects	Projects	Total number of holes	Total number of AC holes	Total number of RC holes	Total number of DD holes	Total (m)	Total core interval (m)
Greenfields	6*	25	0	19	6	6 913.43	2 345.83
Brownfields	5	6	-	-	6	2 704.80	2 420.20
<b>Total</b>	<b>11</b>	<b>31</b>	<b>0</b>	<b>19</b>	<b>12</b>	<b>9 618.23</b>	<b>4 766.03</b>

\*Projects include two Reverse Circulation (RC) programs. No Air Core (AC) programs were undertaken in round 17.

Table 2: Geophysical program totals.

Geophysics	Projects	Total line km	Approximate area covered	Total stations
Airborne electromagnetic survey	1	1 425	522 km <sup>2</sup>	-
Airborne gravity gradiometric survey	1	1 127	380 km <sup>2</sup>	-
Ground gravity survey	2	-	1 692 km <sup>2</sup>	1 911*
Airborne magnetic and radiometric survey	3	52 028	4 660 km <sup>2</sup>	-
Induced polarisation survey	2	72	10 km <sup>2</sup>	-
Magnetotellurics survey	1	20	-	20
<b>Total</b>	<b>10</b>	<b>54 672</b>	<b>7 264 km<sup>2</sup></b>	<b>1 931</b>

\*Includes 181 quantum gravity stations taken for comparison with conventional ground gravity stations.

Table 3: Advancing critical minerals program totals.

Advancing Critical Minerals	Projects	Number of samples analysed
Re-analyse existing soil pulps for rare-earth element suite	1	2 006
Re-analyse existing drill pulps for critical minerals (60 element suite)	1	260
<b>Total</b>	<b>2</b>	<b>2 266</b>

# Round 17 projects by category

Type	Company	Project	Tenure	CR
Greenfields drilling	<a href="#">Alligator Energy Ltd</a>	Nabarlek North RC Proposal	EL31480, EL29992, EL28389	<a href="#">CR2024-0709</a>
	<a href="#">Barkly Operations Pty Ltd</a>	Barkly Project	EL33588	Withdrawn
	<a href="#">Barkly Operations Pty Ltd</a>	Georgina Project	EL32109	<a href="#">CR2025-0051</a>
	<a href="#">Castile Resources Ltd</a>	Rover Project – Pathfinder 38	EL24541	<a href="#">CR2025-0299</a>
	<a href="#">Inca Minerals Ltd</a>	Jean Elson (Kestrel)	EL32486	Withdrawn
	<a href="#">Investigator Resources Ltd</a>	Mt Sainthill RC Drilling	EL22349	Withdrawn
	<a href="#">Litchfield Minerals Pty Ltd</a>	Patmungala Magnetic Target	EL31305	Withdrawn
	<a href="#">Mangusta Minerals Pty Ltd</a>	Fenton South	EL32886	<a href="#">CR2025-0298</a>
	Ridge Minerals Limited	Buchanan IOCG Targets	EL32497	Withdrawn
	Stockton Mining Pty Ltd	Dev22-03	EL28325	Withdrawn
	<a href="#">Tivan Limited</a>	Aileron Drilling	EL33099	<a href="#">CR2025-0297</a>
	<a href="#">URO Corporation Pty Ltd</a>	Wilson's Find RC Drilling	EL33575	<a href="#">CR2025-0238</a>
Brownfields diamond drilling	<a href="#">CopperOz Pty Ltd</a>	Vesper	EL31475	Withdrawn
	<a href="#">Core Lithium Ltd</a>	Lees-Carlton Diamond Drilling	EL30015	<a href="#">CR2025-0127</a>
	<a href="#">DevEx Resources Limited</a>	Nabarlek Project - U40 Prospect	EL10176	<a href="#">CR2024-0647</a>
	<a href="#">Lagoon Creek Resources Pty Ltd</a>	Southern Comfort U and Critical Minerals	EL23573	<a href="#">CR2025-0075</a>
	<a href="#">Litchfield Minerals Pty Ltd</a>	Silver King and Copper Flats Drilling	EL31305	<a href="#">CR2024-0722</a>
	<a href="#">Northern Star Resources Ltd</a>	Galifrey Diamond Drilling	EL26926	<a href="#">CR2025-0324</a>
	<a href="#">PNX Metals Limited</a>	Thunderball DD	EL23431	Withdrawn
	<a href="#">Tennant Minerals Limited</a>	Perseverance West	EL28620	Withdrawn
Regional-scale geophysics	<a href="#">Alligator Energy Ltd</a>	AGE Nabarlek North magnetics and radiometrics survey	EL31480, EL29991, EL28389, EL29992, EL28390, EL29993	<a href="#">CR2024-0677</a>
	<a href="#">DevEx Resources Limited</a>	Murphy West	EL32473, EL32474, EL32453, EL32454, EL32456, EL32881, EL32865	<a href="#">CR2024-0611</a>
	<a href="#">Encounter Resources Ltd</a>	Maryfield Gravity	EL32727, EL32728	<a href="#">CR2024-0558</a>
	<a href="#">IGO Ltd</a>	Mount Solitaire Helitem	ELA31864, ELA32343	Withdrawn
	<a href="#">IGO Newsearch Pty Ltd</a>	Gidyea Bore Helitem Survey	EL32771, EL32781, EL32779	Withdrawn
	<a href="#">Knox Resources Pty Ltd</a>	EL32282 VTEM Survey	EL32282	<a href="#">CR2024-0646</a>
	<a href="#">Northern Star Resources Ltd</a>	Gamma East Gravity Survey	EL32149	<a href="#">CR2024-0710</a>
	<a href="#">Redbank Operations PL</a>	Sly Gap Airborne Gravity Proposal	EL32324, EL32325, EL32715	Withdrawn
	<a href="#">Top End Energy Limited</a>	Walton AGG Survey	EP153	Withdrawn
	<a href="#">Trek Metals Limited</a>	McEwen Hills	ELA33191	<a href="#">CR2024-0645</a>



Type	Company	Project	Tenure	CR
Innovative Targeting	<a href="#">Core Lithium Ltd</a>	Ringling Rocks Gravity	EL31058, EL31145	<a href="#">CR2025-0323</a>
	<a href="#">Eastern Metals Limited</a>	Arunta IP Survey	EL23186, EL28615, EL32027	<a href="#">CR2024-0690</a>
	<a href="#">Encounter Resources Limited</a>	Sandover Passive Seismic and MT	EL33060, EL32421, EL32374	Withdrawn
	<a href="#">Greenvale Energy Ltd</a>	Wild Horse Seismic Initial Line	EP145	Withdrawn
	<a href="#">Lagoon Creek Resources Pty Ltd</a>	Crystal Hill GAIP Survey	EL9319	<a href="#">CR2024-0579</a>
	<a href="#">Red Metals Limited</a>	Brunette Downs	EL32708, EL32709, EL32710, EL32714	<a href="#">CR2025-0009</a>
	<a href="#">Tivan Limited</a>	Aileron Geophysics	EL33099	Withdrawn
	<a href="#">Top End Energy Limited</a>	Walton Soil Gas Sampling	EP153	Withdrawn
Advancing critical minerals	<a href="#">Core Lithium Ltd</a>	REE potential at Barrow Creek	EL31058	<a href="#">CR2024-0771</a>
	<a href="#">Tennant Consolidated Mining Group</a>	New Critical Mineral Analysis - TCMG	ML30888, MLC578, MLC579, MLC512, MLC539, MLC688	<a href="#">CR2025-0025</a>
	<a href="#">Transition Minerals Limited</a>	Barkly Rare Earths	EL32450, EL32451, EL32452, EL32453, EL32454, EL32455, EL32456, EL32472, EL32473, EL32474	Withdrawn

In Round 17, 18 of 41 projects withdrew, which is above the long-term average withdrawal rate of roughly 30%. Projects are sometimes affected by delays with weather, approvals, land access or corporate changes.

# Project summaries

## Greenfields drilling

### Alligator Energy Ltd: Nabarlek North RC Proposal Pine Creek Orogen – EL31480, EL29992, EL28389, CR2024-0709

**Target** Drilling aimed to define key basement lithologies and structures in target zones identified from previous work programs.

**Commodity** Uranium

**Greenfields drilling** 11 RC holes for 1650 m (NNRC24-010, NNRC24-011, NNRC24-012, NNRC24-013, NNRC24-014, NNRC24-015, NNRC24-016, NNRC24-017, NNRC24-018, NNRC24-019, NNRC24-020).

**Results** Drilling in the north intersected predominantly gneiss and granite. These were competent units that provide little confidence as hosts for significant remobilised uranium accumulations. No anomalous scintillometer readings or uranium values were recorded.

The southern drillholes intersected ductile fine grained schist units comparable in lithology and alteration to units at the U40 prospect 4 km to the east. Elevated scintillometer readings of up to 1040 counts per second, against a background of 72 counts per second were recorded. Assays returned low level uranium anomalism of 108 ppm  $U_3O_8$  at 83 to 84 m depth in NNRC24-019 (Figure 2). This intercept at the Bully prospect represents a new uranium mineral occurrence along an untested interpreted structure completely masked by Cretaceous cover.

2024 drilling remains within the Cahill Formation but has not yet reached the more structurally ductile and potentially altered Lower Cahill Formation.



Figure 2: RC chips from drillhole NNRC24-019 with low-level anomalism interval circled in red.

**Future work** Ongoing reconnaissance continues on key targets generated from the 2024 magnetic and radiometric survey. Future drilling will aim to target the Lower Cahill Formation at the Bully prospect.

## Barkly Operations Pty Ltd: Georgina Project

### Georgina Basin/Warramunga Province – EL32109, CR2025-0051

<b>Target</b>	The diamond drill program targeted Tier 1 IOCG deposits within the Proterozoic basement beneath Georgina Basin cover. Three priority areas on the East Tennant Ridge were selected for drilling based on magnetic and/or gravity anomalies situated adjacent to the Gulunguru Fault.
<b>Commodity</b>	Copper, Gold
<b>Greenfields drilling</b>	Three DD holes totalling 1326.48 m including 470.9 m of RC pre-collars (24GPDD001, 24GPDD002, 24GPDD003 (abandoned)).
<b>Results</b>	<p>Drilling of these holes provided valuable data on basin architecture and geological properties to constrain future modelling and targeting (Figure 3). The overlying cover sequence contained trace iron, lead, and zinc sulphides in narrow intervals within fractured, brecciated, and vuggy carbonates, exhibiting a Mississippi Valley-type mineralisation character that suggests potential for base metal deposits.</p> <p>Hematite alteration with dispersed trace sulphides was intersected in the basement, but no significant copper mineralisation was detected. The gravity anomalies targeted remain unexplained by the specific gravity measurements of intercepted rocks. Detrital zircon U–Pb dating yielded an age of <math>1838 \pm 5</math> Ma for a hematite-altered granite, correlating with prospective stratigraphy in the Warramunga Province.</p> <p>Drilling of the third hole, 24GPDD003, was suspended at 97 m due to unexpected gas, leaving that target untested.</p>



Figure 3: Drill core from 24GPDD002 showing an angular unconformity from flat-lying basin sandstones to deformed basement shales

<b>Future work</b>	Drill data will be critically applied to re-modelling efforts to guide the next drilling phase. Further work may be completed to test the Mississippi Valley-type mineralisation concept. This is further supported by recent Geoscience Australia research which suggests the potential in the Georgina Basin for Joplin-type MVT deposits based on radiogenic Pb-isotope signatures in groundwater (Schroder <i>et al</i> 2025 <sup>2</sup> ).
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<sup>2</sup> Schroder IF, de Caritat P, Huston D and Champion D, 2025. Multivariate compositional analysis of groundwater geochemistry in the Georgina Basin: New insights for sediment-hosted mineral systems. *Journal of Geochemical Exploration* 278. <https://doi.org/10.1016/j.gexplo.2025.107857>

## Castile Resources Ltd: Rover Project – Pathfinder 38

### Wisio Basin/Warramunga Province – EL24541, CR2025-0299

<b>Target</b>	The Pathfinder 38 drilling program was designed to test a coincident magnetic-gravity anomaly for IOCG mineralisation and to extend the depth knowledge of basement geology, improving understanding of Rover mineral field stratigraphy.
<b>Commodity</b>	Copper, Gold
<b>Greenfields drilling</b>	One DD hole (25P38D001) for 616.05 m including 101 m of RC pre-collar.
<b>Results</b>	<p>Breccia veining with chalcopyrite in the overlying lower Montejinni Limestone returned a 0.3% copper assay and was interpreted as remobilised copper from basement mineralisation via reactivated structures.</p> <p>Basement was intersected at 245.1 m. Basement lithologies resembled those at Pathfinder 7 but included greywacke beds and tuffaceous sandstones. Structural data indicated an anticlinal feature.</p> <p>A zone of strong magnetite with pyrite, replacement of jasper in a parasitic fold between 395.35 and 396.2 m occurred in a similar structural setting to Rover 1 but on the microscale (Figure 4). The magnetic anomaly's source was not considered explained by geology encountered.</p> <p>A zone of distal silica-hematite alteration was observed between 253 m and 295 m indicating further mineralisation may occur to the north of the drillhole. Local elevated copper levels reaching up to 770 ppm occurred in the last 10 m of the drillhole associated with the development of chlorite alteration with weakly disseminated magnetite.</p>



Figure 4: Drillhole 25P38D001 intersected a zone of strong magnetite with pyrite replacing jasper between 395.5 and 396.2 m.

<b>Future work</b>	Further investigation will include a 3-component magnetic downhole survey alongside passive seismic surveys to better constrain the magnetic source for future drill targeting.
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## Mangusta Minerals Pty Ltd: Fenton South

### Daly Basin/Pine Creek Orogen – EL32886, CR2025-0298

<b>Target</b>	Drilling targeted orogenic gold mineralisation associated with the Fenton Shear Zone, situated in an interpreted antiformal structure coincident with gravity, conductivity and chargeability anomalies, semi-coincident with magnetic responses.
<b>Commodity</b>	Gold
<b>Greenfields drilling</b>	One DD hole (FMD006) for 566.9 m including 117.7 m of RC pre-collar.
<b>Results</b>	<p>The drillhole intersected Palaeoproterozoic basement at 222.4 m and penetrated Koolpin Formation metasediments intruded by Zamu Dolerite and Cullen Suite granitoids.</p> <p>No significant assays were returned. The chargeability anomaly is likely due to the Koolpin Formation interval between 394 and 505.5 m, containing minor laminated to disseminated pyrite, pyrrhotite, and graphitic shale. Sulphides are interpreted as metamorphosed primary sedimentary sulphides rather than hydrothermal mineralisation. The gravity anomaly is explained by the denser Zamu Dolerite intervals between 370.5 and 394 m, with densities of 2.96 to 2.98 g/cm<sup>3</sup> compared to surrounding intervals of 2.5 to 2.6 g/cm<sup>3</sup>.</p>

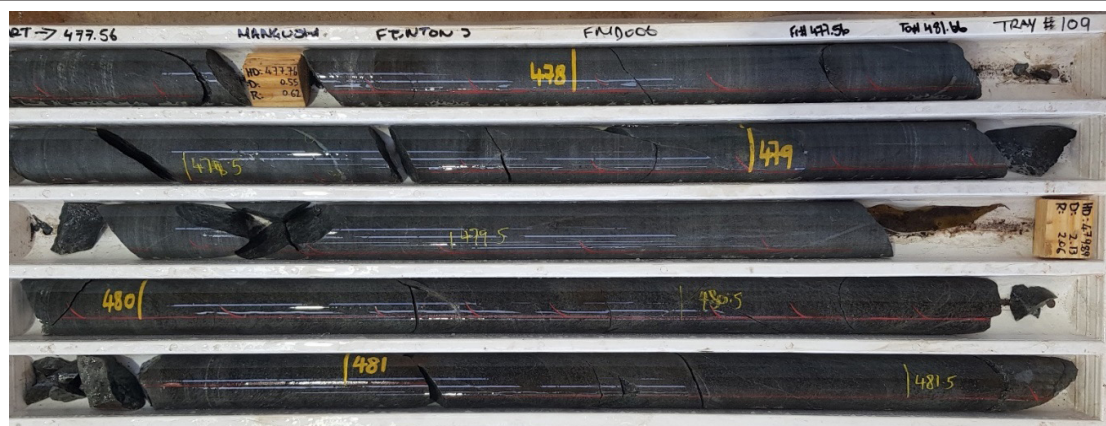


Figure 5: Drillhole FMD006 intersected dense 2.98 g/cm<sup>3</sup> Zamu Dolerite.

<b>Future work</b>	Due to the absence of mineralisation, a second planned drillhole was not completed. Future drilling will focus on the Vesper EM prospect and Quantum REE prospect.
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## Tivan Ltd: Aileron Drilling

### Aileron Province – EL33099, CR2025-0297

<b>Target</b>	Drilling aimed to investigate below a surface expression of breccia-hosted pyromorphite, where surface rock chips returned up to 24% Pb, 0.814 g/t Au and 469 g/t Ag.
<b>Commodity</b>	Lead, Silver
<b>Greenfields drilling</b>	One DD hole (ESA02D) for 526 m. Reporting data was also provided for two other non-co-funded drillholes completed in conjunction with ESA02D.
<b>Results</b>	Drilling intersected a wide range of lithologies, with extensive quartz breccia, stockwork and shear veining. Lead mineralisation (pyromorphite) was observed at shallow and deep intervals associated with brecciated zones. Assays returned a peak intercept of 18 m @ 0.22% Pb and 4.5 g/t Ag from 188 m downhole (Figure 6). Drilling was terminated at 526 m due to ground conditions (Figure 7).



Figure 6: Drill core from ESA02D shows fault brecciation in zone of anomalous lead and silver.



Figure 7: Drillhole ESA02D ends in quartz vein

<b>Future work</b>	No further exploration activities are currently planned due to the lack of economic mineralisation intersected.
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## URO Corporation Pty Ltd: Wilson's Find RC Drilling

Aileron Province – EL33575, CR2025-0238

<b>Target</b>	Drilling aimed to test the continuity of surface copper-tungsten rich veins down-dip. Five drillholes targeted dipole-dipole induced polarisation chargeability highs.
<b>Commodity</b>	Copper, Tungsten
<b>Greenfields drilling</b>	Eight RC holes for 2228 m (WFRC0001, WFRC0002, WFRC0003, WFRC0004, WFRC0005, WFRC0006, WFRC0007 and WFRC0008).
<b>Results</b>	<p>Drilling intersected Wabudali Granite with varying weathering. Near-surface quartz veins contained malachite (Figure 8), cuprotungstite, and relic wolframite, while similar veins intersected at depth contained fresh chalcopyrite, pyrite, and wolframite. The results support interpretation of stacked structurally controlled copper-tungsten veins with supergene copper enrichment near surface and primary sulphide-tungsten mineralisation at depth. Assays returned a peak copper intercept of 1 m @ 1.04% Cu from 32 m in WFRC0003, and a peak tungsten intercept of 1 m @ 0.57% W and 0.22% Cu from 10 m in WFRC0008. Elevated trace elements included beryllium (290 ppm), molybdenum (502 ppm), bismuth (184 ppm), and silver (14.6 ppm).</p> <p>Three intervals with copper concentrations above 1000 ppm had adjacent intervals analysed only using handheld X-ray fluorescence.</p>



Figure 8: Copper staining observed in chips at 24 m depth in WFRC0005.

<b>Future work</b>	<p>Follow up work will involve refining modelling of the mineralised system using updated geological, geochemical and geophysical data.</p> <p>Additional intervals may be sent for assay to better understand the extent and context of anomalous responses.</p> <p>Further drilling may extend along strike from WFRC0003 and expand drilling at WFRC0005 and WFRC0008. Induced polarisation surveys may also be expanded to delineate additional copper tungsten shoots.</p>
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## Brownfields drilling

### Core Lithium Ltd: Lees-Carlton Diamond Drilling Pine Creek Orogen – EL30015, CR2025-0127

Target	A single deep diamond drillhole was completed to test an ambient noise tomography S-wave anomaly (<3200 m/s) located between the known lithium-bearing pegmatite resources at Lees and Carlton. The aim was to intersect a concealed pegmatite body and confirm ambient noise tomography as a targeting technique.
Commodity	Lithium
Brownfields drilling	One DD hole (NMRD099) for 907.5 m including 83.9 m of RC pre-collar.
Results	<p>Diamond drillhole NMRD099 intersected several blind pegmatites within the modelled ambient noise tomography 3200 m/s isoshell. Three of these pegmatites contained lithium mineralisation. The first was a 4.03 m interval from 178.78 m, which included 1 m grading 0.59% Li<sub>2</sub>O starting at 180 m. The second was a 6.23 m interval between 549.95 and 556.18 m which graded 0.33% Li<sub>2</sub>O, including 1 m @ 1.2% Li<sub>2</sub>O from 551 m (Figure 9). The third was a 7.6 m pegmatite interval from 809.47 m, containing 2.8 m grading 0.22% Li<sub>2</sub>O from 813.2 m. The most significant mineralised zone exhibited cookeite-altered spodumene laths and blebs of cookeite. Based on Core Lithium's experience at the Finniss Project, thin pegmatites such as these are typically not mineralised unless they represent extensions of a larger pegmatite system.</p> <p>The hole encountered dominantly sandstone in the upper part and phyllite with minor pegmatite within the ANT anomaly interval. As the velocity of these lithologies is similar, they are unlikely to explain the observed velocity anomaly. The pegmatite widths are insufficient to account for the full anomaly, although off-section connectivity between pegmatites remains a possibility.</p> <p>Structural interpretation of NMRD099 identified folding. Pegmatite emplacement may exploit these structural weaknesses. Oriented structural measurements of pegmatite contacts were taken to model potential convergence zones.</p>



Figure 9: Mineralised pegmatite in NMRD099.

Future work	Further drilling may assess the potential for a larger mineralised system near the convergence of intersected pegmatites.
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## DevEx Resources Limited: Nabarlek Project – U40 Prospect

### Pine Creek Orogen – EL10176, CR2024-0647

<b>Target</b>	Drilling targeted for fault hosted, unconformity-related uranium mineralisation on ~100 m step outs adjacent to and below the RC220 drill intercept of 5 m @ 0.54% $U_3O_8$ .
<b>Commodity</b>	Uranium
<b>Brownfields drilling</b>	Two DD holes (NBDD015 and NBRCD284) for 865.9 m including 101 m of RC pre-collar on NBRCD284.
<b>Results</b>	<p>Drillholes intersected a sequence of pelitic to psammitic schists intercalated with mafic amphibolites, displaying conformable contacts. Bucky quartz veins and pegmatites were commonly observed.</p> <p>Both drillholes (NBDD015 and NBRCD284) successfully intersected the subvertical target structure. It was unmineralised at the tested locations.</p> <p>However, NBRCD284 pre-collar revealed a previously unknown eastern trend of uranium anomalism, returning 44 m @ 182 ppm <math>U_3O_8</math> from 5 m depth. This anomalism is linked to pervasive sericite-quartz alteration within the weathered zone and may reflect a component of supergene remobilisation. The hole also provided key stratigraphic insights into the eastern fault block at the U40 prospect.</p> <p>Hole NBDD015 intersected two anomalous uranium zones within a west-dipping, multiphase hydrothermal breccia complex. The upper breccia zone yielded 20.2 m @ 219 ppm <math>U_3O_8</math> from 111.3 m, while the lower returned 8.8 m @ 347 ppm <math>U_3O_8</math> from 154.2 m. Peak assays included 0.5 m @ 1517 ppm <math>U_3O_8</math> from 126.8 m and 0.4 m @ 2265 ppm <math>U_3O_8</math> from 162.2 m (Figure 10).</p>

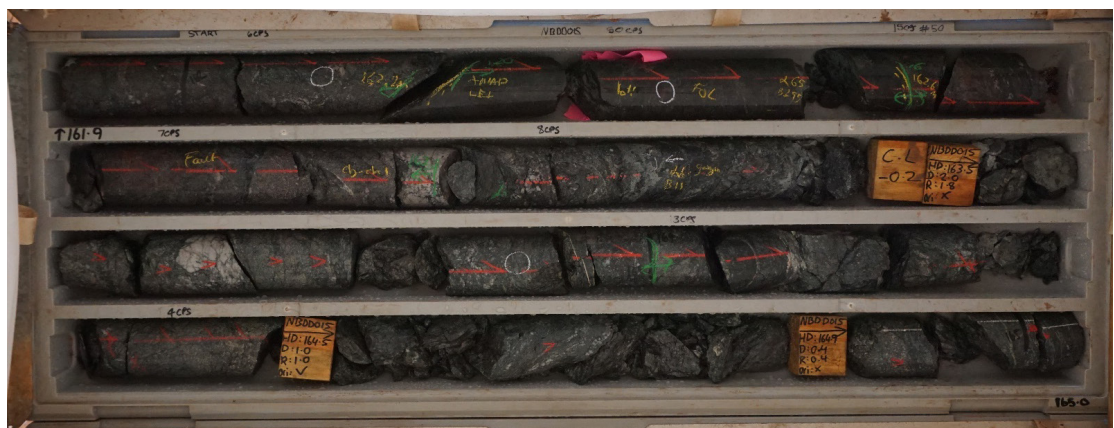


Figure 10: Peak assay of 0.4 m @ 2265 ppm  $U_3O_8$  from 162.2 m in NBDD015.

<b>Future work</b>	These results will be integrated with other 2024 drilling data to improve understanding of the structural controls on mineralisation and the distribution of pre- to syn-breccia features. Mapping data and historical drill core from analogous prospects will also be reviewed to identify similar breccia styles for further exploration targeting.
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Lagoon Creek Resources Pty Ltd: Southern Comfort U and Critical Minerals

McArthur Basin/Murphy Province – EL23573, CR2025-0075

Target	Drilling was conducted to test the Southern Comfort Lineament and a potential linkage zone with the Mageera Trend, with the objective of evaluating a potential dyke-related fault at this southern extension, analogous to the Westmoreland uranium deposit model.
Commodity	Uranium
Brownfields drilling	One DD hole for 201.9 m (SC24DD002).  Reporting data was also provided for SC24DD001, a non-co-funded drillhole completed in conjunction with SC24DD002.
Results	<p>Drilling intersected Seigal Volcanics basalt from top of hole to 17.15 m. A small zone (17.15–20.8 m) of porphyritic dolerite occurred in faulted contact to hematite altered sandstone of the Westmoreland Conglomerate (Figure 11). Sandstones and conglomerates of the Westmoreland Conglomerate continued to end of hole with two small intervals of potential intrusion in fault zones at 60.4–62.0 m and 155–157.25 m.</p> <p>The drillhole returned a uranium intercept of 2.6 m @ 280 ppm U<sub>3</sub>O<sub>8</sub> and 0.11 g/t Au from 20.4 m, within a broader 5 m interval grading 177 ppm U<sub>3</sub>O<sub>8</sub>. This intercept lies 600 m south of a known Mageera Trend drill line and is associated with a mafic dyke intruding along a fault zone. The uranium appears to have permeated into adjacent sandstones, consistent with the Westmoreland-style mineralisation model.</p>



Figure 11: Dolerite at faulted contact with anomalous intercept of 2.6 m @ 280 ppm U<sub>3</sub>O<sub>8</sub> and 0.11 g/t Au from 20.4 m in SC24DD002.

Future work	The results support continued exploration of the Southern Comfort–Mageera linkage zone, including validation of historic drilling and further testing of the structural corridor.
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## Litchfield Minerals Pty Ltd: Silver King and Copper Flats Drilling Aileron Province – EL31305, CR2024-0722

<b>Target</b>	Drilling at Silver King targeted the northern periphery of the prospect, aiming to intersect a low order induced polarisation chargeability anomaly and evaluate a potential structural termination of the mineralised system.
<b>Commodity</b>	Copper, Lead, Silver, Tungsten, Zinc
<b>Brownfields drilling</b>	One DD hole for 261.2 m (LMRD008) including 100.6 m of RC pre-collar. Data was also reported for two non-co funded RC holes LMRC005 and LMRC006, completed in conjunction with LMRD008.
<b>Results</b>	Drilling intersected unmineralised and unaltered rocks of the Lander Rock Formation, including interbedded quartz-biotite gneiss and schist with minor feldspar-quartz-muscovite pegmatite. No significant mineralisation was encountered, with maximum values of 228 ppm copper and 104 ppm zinc. The initial intersection of the chargeability anomaly was not associated with mineralisation, prompting early termination of the hole before testing the deeper structural target.
<b>Future work</b>	Litchfield Minerals suggest that mineralisation is most likely confined to areas within the 15 mV/V IP contour, and that weaker anomalies are less prospective. Drill data will assist in calibrating IP responses to specific geological units and refining exploration targeting.  Future exploration will depend on the outcome of a tenement-wide VTEM survey. If more significant conductors are identified, further drilling will be considered.

## Northern Star Resources Ltd: Galifrey Diamond Drilling Tanami Region – EL26926, CR2025-0324

<b>Target</b>	The drilling program at Galifrey was designed to evaluate 150 m down-dip of the existing deposit.
<b>Commodity</b>	Gold
<b>Brownfields drilling</b>	One DD hole for 468.3 m (GFDD0002).
<b>Results</b>	<p>Drilling intersected turbiditic sandstone and siltstone, basalts intercalated with thin volcanoclastic-sedimentary horizons and red felsic tonalite. A fault zone appears to separate the turbiditic sequence from underlying mafic basalt and felsic tonalite.</p> <p>Gold mineralisation was associated with foliated zones in mafic volcanoclastic-sedimentary horizons and basalts adjacent to felsic intrusions, and within quartz veins crosscutting these felsic intrusive rocks. Logging confirmed the continuation of a northwest-southeast trending mineralised zone, down-dip from the Galifrey structure.</p> <p>Intercepts included a broader interval of 8.94 m @ 0.96 g/t Au with dilution or 2.67 m @ 1.18 g/t Au from 365.76 m excluding any dilution (Figure 12). A second significant interval of 2.67 m @ 1.07 g/t Au occurred from 435.66 m. Additional isolated samples of &gt;3 g/t Au occurred over &lt;1 m widths.</p>



Figure 12: GFDD0002 drill core contains mineralisation within felsic intrusive and sheared contacts.

<b>Future work</b>	Further work will involve refining the geological model through multi-element analysis, leach well assays, and petrological studies to better understand the deposit and plan future drilling. Comparisons will also be made with other mineralised systems in the Tanami Region to guide regional exploration strategy.
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## Regional scale geophysics

### Alligator Energy Ltd: GE Nabarlek North MAG/RAD

Pine Creek Orogen – EL31480, EL29991, EL28389, EL29992, EL28390, EL29993, CR2024-0677

<b>Target</b>	Alligator Energy undertook an airborne geophysical program to acquire high-resolution magnetic and radiometric data. The objective was to improve structural and bedrock geological interpretations for enhanced uranium targeting, particularly where previous datasets suggested that magnetic data could highlight the prospective contact between the Lower Cahill Formation and Archaean basement.
<b>Commodity</b>	Uranium
<b>Geophysics survey</b>	The airborne radiometric and magnetic survey was conducted by Thomson Airborne Geophysical Survey between 26 June – 9 July 2024, over Alligator Energy tenements. The survey, flown over approximately 1100 km <sup>2</sup> , consisted of a primary block and two infill blocks. All blocks were surveyed along east–west lines spaced 100 m apart at an average terrain clearance of 50 m, with the infill blocks offset by 50 m to enable denser 50 m gridding.
<b>Results</b>	<p>The high-resolution dataset enabled a new 1:50 000-scale structural interpretation and targeting study, revealing heterogeneity in magnetic response indicative of several previously unmapped geological units. A total of 44 uranium targets were identified, based on structural interpretation, radiometric anomalies, and zones of unusual magnetic character suggestive of alteration and potential mineralisation.</p> <p>Key deliverables include grid and image products for digital elevation, magnetics, and radiometrics along with the structural interpretation report and GIS files from Southern Geoscience Consultants.</p>
<b>Future work</b>	Field mapping will be conducted to validate lithological and structural interpretations, and target areas will be reprioritised using all available data. Follow-up may involve mapping, geochemistry, additional geophysics, or drilling.

### DevEx Resources Ltd: Murphy West

Murphy Province – EL32473, EL32474, EL32453, EL32454, EL32456, EL32881, EL32865, CR2024-0611

<b>Target</b>	DevEx Resources conducted a large-scale airborne magnetic and radiometric survey across the Murphy West uranium project, with the aim of collecting consistent, high-resolution geophysical data. The survey was designed to enable direct targeting of uranium via radiometric anomalies and to support structural and geological interpretations through magnetic data.
<b>Commodity</b>	Uranium
<b>Geophysics survey</b>	MagSpec Airborne Surveys conducted the airborne radiometric and magnetic survey for DevEx Resources Limited between 12 July – 24 August 2024. Covering approximately 3300 km <sup>2</sup> , the survey included 35 575 line km flown at 100 m line spacing in a north–south orientation at an altitude of 40 m.
<b>Results</b>	<p>The survey provided a regional dataset of uniform quality. Key products provided include contours, grids and images for digital elevation model, radiometrics and magnetics.</p> <p>Several new uranium anomalies up to 2 km in length were identified. Target prioritisation is based on anomaly size, geological context, and proximity to interpreted structures.</p>
<b>Future work</b>	Field validation is planned to assess and refine target potential.



## Encounter Resources Ltd: Maryfield Gravity

### McArthur Basin – EL32727, EL32728, CR2024-0558

<b>Target</b>	A project-wide ground gravity survey was undertaken at the Maryfield project to enhance structural resolution and improve geological understanding in support of sediment-hosted copper exploration. The goal was to map structural complexity across the tenements and refine interpretations of basement geology.
<b>Commodity</b>	Copper
<b>Geophysics survey</b>	A ground gravity survey was conducted by Atlas Geophysics for Encounter Resources Ltd between 16–25 August 2024. The survey involved infilling the existing gravity grid from 4 × 1 km to 1 × 1 km resolution. A total of 1197 gravity stations were acquired across an area of approximately 1615 km <sup>2</sup> .
<b>Results</b>	The new data significantly improved resolution over previous datasets and was merged with regional gravity information to inform a more detailed structural model. The improved dataset enhances the understanding of fault zone intersections involving the Mallapunyah, Daly Waters, and Strangways fault systems. Final products include the gravity database, grids, and processed images.
<b>Future work</b>	Future exploration will use this refined structural framework to define and prioritise drill targets.

## Knox Resources Pty Ltd: EL32282 VTEM Survey

### Georgina Basin/Warramunga Province – EL32282, CR2024-0646

<b>Target</b>	Knox Resources undertook a helicopter-borne versatile time domain electromagnetic survey to search for conductive IOCG deposits beneath the interpreted Ooradidgee–Warramunga unconformity, where the overlying Ooradidgee Group sequence is believed to be thin.
<b>Commodity</b>	Iron, Copper, Gold
<b>Geophysics survey</b>	A helicopter borne versatile time domain electromagnetic survey was conducted by UTS Geophysics Pty Ltd for Knox Resources Pty Ltd between 25 September – 17 October 2024. The survey covered 522 km <sup>2</sup> , comprising 1435 line km flown on 400 m east–west lines and five north–south tie lines at 4 km spacing. Survey altitudes included 83 m for terrain clearance, with electromagnetic sensors at 35 m and magnetic sensors at 73 m.
<b>Results</b>	<p>Interpretation by Mitre Geophysics indicated that the dominant anomalies were broad, thick, moderately conductive lithological units with northwest-trending orientations. These features are consistent with Warramunga Formation sediments, suggesting they are shallower than previously interpreted. The variability in conductivity and thickness may relate to ore-forming processes, although no clear conductive massive sulphide signatures were observed.</p> <p>Key outputs include electromagnetic and magnetic grids, waveform data, and an interpretation report.</p>
<b>Future work</b>	Future work will focus on confirming the interpreted Warramunga lithologies through ground-truthing and further geological investigation.

## Northern Star Resources Ltd: Gamma East Gravity Survey

### Tanami Region – EL32149, CR2024-0710

<b>Target</b>	A regional airborne gravity gradiometric survey was undertaken over the Gamma East area to improve geological understanding ahead of tenure grant. The survey aimed to estimate granite depth, delineate the contact between Tanami Group stratigraphy and the Coomarie Granite dome complex, and improve resolution of regional structures and stratigraphy in an area where previous datasets lacked sufficient contrast.
<b>Commodity</b>	Gold
<b>Geophysics survey</b>	Xcalibur Smart Mapping conducted the high-sensitivity aeromagnetic and FALCON® Airborne Gravity Gradiometer survey over the Gamma East survey area between 2–3 September. The survey included 1127 line km flown at 400 m spacing on east–west lines, covering an area of approximately 380 km <sup>2</sup> .
<b>Results</b>	<p>The resulting data refined interpretations of folding and structural architecture, particularly in the MacFarlane Peak Group near the Flores Shear Zone. Improved delineation of fold patterns aids in targeting structurally favourable settings for gold mineralisation, such as those known in the Killi Killi, Mount Charles, and Dead Bullock formations.</p> <p>Deliverables include grids and images derived from gravity and magnetic datasets, along with digital terrain models.</p>
<b>Future work</b>	Interpretation and target generation will continue in preparation for tenure grant.

## Trek Metals Ltd: McEwen Hills

### Aileron Province – ELA33191, CR2024-0645

<b>Target</b>	Trek Metals completed a regional-scale airborne magnetic and radiometric survey at McEwen Hills to explore for intrusion-related mineralisation, including iron, copper, gold, and niobium. The survey sought to identify intrusive features and model target depths for future drill testing.
<b>Commodity</b>	Iron, Copper, Gold, Niobium
<b>Geophysics survey</b>	Flown by Thomson Airborne from 16–23 August 2024, the survey covered 260 km <sup>2</sup> and comprised 3440.6 line km. Traverse lines were flown north–south at 100 m spacing, with tie lines at 1 km intervals. The average survey clearance was 35 m.
<b>Results</b>	<p>The increased resolution from this survey, compared to prior regional datasets, produced enhanced imagery suitable for geological interpretation and target generation. The processed results, combined with regional data, provide a more comprehensive view of structural and lithological controls across the eastern Arunta inlier.</p> <p>Key deliverables include grids and images for magnetics, radiometrics, and digital elevation models.</p>
<b>Future work</b>	Interpretation of structural features is ongoing and will guide follow-up exploration once tenure is granted. Ground gravity surveys are planned for selected targets, pending necessary approvals.

## Innovative targeting

### Core Lithium Ltd: Ringing Rocks Gravity

Aileron Province – EL31058, EL31145, CR2025-0323

<b>Target</b>	The study aimed to characterize the gravity response over the known Ringing Rocks pegmatite and extend coverage regionally to identify structural controls on pegmatite emplacement. It also sought to test a newly developed quantum gravity technique, Gravio™, to assess whether it could enhance the spatial resolution of gravity surveys.
<b>Commodity</b>	Lithium
<b>Geophysics survey</b>	<p>Between 8–14 November 2024, Atlas Geophysics conducted an initial lower resolution survey using a Scintrex CG-5 gravimeter, acquiring 533 stations on a 400 m x 400 m grid.</p> <p>In parallel quantum gravimetry was planned to cover as large an area as possible. A number of challenges were encountered which limited the amount of data collection. The data spacing of the quantum gravity survey ended up varying from 400 × 400 m spacing in the regional area to 200 m × 50 m in the Ringing Rocks area. A total of 236 new stations were acquired with Gravio but environmental conditions degraded their quality. A subset of 181 points were selected based on lower noise levels from extreme environmental conditions.</p>
<b>Results</b>	<p>The gravity data revealed a strong west-northwest trend of denser rock consistent with geological maps showing a window of Palaeoproterozoic sediments surrounded by granite. The pegmatite outcrops align centrally within this trend, which may reflect an early fold axis. Gravity lows near the eastern margin likely map granite contacts, whereas the western portion lacks granite signatures, suggesting the granite boundary lies beyond the surveyed area.</p> <p>While the Gravio technique demonstrated viability as a novel approach, further development is needed to enhance robustness.</p> <p>Deliverables from this study include grids and images derived from gravity as well as project report and comparison of gravity data from Atomionics.</p>
<b>Future work</b>	<p>Future work will focus on automating data collection for continuous operation in all weather conditions and miniaturizing the system for drone deployment.</p> <p>Exploration will continue along the identified fold axis to seek covered pegmatites.</p>

## Eastern Metals Ltd: Arunta IP Survey

### Aileron Province – EL23186, EL28615, EL32027, CR2024-0690

<b>Target</b>	The survey aimed to extend the search for prospective mineralised lodes along strike and dip beyond the Home of Bullion deposit, using gradient array and pole-dipole induced polarisation techniques across approximately 10 km with 200 m spaced lines.
<b>Commodity</b>	Copper, Lead, Zinc, Silver, Gold
<b>Geophysics survey</b>	<p>Fender Geophysics conducted the survey between 13 September – 9 October 2024, beginning with a trial gradient array line over the deposit and followed by 13 pole-dipole lines. The gradient induced polarisation survey line was a single 1.2 km long line with 50 m electrodes spacing.</p> <p>The pole-dipole lines were oriented northeast-southwest, ranging from 1-2 km in length with 100 m electrode spacing.</p> <p>The transmit frequency was 0.125 Hz (2 seconds on-time, 2 seconds off-time).</p>
<b>Results</b>	<p>The gradient array trial detected the Home of Bullion deposit but produced a weak signal unlikely to be distinguishable beneath significant cover. In contrast, the pole-dipole induced polarisation data revealed strong chargeability and resistivity anomalies along the same line. The overall survey quality was excellent, with minimal noise interference; however, the anomalies exhibited only slight variation, indicating generally weak signatures.</p> <p>Three new anomalies were identified directly along strike to the northwest and southeast of the Home of Bullion deposit. Two of these anomalies, located 400 and 800 m to the northwest, display broad conductivity and chargeability at roughly 150 m depth and are situated on the same magnetic ridge as the main deposit. The third anomaly, situated 600 m to the southeast, aligns with both a magnetic high ridge and a gravity high. Prior electromagnetic surveys did not detect strong responses, suggesting deeper, low-grade, or disseminated mineralisation.</p> <p>These newly identified anomalies fit well with a 2013 structural model, where the southeast anomaly may mark the hinge zone of an anticlinal fold, and the northwest anomalies likely represent mineralised fold limbs with thin, pod-like mineralisation.</p> <p>Key products from the survey include the observed induced polarisation pseudo-sections, 2D inversion model sections and interpretation report.</p>
<b>Future work</b>	The survey results present prospective drilling targets and validate induced polarization as a tool for future exploration.

## Lagoon Creek Resources Pty Ltd: Crystal Hill GAIP

### Murphy Province – EL9319, CR2024-0579

<b>Target</b>	This gradient array induced polarisation survey targeted zones of greisen alteration to delineate the contact aureole at depth where economically significant felsic intrusion-related tin and tungsten mineralisation may occur.
<b>Commodity</b>	Tin, Tungsten
<b>Geophysics survey</b>	Between 27 August – 2 September 2024, Planetary Geophysics completed the survey over four adjacent blocks, each consisting of nine lines spaced 200 m apart, with overlapping lines to facilitate data merging. Line lengths ranged from 1400 to 1500 m, with receiver dipoles of 50 m and transmitter dipoles up to 3200 m. A pole-dipole induced polarisation line of 1200 m with 50 m dipoles was completed based on gradient array induced polarisation results. The line measured to N = 10 with a low-frequency transmit cycle.
<b>Results</b>	<p>The gradient array induced data revealed a dominant southwest-northeast trend with several linear high-resistivity zones. Notably, no clear signatures were observed near known workings, likely due to gradient array induced polarisation's limited sensitivity to narrow, vertical features. Two chargeability highs in the southern block were identified. One of which was confirmed by the pole-dipole line as a discrete, moderately chargeable vertical anomaly extending from surface to approximately 100–150 m depth, interpreted as disseminated sulphide mineralisation. The anomaly's intensity suggests 2–3% sulphide content may be present.</p> <p>Deliverables include raw and processed data, survey coverage files, plots of the results, geo-located images and contours of the gradient-array induced polarisation survey results and the 2D inversion model sections for the pole-dipole induced polarisation line.</p>
<b>Future work</b>	Future work contemplates further gradient array induced polarisation application across poorly understood prospects, additional pole-dipole lines over the second chargeability high or possibly also over areas of known mineralisation to determine whether that mineralisation has a measurable response using pole-dipole that cannot be seen with the gradient array induced polarisation configuration.

## Red Metals Ltd: Brunette Downs

### McArthur Basin – EL32708, EL32709, EL32710, EL32714, CR2025-0009

<b>Target</b>	The magnetotelluric (MT) survey was planned to target sediment hosted base metal deposits with lines to cross the faulted southern margin of the McArthur Basin and a dome-shaped basement-high structure with the aim of mapping conductive sequences at these favoured positions and validating an airborne electromagnetic conductivity feature.
<b>Commodity</b>	Copper, Cobalt, Zinc, Lead, Silver
<b>Geophysics survey</b>	Originally planned as a four-line MT survey to investigate sediment-hosted base metal targets and validate an airborne electromagnetic conductor, the program was reduced to a single line due to access constraints from heavy rainfall. Moombarriga Geoscience conducted the survey between 20–29 September 2024, deploying 20 stations at 1 km intervals. Each station recorded full tensor MT soundings over a broad frequency range (10 kHz to 0.01 Hz) for at least 12 hours, capturing both vertical and horizontal magnetic fields.
<b>Results</b>	<p>The survey identified three conductive features, of which two were considered robust. The first feature likely represents a deep, vertical basement fault zone. The second, a flat-lying highly conductive stratigraphic horizon, is interpreted as a carbonaceous shale layer towards the base of the Roper Group. This conductive layer may serve as a reductant within the otherwise oxidized quartz-rich Roper Group and holds potential as a host for sedimentary copper-cobalt mineralisation.</p> <p>Final deliverables from the survey includes 2D resistivity models in XYZ and UBC format.</p>
<b>Future work</b>	Drill testing of this conductive feature is currently under consideration.

# Advancing critical minerals

## Core Lithium Ltd: REE potential at Barrow Creek Aileron Province – EL31058, [CR2024-0771](#)

Target	The study aimed to investigate the potential presence of niobium-yttrium-fluorine (NYF) type pegmatites or carbonatite-related REE mineralisation within the Barrow Creek area.
Commodity	Rare Earth Elements (REE)
Geochemical analysis	A total of 2006 existing soil sample pulps from 2016 and 2017 were re-submitted to ALS Laboratories for comprehensive geochemical analysis. This involved fused bead and acid digestion procedures, followed by inductively coupled plasma mass spectrometry for a wide range of elements, including barium, cerium, niobium, rare earth elements, thorium, uranium, and zirconium, among others. The soil sampling methodology is detailed in the accompanying report.
Results	The assay results passed quality assurance protocols and were deemed reliable. Total rare earth element oxides (TREO) reached a maximum concentration of 652 ppm, concentrated in a cluster near the QT and Slippery pegmatite targets in the southwestern section of the survey area. This cluster was primarily located on the western side, close to an unnamed granite intrusion, generally within the mapped Lander Rock Formation. Although the anomalous TREO values suggest a link to pegmatite occurrences, field verification is necessary to confirm this. While the presence of NYF-type pegmatites or alkaline intrusion-related systems cannot be definitively ruled out, the data does not indicate significant enrichment of elements typically associated with such systems, such as niobium, zirconium, uranium, or thorium. The anomalous rare earth element results may reflect a regional zonation pattern where rare earth element concentrations increase in pegmatites situated closer to the source granite, potentially near the roof zone of the intrusion. Regional pegmatites appear to align more with lithium-caesium-tantalum (LCT) type pegmatites, and thus the area remains prospective for lithium mineralisation.
Future work	Future exploration efforts are likely to focus on lithium targets.



# Tennant Consolidated Mining Group Pty Ltd (Tennant Mines): New critical mineral analysis - TCMG

Warramunga Province – ML30888, MLC578, MLC579, MLC512, MLC539, MLC688  
CR2025-0025

<b>Target</b>	This project was designed to evaluate the potential for critical minerals within the Tennant Consolidated Mining Group's (TCMG) deposits at Nobles Nob, Warrego, and Juno, as well as other iron-oxide copper gold (IOCG) deposits in the Tennant Creek Mineral Field. Additionally, the study aimed to benchmark the TCMG deposits against other IOCG deposits across Australia.
<b>Commodity</b>	Critical minerals, Iron, Copper, Gold
<b>Geochemical analysis</b>	<p>Targeted drillholes and specific intervals were selected to capture representative data from ore zones and various lithologies and alteration styles at Nobles Nob, Warrego and Juno. A total of 260 existing reverse circulation and diamond drill pulps from Nobles Nob, Warrego, and Juno were resubmitted for multi-element geochemical analysis using four-acid digestion followed by inductively coupled plasma mass spectrometry or inductively coupled plasma optical emission spectrometry for elements exceeding concentration limits. The analytical suite encompassed 58 elements, including precious metals, base metals, critical minerals, rare earth elements, and trace elements such as silver, arsenic, barium, cobalt, gallium, germanium, hafnium, indium, lithium, niobium, tantalum, thorium, uranium, yttrium, and zirconium, among others. Gold assays were also re-run using aqua regia, with fire assay applied for samples exceeding detection limits to ensure accuracy.</p> <p>To address geochemical closure effects, the element concentration data were transformed using centred log-ratio techniques, and principal component analysis was applied to identify meaningful element associations and mineralisation patterns. The resulting dataset was then merged with normalized geochemical data from other IOCG deposits, enabling direct comparison through spider plots and other multivariate techniques.</p>
<b>Results</b>	Principal component analysis results identified a mineralised association dominated by iron, copper, gold, cobalt, selenium, arsenic, and nickel, with the strongest signals observed at Warrego. Enrichments in lead, germanium, tungsten, antimony, bismuth, indium, molybdenum, and silver were more pronounced at Juno. In contrast, Nobles Nob samples exhibited minimal evidence of copper-gold mineralisation but showed consistent elevations in a range of critical elements, including rare earth elements, lithium, thorium, niobium, and tantalum when compared to Warrego and Juno. When compared against a compilation of IOCG geochemical data from the Ore Samples Normalised to Average Crustal Abundance ( <a href="#">OSNACA</a> ) database, the Tennant Creek deposits aligned more closely with a subgroup of IOCG deposits not enriched in rare earth elements—such as Ernest Henry and Candelaria—rather than those with significant REE enrichment like Olympic Dam or Prominent Hill.
<b>Future work</b>	Insights gained into the geochemical signatures of the Tennant Creek IOCG deposits provide valuable vectors for targeting mineralisation. They will guide future exploration efforts by helping to interpret whether a drillhole may have narrowly missed key mineralised zones, refining the targeting strategy for subsequent drilling campaigns.

# Products available from GDC programs

The Geophysics and Drilling Collaborations program supports exploration in underexplored areas and promotes development in areas of known resource potential across the Northern Territory.

All data and reports produced under the GDC program are made publicly available either six months after data collection or by 1 August 2025, whichever comes first. A dedicated [map](#) on the Resourcing the Territory website displays all successful geophysics and drilling projects from rounds 1 to 17, with links to open file final reports and data. All reports with associated data can also be accessed through [GEMIS](#).

Digital data is available to download with the company report, with all geochemical and drillhole data also available through [STRIKE](#).

For geophysical programs, digital data along with acquisition and processing parameters are provided to support further processing and interpretation. Where applicable NTGS also provides a suite of standard geophysical grids and images to support interpretation and inclusion into NT-wide products.

For more information or help accessing previous round reports and data, please contact the NT Geological Survey Info Centre; [geoscience.info@nt.gov.au](mailto:geoscience.info@nt.gov.au).

In addition to digital data and reports, drill core accepted from the GDC program can be viewed and sampled by researchers in industry, government and research organisations. For more information please visit the [Access the drill core library](#) webpage. All sampling must be accompanied by core sampling reports, which provide valuable additional data and insights from work undertaken on GDC core. Search for [Core Sampling report](#). Note that some cores may be temporarily unavailable for viewing or sampling while undergoing scanning through the HyLogger, as a minimum of half core is required for this process. For more information on the NT Geological Survey's core facilities in Darwin and Alice Springs, contact [core.facility@nt.gov.au](mailto:core.facility@nt.gov.au).

HyLogger data from selected GDC drill core is available via the STRIKE HyLogged Drillholes layer.

For information on the GDC program please visit the grants page on the [Resourcing the Territory](#) webpage or reach out to [collaborations.dme@nt.gov.au](mailto:collaborations.dme@nt.gov.au).

## Cumulative statistics: Rounds 1 to 17

The Geophysics and Drilling Collaborations program has been funded continuously through Northern Territory Government initiatives since 2008. A total of 201 GDC co-funding programs have been completed comprising 112 drilling and 89 geophysics programs (Figure 13).

The 112 drilling programs funded have completed 534 drillholes totalling 95 939 m including 68 918 cored metres (Figure 14, Figure 15, Table 4).

The 89 geophysics programs, including both the regional-scale geophysics programs and the more recently added innovative targeting category geophysics programs have resulted in the completion of:

- ~400 000 line km of magnetics and radiometrics (33 surveys)
- ~40 000 ground gravity stations (25 surveys)
- ~335 000 line km of airborne electromagnetics (34 surveys)
- ~59 line km 2D reflection seismic (3 surveys)
- ~6000 line km of airborne gravity gradiometric (4 surveys)
- ~635 passive seismic stations (5 surveys)
- 591 magnetotelluric stations (126 line km) (4 surveys)
- Other small scale innovative targeting techniques including 2D and 3D induced polarisation surveys and sub audio magnetics.

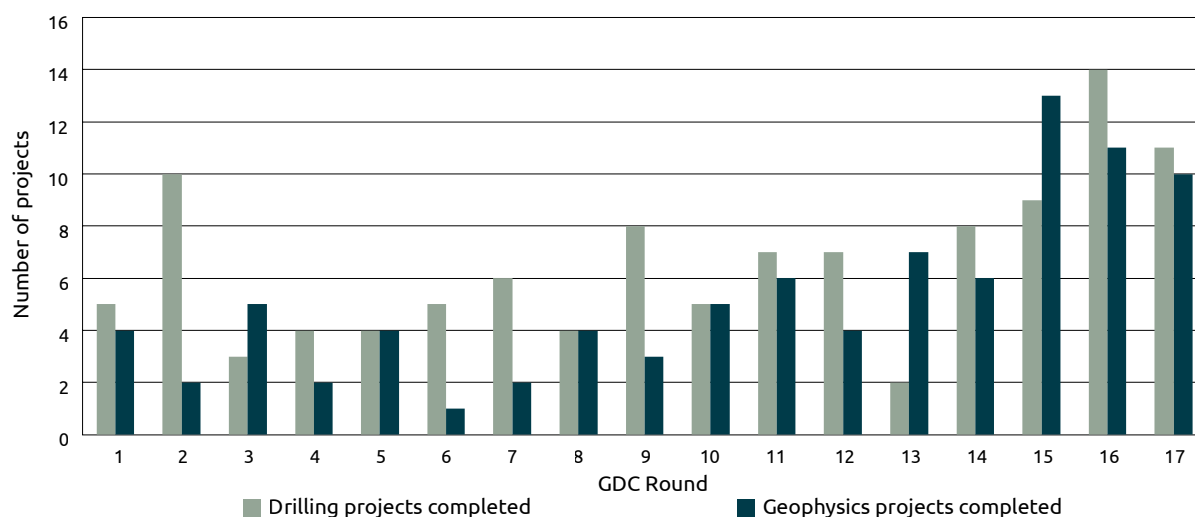


Figure 13: GDC project totals by round.

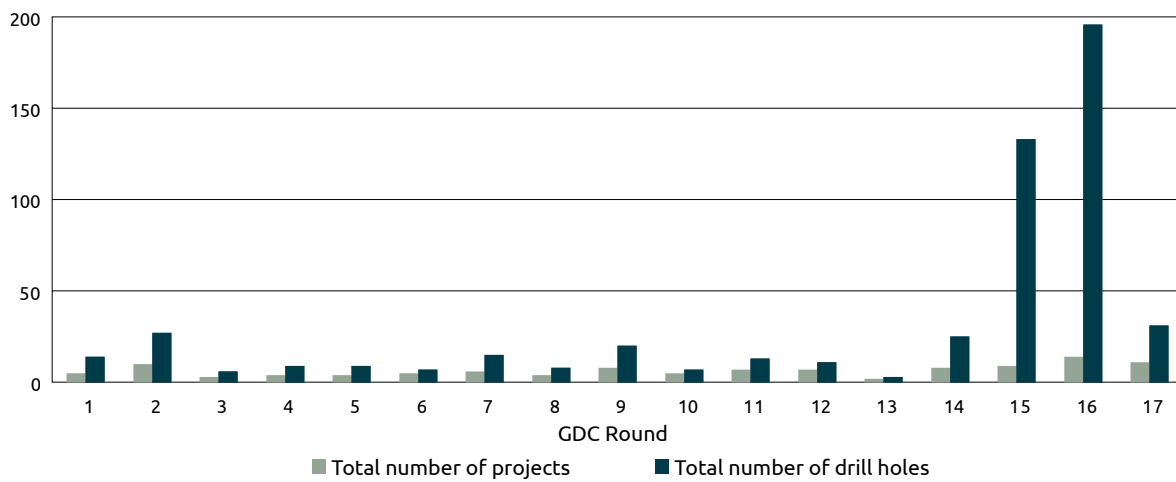


Figure 14: GDC drilling projects and drillhole totals by round.

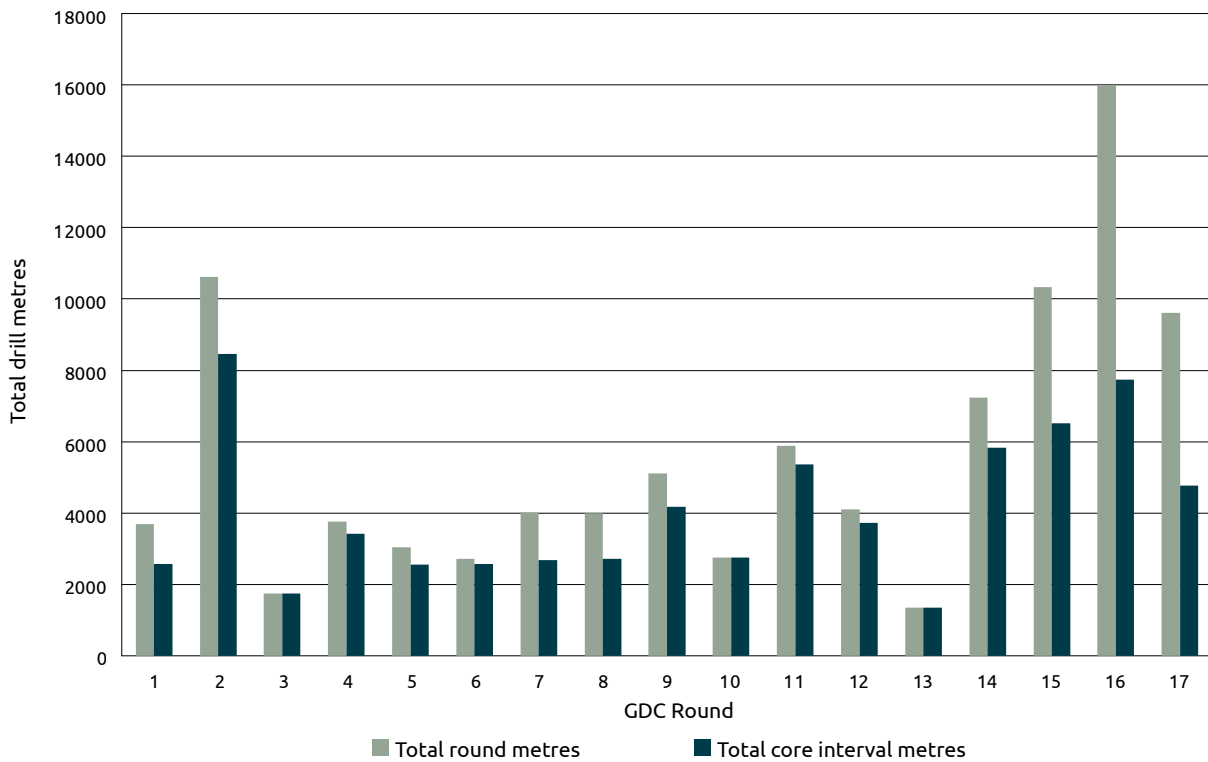


Figure 15: GDC drilling projects total metres by round.

Table 4: GDC Rounds 1 to 17 drill metrics.

Round	Total Projects	Total Number of holes	Total (m)	Total core interval (m)
1	5	14	3 684	2 578
2	10	27	10 613	8 464
3	3	6	1 743	1 737
4	4	9	3 756	3 414
5	4	9	3 046	2 559
6	5	7	2 714	2 564
7	6	15	4 007	2 677
8	4	8	3 991	2 706
9	8	20	5 115	4 170
10	5	7	2 750	2 750
11	7	13	5 890	5 367
12	7	11	4 103	3 729
13	2	3	1 354	1 349
14	8	25	7 243	5 838
15	9	133	10 329	6 520
16	14	196	15 985	7 731
17	11	31	9 618	4 766
<b>TOTAL</b>	<b>112</b>	<b>534</b>	<b>95 659</b>	<b>68 918</b>

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