



# Charley Creek South-East Project Partial Relinquishment Report EL33006

09 August 2022- 22 August 2024

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**Title Holder:** URO Corporation Pty Ltd

**Date of Report:** November 2024

**Target Commodities:** Uranium, rare earth elements, base metals, precious metals

**Mapsheets (1:100,000):** Anburla, Burt

**Mapsheets (1:250,000):** Hermannsburg, Alice Springs

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## Abstract

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Exploration License (EL) 33006, located approximately 65 km northwest of Alice Springs, lies within the mineral-rich Arunta Region, extending across Amburla and Hamilton Downs Stations pastoral lands. The tenement features an extensive alluvial plain north of the MacDonnell Range foothills, characterised by coarse gravels, sand, silt, and clay, interspersed with aeolian quartz sand. Isolated outcrops and sub-crops of the Adla Granulite Formation, with localised ferricrete, calcrete, and lateritic gravels dot the landscape.

The relinquished portion of EL33006 is prospective for base metals, rare earth elements (REEs), uranium, and polymetallic deposits. Multiple deposit styles were considered, including sediment-hosted uranium, palaeochannel-related uranium, felsic intrusion-related REEs, mafic intrusion-related base and precious metals, and polymetallic metamorphic-related deposits. However, the area remains relatively untested due to logistical challenges, including dense vegetation.

During its tenure, URO Corporation conducted desktop studies, field sampling, and data analysis to assess the region's mineral potential. A total of 98 surface samples, including soils and rocks, were collected and analysed using portable pXRF and scintillometers. Although no significant geochemical anomalies were identified, several isolated pXRF readings suggested elevated levels of rare earth elements such as Ce, La, and Nd, warranting further exploration in the surrounding areas.

In response to rising costs and strategic prioritisation, URO has relinquished the western portion of EL33006 to concentrate resources on more accessible and prospective areas. Nonetheless, the tenement remains highly prospective for sediment-hosted uranium and REEs, with deeper crystalline basement rocks beneath the regolith and sedimentary cover holding potential for polymetallic deposits. URO Corporation's exploration activities have provided valuable insights that will guide future exploration efforts in adjacent areas.

# 1 Introduction

## 1.1 Location, Access and Physiography

The relinquished portion of EL33006 lies entirely below Amburla and Hamilton Downs Stations pastoral land and is situated approximately 65km North-West of Alice Springs (Figure 1). The region benefits from Alice Springs' role as a crucial hub for transportation and services, with the Alice Springs airport facilitating access to the exploration area. The Stuart Highway and the Tanami Road provide the main routes from Alice Springs to the project area, while generally well-maintained secondary roads and station tracks grant access to much of the exploration area. The landscape is characterised by generally dry creek beds and flat fluvial floodplains, which are partially covered with shrubs, mulga, gumtrees, termite mounds, and spinifex.

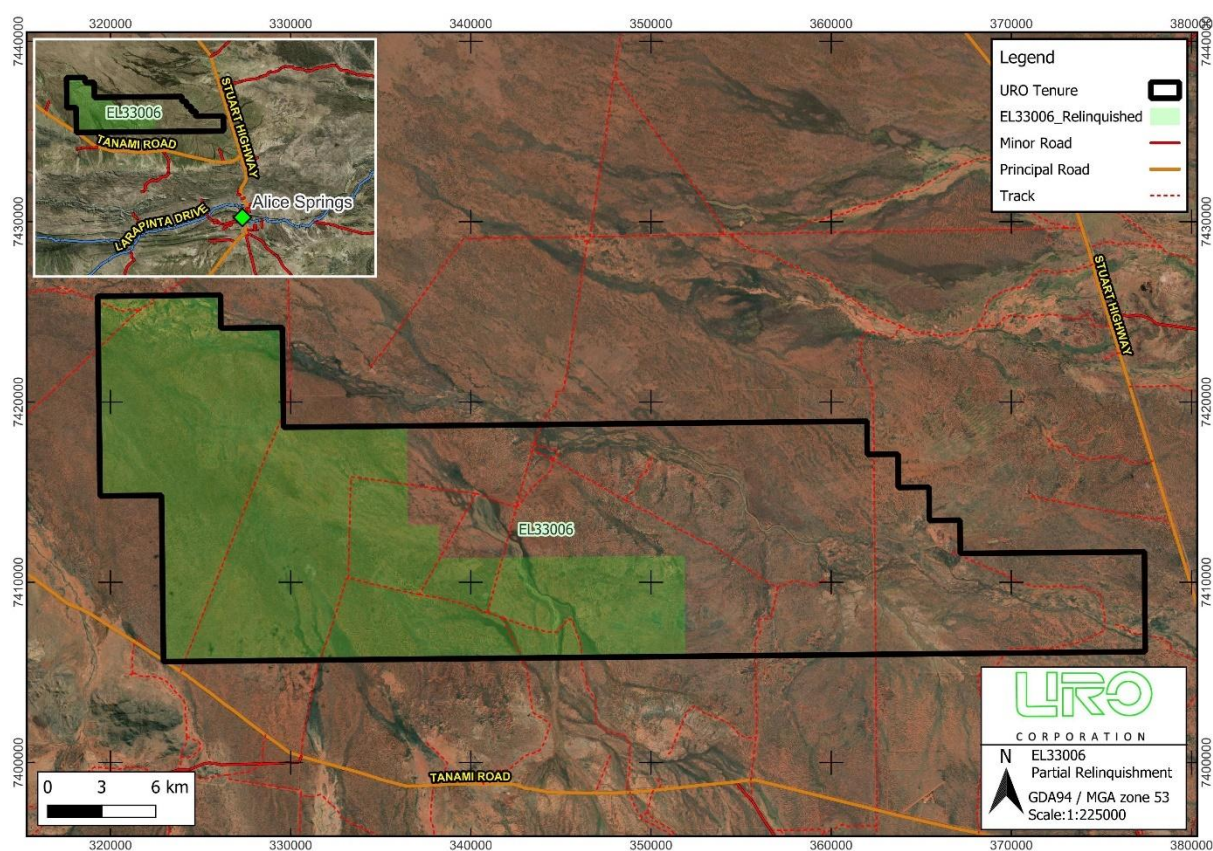


Figure 1: Location of EL33006 - relinquished area highlighted in green.

## 1.2 Mineral Titles

Tenement EL33006, the subject of this partial relinquishment, was granted to URO Corporation Pty Ltd on 09 August 2022. The Company held a 100% interest in the relinquished tenement area.

Table 1: Mineral title information EL33006

Title	Grant Date	Partial Relinquishment Date	Period	Relinquished Area	Retained Area
EL33006	9 <sup>th</sup> August 2022	22 <sup>nd</sup> August 2024	2 years	110 Blocks	110 Blocks



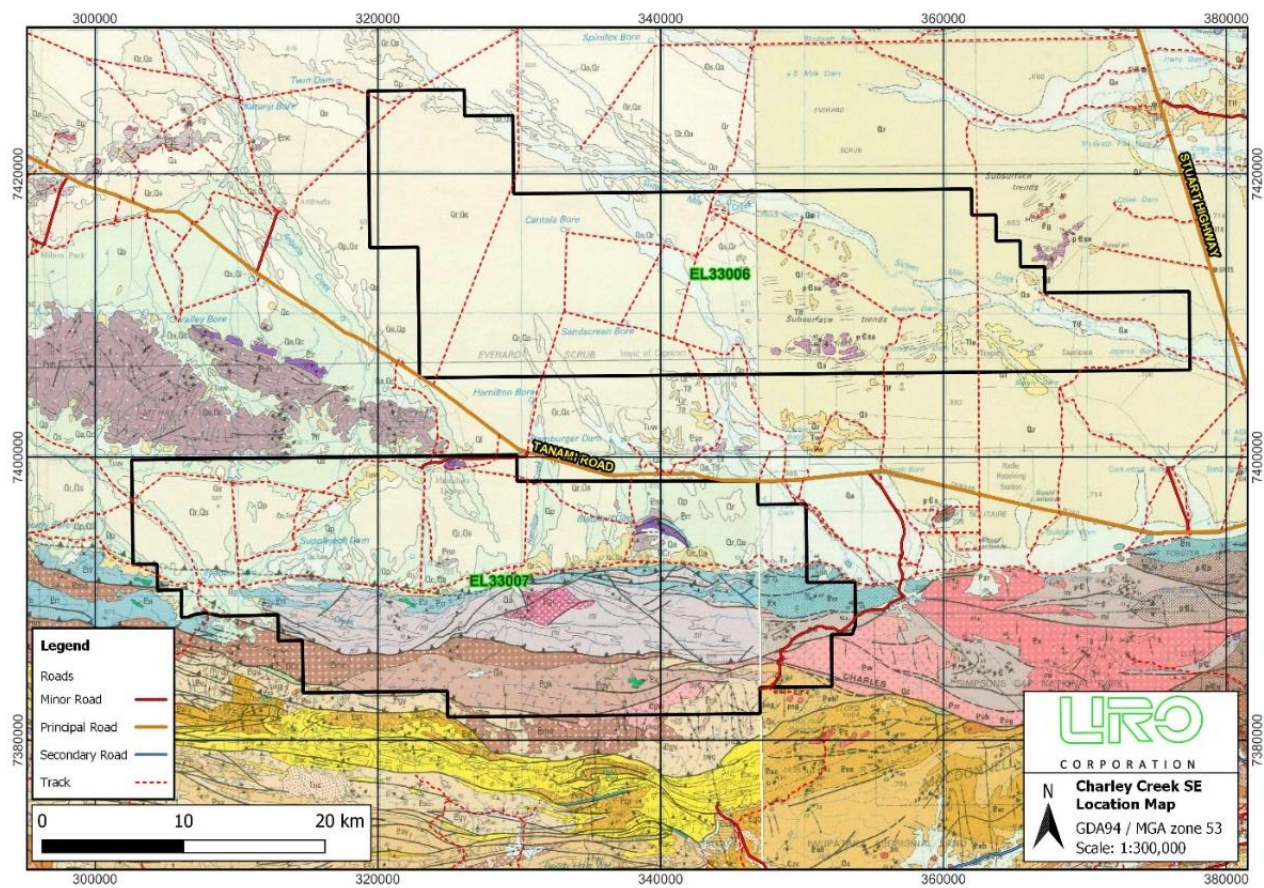
## 2 Geological Setting

### 2.1 Regional Geology

The project area lies within the Arunta Region, on the southern margin of the North Australian Craton, within the Aileron Province.

To the south a high strain zone, the Redbank Thrust Zone, was generated from the continental collision during the Anmatjira uplift phase (1500-1400Ma).

The most extensive hard rock geological feature in the area is the MacDonnell Ranges. The ranges are primarily made up of mid-late Paleoproterozoic mid to high grade, amphibolite to granulite facies metamorphic rocks. The rocks of the MacDonnell Ranges have undergone several stages of uplift, the most recent being the Alice Springs Orogeny (400-300MA). The metamorphic sequence that makes up the ranges have been later intruded by units such as the Teapot Granite. The Teapot Granite is known to be characterized by numerous late pegmatite and aplite phases. Secondary uranium minerals have previously been identified within the Teapot Granite outcrops (Warren G., Shaw R.D., 1995).



**Figure 2: Charley Creek South-East Geology Map**

The Paleoproterozoic (1850 to 1800Ma) Strangways Metamorphic complex is predominantly composed by felsic and mafic gneiss, metavolcanics, and metapelites. (Warren G., Shaw R.D., 1995).

Most of the remaining area is overlain by Quaternary aeolian, colluvial, and floodplain sands and clays, which conceal a thick layer of Tertiary cover sediments reaching up to 300 m in thickness. The alluvial fans,

draining from the MacDonnell Ranges and the Strangways Metamorphic Complex, are highly prospective for alluvial rare earth elements, uranium, base and precious metals.

## 2.2 Local Geology

EL33006 is located within an extensive alluvial plain to the north of the MacDonnell Range foothills. The sedimentary cover in this area primarily consists of coarse gravels, sand, silt, and clay, deposited by alluvial processes. The region features multiple fluvial channels that transition into ephemeral streams, characterised by pebbles, gravel, and sandy deposits. Interspersed between these fluvial sediments are accumulations of aeolian quartz sand.

The regolith in this area, derived from floodplain processes, is relatively deep and overlays sedimentary cover above the hard rock of the Strangways Metamorphic Complex. Scattered throughout the relinquished area are isolated outcrops and sub-crops of the Adla Granulite Formation, part of the Strangways Metamorphic Complex. These outcrops are composed of interlayered mafic granulite and garnet gneiss. Additionally, ferricrete, calcrete, and lateritic gravels form localised sub-crops within the area.

## 3 Exploration Rationale

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This tenement is located approximately 45km to 83km northwest of Alice Springs and within the Aileron Province of the Proterozoic Arunta Region. The area is prospective for precious and base metals, uranium, REE, energy metals and PGEs. Multiple mineral type targets and therefore multiple deposit style models were considered, felsic intrusion-related uranium and rare earths, palaeochannel-related calcrete and redox style secondary uranium, mafic intrusion-related nickel, copper, vanadium and PGEs, and polymetallic metamorphic-related deposits.

The area is relatively untested by adequate surface sampling and drilling. Surface sampling and scintillometer measurements targeted regolith, channel, floodplain sediments and isolated hard rock outcrops.

## 4 Previous Exploration

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**EL7 - Horizon Exploration Mineral Resources Australia, 1972:** conducted preliminary sampling of groundwater, which indicated the presence of uranium in concentrations suitable for deposits. A scout drilling program was implemented, but the results showed that the area had no potential for sedimentary uranium deposits, leading to the recommendation of no further work.

**EL3100 - CRA Exploration, 1981-1982:** found no anomalous uranium during their exploration and subsequently relinquished the licence.

**EL6693 - White Range Gold, 1989-1990:** drilled five holes to test a magnetic anomaly but did not encounter any ore-grade material.

**EL8126 & EL9565 & EL9566 - Rio Tinto Exploration, 1994-2002:** conducted detailed airborne magnetics and ground EM surveys, as well as drilling and spectrograph readings. However, the anomalies identified were sourced in the tertiary cover, and the exploration did not yield any significant findings.

**EL10264 - Johnson's Well Mining, 2002-2003:** focused on the Rand Project, exploring the potential for mineralisation like the Witwatersrand in South Africa. They conducted literature reviews, field-based studies, and sampling programs, which identified areas with elevated gold, silver, and base metal levels. However, no further work was conducted, and the area was surrendered.

**EL22615 & EL22631 - White Geoservices & BHP, 2001-2003:** carried out a review of previous exploration data but did not complete any groundwork before surrendering the tenements.

**EL22922 - Tanami Gold, 2002-2004:** surrendered the area as potential targets were considered low priority.

**EL23114 – Exploremine, 2002-2004:** dropped the area without testing its potential for Ni-Cu-Co and Pt-Pd mineralisation.

**EL25338 - NuPower Resources & WDR Base Metals, 2007-2013:** conducted various surveys and drilling programs but did not carry out on-ground exploration during the current year. They decided to withdraw from the joint venture and relinquish the tenement.

**EL25657 - Crossland et al, 2007-2017:** focused on the potential for Rare Earth Elements (REE), uranium, and other metals. However, they relinquished part of the licence and decided to surrender the remaining area due to its lack of economic importance.

**EL26006 - Arunta Uranium, 2008-2012:** conducted various surveys and sampling programs, which indicated elevated uranium levels. However, they decided to withdraw from the area and relinquish the licence.

**EL27359 – Crossland, 2009-2019:** surrendered the licence after collecting stream sediment samples.

**EL28154 – Crossland, 2011-2017:** relinquished the licence as it had no potential for their alluvial-hosted REE mineralisation focus.

**EL28155 – Crossland, 2011-2019:** surrendered the licence, which was part of the area.

**EL28224 – Crossland, 2011-2020:** surrendered the licence after conducting drilling, collecting stream sediment samples, and conducting an airborne survey as part of the Charley Creek REE Project.

**EL31950 - Magnet Exploration & Earth AI Operations Australia, 2019-2021:** utilizing AI predictions, EARTH AI conducted extensive field campaigns in Northern Territory since 2018. Through soil and rock analysis, they confirmed geochemical anomalies on 35 of the 132 tested sites, achieving a remarkable 26% success rate. Anomalous Zn results prompted the application for a mineral title in the Alice Springs project. No known mineral occurrences exist within the title area. Due to COVID-19 restrictions, fieldwork and data collection on EL31950 were not possible. Further exploration in the area was highly encouraged.

Closest to EL33006 is the Charley Creek alluvial rare earth and heavy mineral sands deposit. The 2012 JORC compliant inferred resource is 418mt @ 121,100t of TREO. The rare earth mineralisation exists from the surface alluvium to a maximum depth of around 80 meters into saprolite. Other minor base metal occurrences have also been discovered in the area and near the relinquished area.

## 5 Exploration Activities conducted within Reporting Period

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During the lifetime of the relinquished area on EL33006, URO completed the following exploration work:

- Desktop/office studies including geological and geochemical analysis of results
- Surface Sampling and Geochemistry

### 5.1 Office Studies

Most of the office studies for the relinquished area of EL33006 focused on past work and the geology of the area to understand the potential prospectivity and mineral systems. Likewise, preparation for fieldwork began with a comprehensive review of regional geology, deposit types, and prior exploration efforts within the project area. New equipment, including Thermo Scientific PRD4 “RadEye” handheld scintillometers and SciAps X555 portable X-ray fluorescence (pXRF) analyser, were tested in the office to ensure efficient sample analysis in the field. A detailed grid soil sampling program was initially designed for the first field campaign in September 2022. However, due to the challenging scrubby terrain, field sampling was instead conducted along pre-existing tracks.

After fieldwork, visual inspection and pXRF measurements of samples were performed, with desktop analysis incorporating pXRF and assay data collected during the period. This data analysis guided the design of a more targeted field campaign in March 2023. Subsequent office-based interpretation of all soil and surface samples helped URO focus its August 2023 air-core (AC) drilling campaign on the eastern section of EL33006.

### 5.2 Surface Sampling and Field Reconnaissance

During the period of exploration in the relinquished area, a total of 98 surface samples were collected, including 83 soil samples and 15 rock samples (Figure 3). These samples were analysed using portable X-ray fluorescence (pXRF), used as a rapid and non-sample destructive method for elemental analysis. Based on the pXRF results, one further sample was sent to Intertek for detailed multi-element analysis.

Due to challenging terrain, sampling was largely confined to existing tracks and predefined grids. The campaign aimed to evaluate the area for potential rare earth element (REE), uranium (U), and base metal deposits. Dense scrub and mulga wood made access difficult, with flat tires and vehicle wear rendering standard 4WD Land Cruisers impractical.

Although no anomalous results of target commodities were discovered during geochemical analysis, the following notable measurements were made of several elements with pXRF: Ce 153 ppm; La 62 ppm; Nd 53 ppm, and no anomalous results from laboratory assays.



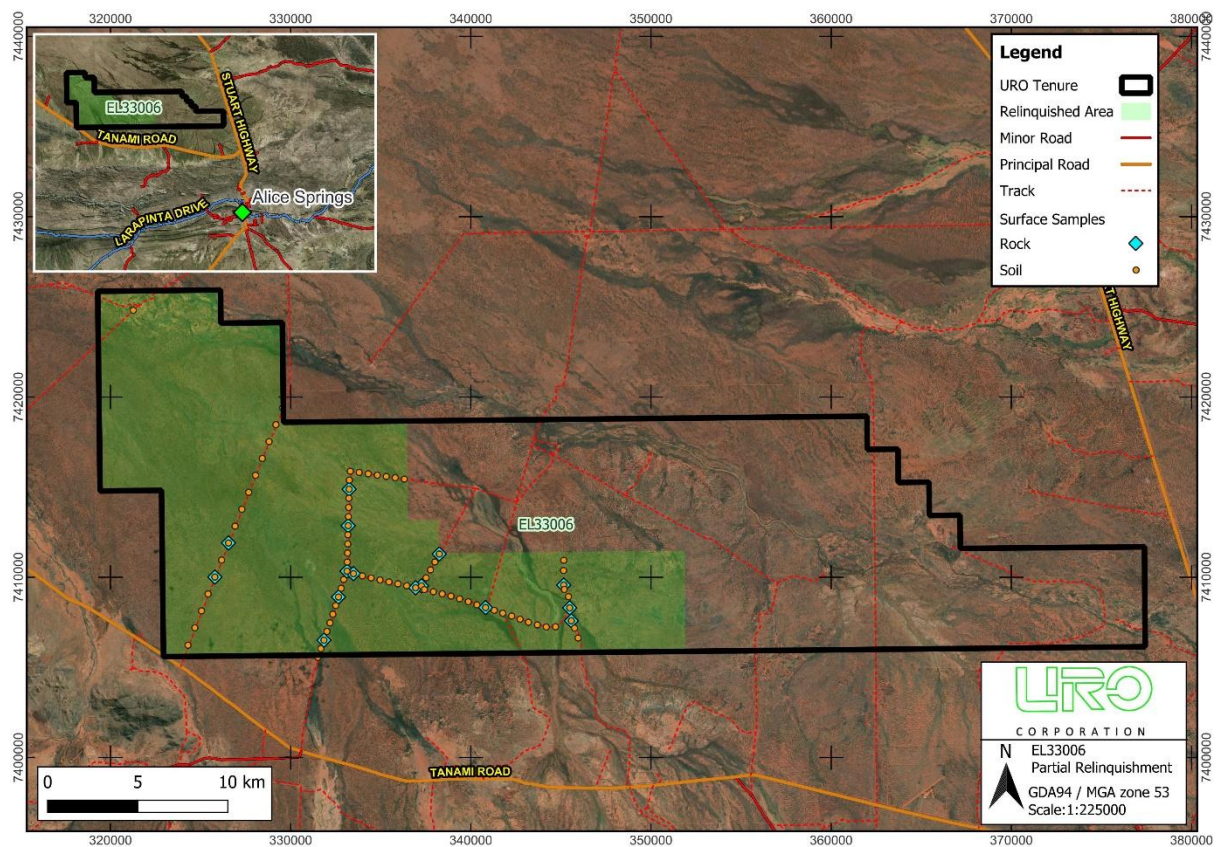


Figure 3: Work completed on the relinquished portion of EL33006.

## 6 Conclusions and Recommendations

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Exploration License EL33006, located in the mineral-rich Arunta Region, shows strong potential for base metals, rare earth elements (REEs), and uranium deposits. The region's complex geology, characterised by Paleoproterozoic metamorphic rocks and widespread alluvial systems, creates favourable conditions for diverse deposit styles, sediment-hosted uranium, REEs, and polymetallic metamorphic-related deposits.

During its tenure, URO Corporation advanced its exploration efforts through desktop studies and surface sampling. Although no significant geochemical anomalies were identified, much of the tenement remains underexplored, with considerable potential for discovery. Despite logistical challenges, including limited access to certain areas, surrounding drilling results have provided valuable insights that will inform future exploration.

In response to rising tenement costs, URO has streamlined its portfolio, relinquishing the western portion of EL33006 to focus on higher-priority areas. However, URO still considers this tenement highly prospective, particularly for REEs and sediment-hosted uranium. The deeper crystalline basement beneath the regolith and sedimentary cover also holds potential for polymetallic metamorphic-hosted deposits.

### ***Recommendations for Future Work in the Retained Area:***

**Surface Sampling and Field Reconnaissance:** Expand ground-based sampling to better delineate prospective zones for REEs, uranium, and base metals. Detailed mapping and sampling will be essential for refining exploration models and planning future drilling programs. Accessibility can be improved by using motorbikes and side-by-sides, allowing for more extensive grid sampling.

**Geophysical Surveys:** Conduct aero-electromagnetic (AEM) and ground-based gamma-ray spectroscopy (GRS) radiometric surveys to refine target areas. These surveys will help prioritise regions with the highest REE and uranium potential.

**Air Core (AC) Drilling Program:** AC drilling offers an efficient, cost-effective method for testing anomalies in up to 100 meters of sedimentary cover, reaching into the base hard rock. Future AC drilling should target previously inaccessible areas to assess REE, uranium and base metal potential fully. Also, an RC or Diamon drilling program into the metamorphic hard rocks could discover valuable commodities.

## 7 List of Digital Data Files

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**Table 2: List of digital files attached.**

Attachment	Description
EL33006_2024_P_01.pdf	Report Body
EL33006_2024_P_02_SurfaceGeochemPXRF.txt	PXRF data from surface sampling
EL33006_2024_P_03_SurfaceGeochemAssay.txt	Assay data from surface sampling
EL33006_2024_P_04_FileListing.txt	File Verification List

## 8 References

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Warren G., Shaw R.D., 1995. Hermannsburg NT 1:250,000 Geological series. NTGS. Explanatory Notes SF53-13.

Open File mineral exploration reports:

CR1973-0004  
CR1982-0274  
CR1991-0001  
CR1998-0009  
CR2004-0713  
CR2004-0648  
EL2538\_2013  
EL25657\_2017\_P  
EL26006\_2012\_AS\_01  
EL27359\_2019\_S  
EL28154\_2017\_AS\_01  
EL28155\_2019\_S  
EL28224\_2020\_AS  
EL31950\_2021\_A\_01