PARTIAL RELINQUISHMENT REPORT FOR EXPLORATION LICENCE 30730 LAKE MACKAY PROJECT

From 13th of October 2017 to 21st of October 2021

Holder	IGO Limited
Operator	IGO Limited
ABN:	46 092 786 304
Author	M McGloin
Date	9th December 2021
Email	matt.mcgloin@igo.com.au
Target Commodities	Diamond, Copper, Gold, Zinc, Lead, Nickel, Cobalt
Datum/Zone	GDA94/ MGA Zone 52
250,000 map sheet	Lake Mackay (SF52-11), Mount Rennie (SF52-15)
100,000 map sheet	Carey (4952), Ehrenberg (4951)
Distribution:	NT DITT – Digital
	Prodigy Gold NL – Digital
	Central Land Council – Digital
	IGO Limited – Digital

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1 Abstract

This report summarises the partial relinquishment of tenement EL30730 prompted by the fourth anniversary of the tenement being granted on the 13th of October 2017.

IGO Limited (IGO) tenement EL30730 is located approximately 365 km west-northwest of Alice Springs in the western Aileron Province of central Australia. EL30730 forms part of the Lake Mackay Project joint venture with Prodigy Gold NL (PRX). Ownership of the project is split 70% to IGO and 30% to PRX, with each party contributing their share of the project expenditure.

On relinquished ground in the tenure period (13/10/2017 to 21/10/2021), IGO completed airborne magnetic, radiometric and electromagnetic surveys, ground electromagnetic surveys, obtained 138 soil samples and 1 rock chip sample, and drilled 1 air core drill hole. This work was part of a wider exploration program across the Lake Mackay project area. The tenement was also subject to a site heritage clearance by the Central Land Council.

IGO have relinquished ground for three main reasons. Relinquished areas covered by airborne and/or ground geophysical surveys and/or surface geochemistry surveys failed to provide any follow-up exploration targets. Some areas were relatively unexplorable with current geophysical and geochemical methods because ground was covered in sand dunes or had significant depth of cover to basement rocks. This made drilling and further exploration impractical with current methods. One drill hole tested a possible diamond or nickel-cobalt-bearing mafic intrusion identified from electromagnetic and magnetic data, however the intersected lamprophyre did not have any economic potential.

No further work is recommended on the relinquished ground.

2 Location, Title History, Physiography and Access

The northeastern boundary of tenement EL30730 is located approximately 21 km southwest of Nyirripi in the Northern Territory and is approximately 365 km west-northwest of Alice Springs (**Figure 1**).

The tenement was granted on the 13th of October 2017 for a period of six years. EL30730 forms part of the Lake Mackay Project joint venture with Prodigy Gold NL (PRX). Ownership of the project is split 70% to IGO and 30% to PRX, with each party contributing their share of the project expenditure.

Tenement EL30730 is part of an amalgamated reporting arrangement (GR485) with several other Lake Mackay project tenements (ELs 24915, 25146, 30729, 30731, 30732, 30733, 30739 and 30740). EL30730 underwent a reduction in tenement area (partial relinquishment) in 2019 pursuant to the Mineral Titles Act on the second-year anniversary of the tenement being granted (McGloin 2019).

EL30730 is located on Aboriginal Freehold Land of the Lake Mackay Aboriginal Land Trust. Negotiations with the land trust are overseen and managed by the Central Land Council. The tenement has also been subject to a site heritage clearance organised by the Central Land Council.

The terrain is typically aeolian sand cover and spinifex plains, with occasional low hills and subcrop. Stands of scrubby mulga occur in areas with shallow sand cover.

The tenement can be accessed from Alice Springs north via the Stuart Highway, then west on the

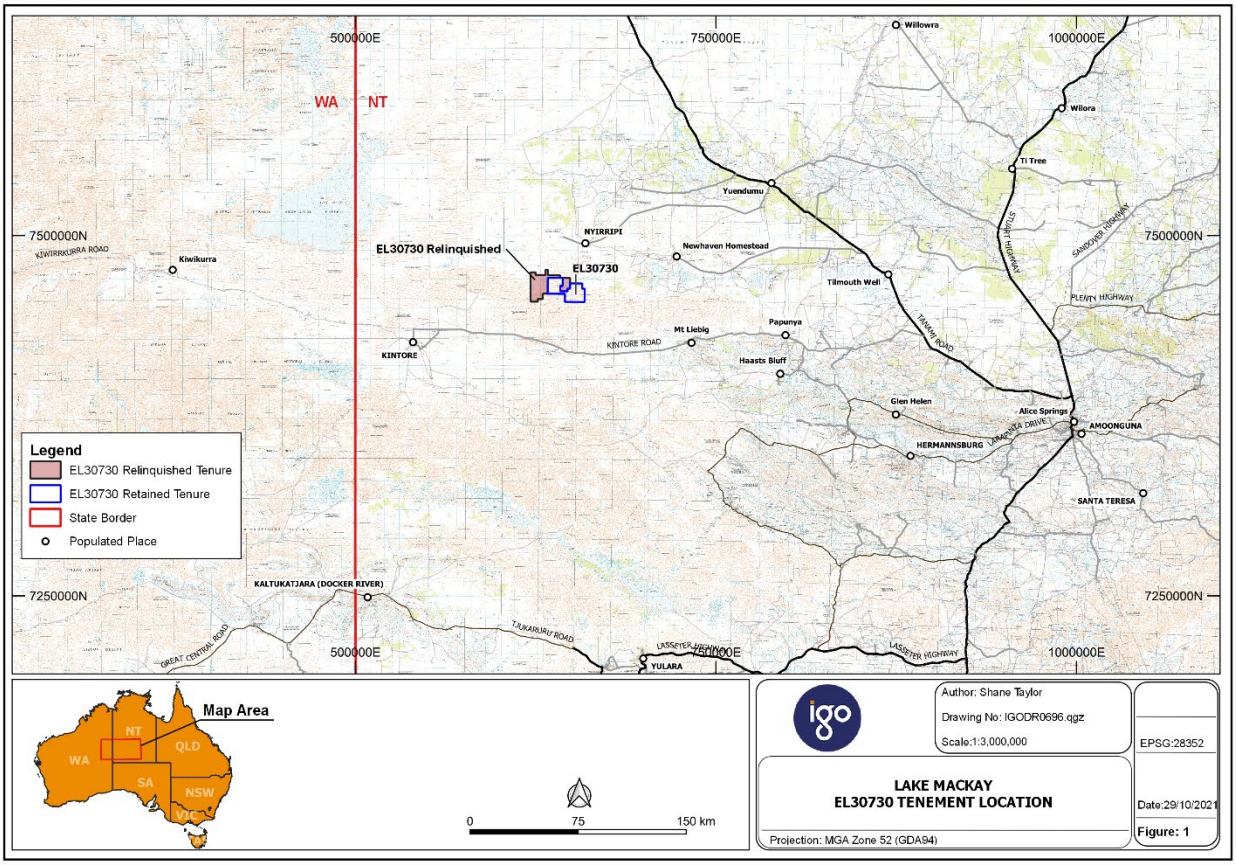

Figure 1: Location map of EL30730.

Tanami Road, before heading west along the well-maintained Newhaven Reserve track (dirt) towards Nyirripi. From Nyirripi, the tenement can be accessed heading west on Emu Bore Road, then south on the Nyirripi-Kaliipimbut Road towards Sandy Blight Junction near Kintore. Specific parts of the tenement can then be reached using temporary cross-country tracks off the Nyirripi-Kaliipimbut Road.

3 Geological setting, exploration history and exploration rationale

3.1 Regional and local geology and mineralisation

The Lake Mackay Project is located at the southern margin of the Paleoproterozoic North Australian Craton, straddling the Warumpi Province to the south, and the Aileron Province to the north. These provinces are separated by the Central Australian Suture, a major deep crustal-scale structure comprising a series of east–west trending major faults and shear zones (Shaw et al 1992, Scrimgeour et al 2005a, Selway et al 2009, Joly et al 2013).

Outcropping geology across the project area is typically poorly exposed. The terrain comprises low hills of poorly exposed Paleoproterozoic metasedimentary rocks and intrusions, commonly covered by aeolian sand plains and dunes (Close et al 2005). In some locations, Paleoproterozoic rocks are overlain by Neoproterozoic and Paleozoic sedimentary rocks of the Amadeus and Ngalia basins.

Polymetallic base metal and gold mineralisation at Grapple and Bumblebee (Winzar 2016, Reno et al 2018, McGloin et al 2019), and more recently at the Phreaker, Scuba and Raw prospects (Prodigy Gold, ASX Releases, 17 July 2019 and 18 January and 26 May 2021), is located in the western Aileron Province. The

ore-forming processes for these prospects remain poorly understood (Reno et al 2018, McGloin et al 2019). Nonetheless the observation of weakly magnetic pyrrhotite directly associated with base metal sulfides and gold (Cu-Au-Ag-Co-Zn-Pb), and anomalous enrichment in several trace elements (As, Bi, Te, Sn, Cd, Se, Sb) provides empirical geophysical and geochemical pathfinders that can be used to explore for similar mineralisation regionally.

The host rocks to the sulfide and gold mineralisation are ca 1.84–1.81 Ga metamudstone and metasandstone of the Lander Rock Formation, interpreted as a turbidite sequence (Close et al 2004, Close et al 2005a, Hollis et al 2013, McGloin et al 2019, Kositcin et al 2019). These siliciclastic metasedimentary rocks are strongly deformed and variably metamorphosed and interpreted to be lateral equivalents of similar metasedimentary rocks in the Tanami, Warramunga and Davenport Provinces (e.g., Claoué-Long et al 2008). A regional lithostratigraphy is not established between these provinces however because of a lack of continuous outcrop, few marker horizons, and the high metamorphic grade and deformation of these rocks in many locations.
Between ca 1.84–1.70 Ga, metasedimentary rocks of the Lander Rock Formation were intruded and metamorphosed by several phases of magmatism (Scrimgeour 2013, Hollis et al 2013, Kositcin et al 2019). Such intrusions include phases of the loosely defined ca 1.81–1.77 Ga felsic Carrington Suite and the ca 1.8 Ga Du Faur mafic Suite (Close et al 2005, Edgoose et al 2008, Kirkland et al 2009, Scrimgeour 2013, Hollis et al 2013).

The Du Faur Suite encompasses metadolerite and metapyroxenite sills (typically recrystallised to hornblende amphibolite; Close et al 2005). The Du Faur Suite are low-K tholeiites; this chemistry is interpreted as evidence for their emplacement in an extensional tectonic setting (Close et al 2005, Scrimgeour 2013). The precise timing of emplacement remains unknown due to difficulties sampling mafic rocks for chronology (Beyer et al in prep); nonetheless these sills preserve the same folded regional fabric as the enclosing metasedimentary succession, dated at ca 1.67 Ga at the Grapple prospect (Reno et al 2018), providing a minimum crystallisation age.

The Warumpi Province records a ca 1.69–1.60 Ga history of voluminous, dominantly granitic felsic magmatism, crustal thickening, and high-thermal-gradient metamorphism along the southern margin of the Aileron Province (Scrimgeour et al 2005a,b). Felsic and lesser mafic rocks of the Argilke Igneous Event were emplaced between ca 1.69–1.66 Ga (Close et al 2005, Scrimgeour et al 2005a, Kirkland et al 2009, Hollis et al 2013). Interpreted metasedimentary rocks with minimum ages of ca 1.66–1.64 Ga and 1.64–1.60 Ga (e.g., Yaya Metamorphic Complex) occur adjacent to these older igneous rocks (Scrimgeour 2005a-b, Close et al 2003, Scrimgeour et al 2005b, Hollis et al 2013).

Further felsic and mafic magmatism occurred in the Warumpi Province, and locally in the Aileron Province on Mount Rennie and Mount Doreen map sheets (e.g., Andrew Young Igneous Complex, Walungurru Volcanics, Waluwiya Suite) at ca 1.64–1.63 Ga contemporaneous with high-thermal gradient metamorphism (Wyborn et al 1998, Cross et al 2005, Scrimgeour et al 2005a, Hollis et al 2013, Kositcin et al 2019). The Andrew Young Igneous Complex in particular, is dominated by ultramafic and mafic intrusions, but also contains subordinate biotite-granite and pegmatites (Close et al 2005, Scrimgeour 2013). The mafic and intermediate intrusions include coarse augite-bearing norite, porphyritic micro-crystalline norite, olivine and K-feldspar-bearing norite, biotite-bearing olivine gabbronorite, quartz-bearing microdiorite, anorthosite, and plagioclase-andradite-clinopyroxene rock.

The origin of the Warumpi Province remains a focus of study; one model based on U–Pb zircon chronology interprets the province as an exotic terrain that collided obliquely with the Aileron Province at ca 1.64 Ga (Close et al 2005b, Scrimgeour et al 2005b). An alternative model based on isotopic and chronological evidence for mantle-derived magmas and crustal inheritance proposes that the Warumpi Province represents a rifted piece of the Aileron Province that was re-attached at some point (Hollis et al 2013, Wong et al 2015). Morrissey et al (2011) and Wong et al (2015) propose that the Warumpi Province was the upper plate to the Aileron Province

during the Paleoproterozoic, and that the province was emplaced along the Central Australian Suture at ca 1.1 Ga during the Grenvillian orogeny. The timing of development for the Suture remains uncertain (Scrimgeour et al 2005) however it must have formed during or after the so-called Liebig Orogeny (ca 1.64–1.63 Ma) and may have been re-activated several times.

Along with the hydrothermal polymetallic sulfide mineralisation, the project area is also considered prospective for both nickel-cobalt-manganese and gold mineralisation.

Ultramafic intrusions of the ca 1.64 Ga Andrew Young Igneous Complex represent a potential economic target for orthomagmatic and lateritic nickel and cobalt mineralisation (Gregory et al 2004, Hoatson et al 2005, Prodigy Gold ASX Releases 26 July 2018, 30 May and 17 July 2019, 18 January 2021). Shallow zones of nickel-cobalt-manganese mineralisation have been confirmed in duricrust at the Grimlock and Swoop prospects through reverse circulation (RC) and aircore drilling. Further outcrops of weathered ultramafic remain untested in the Warumpi Province, providing additional viable exploration targets.

Orogenic gold has also actively become a valid exploration target across the project area, following the successful greenfields gold discoveries at the Arcee and Goldbug gold prospects in EL31234 and EL31794, respectively. The Arcee gold prospect was discovered in September 2019 (Cornwell 2019). RC drill hole 19LMRC072 tested a coherent gold anomaly (>50 ppb Au) from regional soil sampling. The drill hole intersected a broad zone of gold mineralisation (12 m at 3.6 g/t Au from 112 m) in the centre of an orthoamphibolite sill of the Du Faur Suite, that intrudes metasedimentary rocks of the Lander Rock Formation. The Goldbug prospect was discovered in October 2020. The best intercepts from the discovery hole 20LMRC039 were 16 m at 1.15 g/t Au, 4 m at 0.78 g/t Au and 4 m at 1.54 g/t Au, from 48 m depth, hosted within orthoamphibolite of the Du Faur Suite (Prodigy Gold ASX Release 18 January 2021).

3.2 Historical regional exploration and exploration rationale

The exploration rationale for the Lake Mackay Project is now largely based on empirical observations from systematic fieldwork and the recent discovery of base metal and gold mineralisation in the area. However, before the discovery of mineralisation at the Bumblebee prospect in 2015, the project area was largely untested for mineral potential using modern exploration methods.

Previous theoretical studies considered the general Lake Mackay area prospective for nickel mineralisation (Hoatson et al 2005), orogenic and intrusion-related gold, sediment-hosted base metal deposits and uranium mineralisation (Joly et al 2013), and hydrothermal copper-gold mineralisation including IOCG deposits (Skirrow et al 2019).

IGO initially targeted the project for orogenic gold. The area was considered to have the key constituents identified by Joly et al (2013) in the Western Australian part of the Aileron Province. These included ca 1.80–1.70 Ga and 1.64 Ga intrusions that show evidence for local gold enrichment (potential sources), major deep crustal structures (fluid conduits) and potential physico-chemical boundaries (depositional traps). The trends of west-northwest gold anomalism from regional sampling in Western Australia occurs parallel to D_1 structures , and the Central Australian Suture, and continue into IGO's Lake Mackay tenements in the Northern Territory.

Limited historical exploration in the 2000s by BHP Billiton on the nearby tenement EL24915 targeted orthomagmatic nickel mineralisation associated with ultramafic and mafic rocks of the Andrew Young Igneous Complex (Gregory et al 2004). In 2003, two RC drill holes testing electromagnetic anomalies intercepted minor sulfide mineralisation (one of these drill holes was located 3.6 km west of IGO's subsequent Bumblebee discovery). The BHP drilling was never followed-up despite intercepting minor pyrite, pyrrhotite and trace chalcopyrite in tourmaline-bearing quartz veins within a shear zone that cut metasedimentary rocks and hydrothermally altered mafic intrusions.

Between 2002 and 2012, a joint-venture between Teck Australia Pty and Kajeena Mining Company carried out preliminary exploration work, including on historical tenement EL10383 (now part of EL29748), about 300 metres north of the Grapple and Bumblebee prospects (Kalma and Cawood 2009, Lee 2012). This work included field visits to collect sporadic rock chip, portable XRF, spinifex and soil samples where weakly anomalous gold, copper and zinc results were obtained. The Leg Gully anomaly, an east-west trending ironstone within mica schist, returned XRF readings of ≤1404 ppm Cu and rock chip assays of 323 ppm Cu. These results were never followed up. With hindsight, these reports from BHP, Kajeena Mining Company and Teck match the setting and observed mineralisation now discovered at Phreaker, Bumblebee and Grapple.

The Bumblebee prospect was discovered by IGO in 2015 after drilling of soil geochemical anomalies (Winzar 2016). The soil sampling program was designed to test for both gold and base metal anomalism using a -50 µm soil sampling method developed specifically for the project. This involved a 10 g cyanide leach for gold and silver and a 0.5 g Aqua Regia digestion for other base metal and pathfinder elements.

Additional soil sampling, along with airborne and ground electromagnetic surveys and geological mapping between 2016 and 2021 discovered several further polymetallic sulfide and gold prospects (e.g., Grapple, Phreaker, Raw, Scuba, Arcee, Goldbug). Additionally, rock chip sampling and drilling of ultramafic duricrust from the Andrew Young Igneous Complex at the Grimlock and Swoop prospects led to discovery of lateritic Co-Ni-Mn mineralisation (Prodigy Gold ASX Releases 26 July 2018, 30 May and 17 July 2019, 18 January 2021).

The exploration concept for the Lake Mackay project is to target geochemical anomalies and/or electromagnetic conductors that likely relate to:

1. "Bumblebee-Grapple-Phreaker-style" pyrrhotite and associated base and precious metal mineralisation hosted in the Lander Rock Formation; and
2. Orthomagmatic or lateritic Ni-Co-Cu mineralisation hosted within ultramafic intrusions of the Andrew Young Igneous Complex.
3. Orogenic gold mineralisation hosted within structures associated with metamafic sills of the Du Faur Suite that intrude metasedimentary rocks of the Lander Rock Formation.

All three mineralisation styles are of interest to IGO because deposits of this nature should be readily detectable using both modern airborne and follow-up ground electromagnetic surveys, and geochemical methods, even under shallow cover, and thus could provide economically viable deposits despite the remote location. The Bumblebee and Grapple prospects produced strong geochemical anomalies using soil sampling, and along with the Phreaker prospect, strong electromagnetic conductors using airborne and ground surveys, providing empirical methods to target further mineralisation. Consequently, IGO have applied both soil geochemistry and airborne (AEM) and ground (MLEM) geophysical surveys as a way to delineate additional mineralisation across the project (Winzar 2016, Whitford 2019).

These methods successfully generated multiple drilling targets and led to the discovery of the Phreaker, Scuba, Raw, Arcee and Goldbug prospects (Prodigy Gold ASX Releases 26 July 2018, 30 May 2019, 18 January and 26 May 2021). The discovery of these mineralised bodies confirms the mineral potential, and the applicability of these exploration methods, across the project area.

4 Relinquishment details

Pursuant to the Northern Territory Mineral Titles Act, a partial relinquishment on EL30730 was required on the fourth-year anniversary of the tenement being granted. Consequently, EL30739 has been reduced from 171 blocks (544 km^2) down to 84 blocks (265.7 km^2; **Figure 2**).

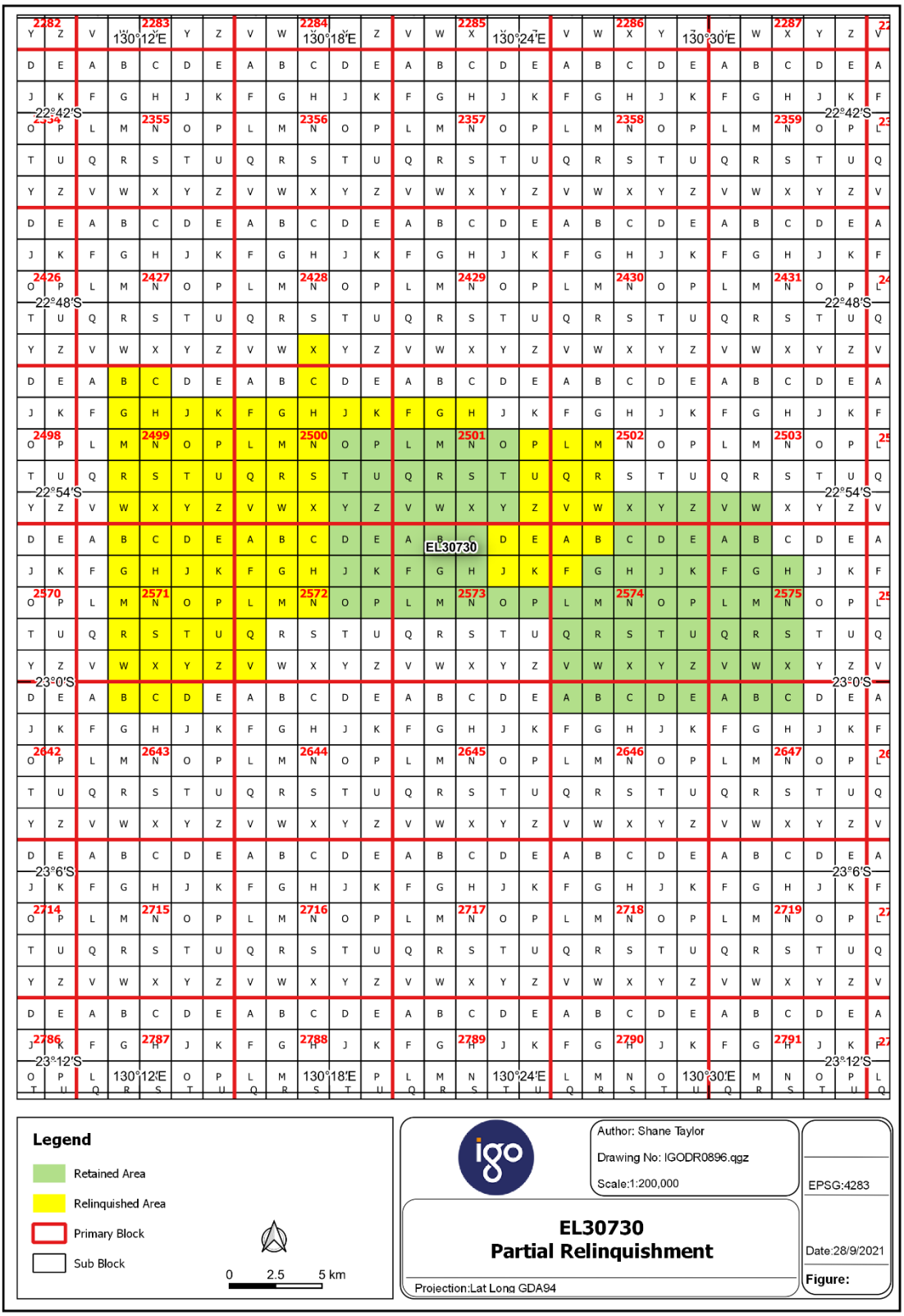

Figure 2. Map showing aerial extent of EL30730 with areas retained (green polygons) and surrendered (yellow polygons) during the partial relinquishment. 1-minute graticules (black grid). 5-minute graticules (red grid). Coordinates given in GDA94 MGA zone 52.

5 Exploration Index Map

The Exploration Index Map (**Appendix 1**) shows the exploration activities completed on the relinquished ground. Airborne geophysical data previously reported in Winzar (2018) and Cornwell (2019) are not included.

6 Work Completed on Relinquished Ground

Exploration during the tenure period for the relinquished ground consisted of collection of surface geochemistry (138 soil and 1 rock chip sample), collection of airborne magnetic, radiometric, and electromagnetic (AEM) data as part of regional surveys, follow-up ground-based moving loop electromagnetic surveys (MLEM), and 1 air core drill hole at the Cluster target. Some of these details have previously been outlined in Annual Reports (see Winzar (2018), Cornwell (2019), and McGloin (2020))**.**

Prior to undertaking on-ground activities, a sacred site clearance survey was conducted by the Central Land Council.

6.1 Surface Geochemistry

Between 2017 and 2021, regional reconnaissance soil and rock sampling was undertaken over poorly explored areas of the Lake Mackay Project (Winzar 2018, Cornwell 2019). For the relinquished ground in EL30730, 138 soil samples and one rock chip sample were collected in 2018 (**Appendices 1-2**).

6.1.1 Soil sampling

Areas suitable for soil sampling were selected from radiometric imagery that identified a bedrock response. The sampled areas were commonly limited due to a lack of outcrop.

Reconnaissance soil sampling was completed on a 400 m (north-south) x 800 m (east-west) grid over areas with bedrock or shallow cover (Winzar 2018). The details of the method for this Bulk Leach Extractable Gold (BLEG) soil sampling survey were outlined in Winzar (2018) and in the previous open file relinquishment report for EL30730 (McGloin 2019).

Sampling was conducted by teams of two people, using all-terrain vehicles, from mobile camps that were established at several locations throughout the project area along temporary access tracks. The samples were collected from a depth of 0 to 20 cm after scraping the surface to remove any organic matter. Duplicate samples were collected every 50 samples. Samples were screened on site to -0.4 mm for an approximate 2 kg of fine material. The samples were then submitted to Intertek in Alice Springs for additional screening to -50 µm. Company standards were also added every 50 samples. All samples were then dispatched to Perth for analysis.

The BLEG technique was used for Au and Ag with a 10 g aliquot of -50 µm material. A 0.5 g aqua regia digest was used for Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Pd, Pt, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn and Zr. Additional duplicates, standards and blanks were also undertaken by the laboratory as part of their standard in house quality control procedures.

The results of this soil sampling (and associated standards and duplicates) are reported in **Appendix 2**. These data were previously reported in the closed file reports of Winzar (2018) and Cornwell (2019). The reconnaissance soil sampling failed to generate a coherent geochemical anomaly, with a highest individual sample yielding 2.4 ppb Au (see **Table 1** and **Appendix 2**).

6.1.2 Rock chip sampling

One iron-bearing rock sample (LM06797) was collected during the soil sampling program (Cornwell 2019) and was assayed using a 4-acid digest (**Table 2**). The rock did not contain any significant metal anomalism (**Appendix 2**).

6.2 Geophysics

6.2.1 Aeromagnetic and radiometric survey

An aeromagnetic and radiometric survey was flown over parts of tenement EL30730 in GR485 prior to granting as part of a co-funded project-wide survey. The details of the survey were outlined in Winzar (2018). The survey was flown as 200 m spaced flight lines oriented north-south. The mean terrain clearance was 35 m.

6.2.2 Airborne electromagnetic surveys

Between 2017 and 2018, 911-line kms of SPECTREM airborne electromagnetic surveying were completed across EL30730, including parts of the relinquished ground in this report (Winzar 2018, Winzar and Whitford 2018). Between 2018 and 2019, an additional 1810.6-line kms were flown across EL30730 (Cornwell 2019).

Table 1: Peak -50 µm BLEG soil sampling results for relinquished ground in EL30730 (GDA94 MGA Zone 52).

Element	Sample Number	MGA East (m)	MGA North (m)	Value	Peak	Mean	Median	Standard Deviation
Ag	LM04821	632809	7474401	ppm	0.04	0.01	0.01	0.0
As	LM04824	632799	7473197	ppm	3.9	1.9	1.8	0.6
Au	LM04821	632809	7474401	ppb	2.35	0.79	0.70	0.4
Bi	LM04784	632809	7468017	ppm	0.6	0.3	0.3	0.1
Co	LM04776	632022	7468410	ppm	17.6	8.0	7.8	2.9
Cu	LM04785	632792	7468407	ppm	27.4	13.7	13.4	4.1
Mn	LM04715	628802	7464003	ppm	876.2	399.7	378.4	175.7
Ni	LM04786	632790	7468746	ppm	18.7	9.3	8.6	3.1
Pb	LM04857	635196	7470796	ppm	14.8	9.9	9.9	2.1
Zn	LM04608	622402	7460401	ppm	31.5	14.4	13.7	4.9

Table 2: Analytical method used for rock chip sample LM06797.

Sample Type	Digest (Lab Code)	Finish (Lab Code)	Element (Detection Limit)
Rock chip	Four Acid (4A)	Inductively coupled plasma optical emission spectrometry (OE33)	Ag (0.5 ppm), Al (50 ppm), As (10 ppm), Ba (2 ppm), Bi (5 ppm), Ca (50 ppm), Cd (0.5 ppm), Ce (20 ppm), Co (1 ppm), Cr (5 ppm), Cu (1 ppm), Fe (100 ppm), K (20 ppm), La (20 ppm), Li (1 ppm), Mg (20 ppm), Mn (1 ppm), Mo (2 ppm), Na (20 ppm), Ni (1 ppm), P (50 ppm), Pb (5 ppm), S (50 ppm), Sb (5 ppm), Sc (1 ppm), Sn (5 ppm), Sr (1 ppm), Te (5 ppm), Ti (5 ppm), Tl (5 ppm), V (1 ppm), W (5 ppm), Zn (1 ppm)
	25g lead collection fire assay (FA25)	Inductively coupled plasma optical emission spectrometry (OE04)	Au (1 ppb)

The surveys were flown on a 300 m line spacing with north-south lines and 90 m mean terrain clearance. The full details of these surveys can be found in Winzar (2018), Winzar and Whitford (2018), Cornwell (2019) and McGloin (2019) with the regional survey summarised in Whitford (2019).

For the relinquished ground on EL30730, the airborne EM survey identified 4 conductive anomalies that required follow-up ground electromagnetic surveys (Cornwell 2019).

6.2.3 Ground electromagnetic surveys

For the relinquished ground, a total of 100 moving-loop electromagnetic (MLEM) stations were positioned in June 2019 at 3 locations using a 200 x 100 m grid spacing in north-south oriented lines (Cornwell 2019). The grids were designed to test for AEM targets (Rich Grilla, Digital, Fluxgate and Gerry) using 200 m x 200 m moving loops in a Slingram configuration (**Appendix 1**). The MLEM data and interpretation were previously reported in Cornwell (2019). The MLEM surveys failed to generate any significant anomalies deemed worthy of drilling. No further work was recommended.

6.3 Drilling

6.3.1 Drill program and rationale

In October 2020, a small aircore and reverse circulation drill program was completed on the Lake Mackay project. The drilling was completed using a slimline drill rig in partnership with PRX. Geologists and field crew were present from both IGO and PRX.

As part of the drill program, one short vertical aircore hole (20LMAC046) was drilled on the relinquished ground at the Cluster target. The hole and collar information are summarised in **Table 3.**

The Cluster target (12 km west of the Swoop nickel-cobalt-manganese prospect) was one of several discrete and highly magnetic features evident in geophysical imagery below cover on EL30729 and EL30730 (**Figure 3**). These small dyke-like features contrast markedly with the non-magnetic, uniform nature of the metasedimentary country rocks that dominate the regional stratigraphy. Many of the dykes also have a weak airborne EM response. This response suggests localised weathered caps over a magnetic rock.

The targets most plausibly represented mafic or ultramafic intrusions; however, the age and composition of the intrusions were unknown. It was postulated that the inferred intrusions may be related to the Andrew Young or Papunya Igneous Complexes targeted for nickel and cobalt mineralisation at the Grimlock and Swoop prospects. If true, the targeted intrusions might contain significant supergene cobalt and nickel mineralisation and provide additional exploration targets.

A second hypothesis was that the dyke-like features might represent kimberlite pipes because their combined magnetic and EM responses are consistent with (but not uniquely diagnostic of) this style of intrusion. If the pipes are igneous and mantle-derived, they might have diamond-bearing potential.

Hole 20LMAC046 targeted the centre of one of the inferred intrusions to test for mineralisation and determine the geological reason for the anomaly.

Table 3: 20LMAC046 air core hole data from the Cluster target (coordinates in GDA94 Zone 52). RL = Reduced-level relative to sea level.

Drill hole	Tenement	Easting (mE)	Northing (mN)	RL (m)	Azimuth (°)	Dip (°)	Total depth (m)	Target
20LMAC046	EL30730	623621	7472217	491	NA	-90	84	Cluster

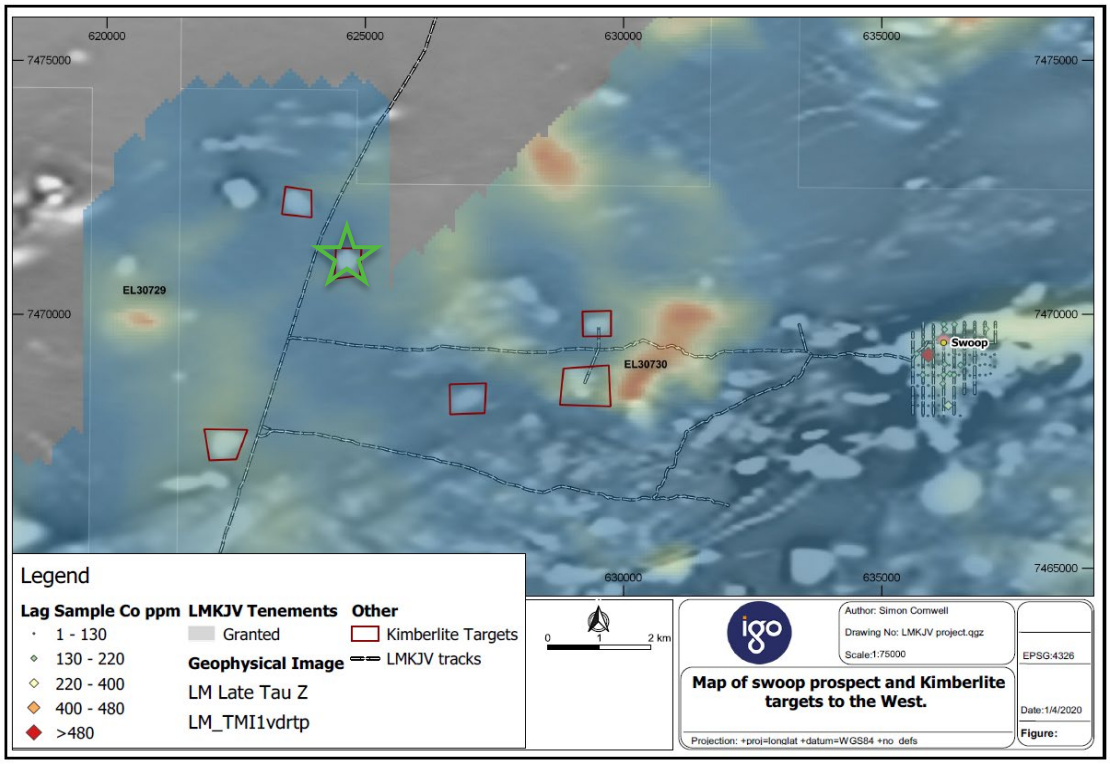

Figure 3: Map showing location of some of the magnetic high and conductive EM responses (within red boxes) tested by drilling the Cluster target with hole 20LMAC046 (green star). The drill hole tested whether the inferred intrusions have mafic or ultramafic compositions and potential for nickel-cobalt or diamond mineralisation.

6.3.2 Logging, sampling, and processing protocols

Individual 1 metre spoil samples were collected in a bucket below the cyclone and tipped onto the ground in rows for the rig Geologist to sieve and take a representative sample to insert into chip trays.

Geological logging of AC chips was completed on 1 metre intervals. Chip trays were used to collect representative chips from every metre drilled. Drill chip samples for geochemistry were collected directly from 1 metre interval drill spoils using a scoop and where necessary, sampled as 4 m composites into one calico bag (>2 kg of representative sample where possible).

Two duplicates every 100 samples, and two standards every 100 samples were inserted into the sequence at regular intervals. The standards were selected to best match the targeted mineralisation (i.e., oxidised, mineralised, barren etc.; (**Table 4**)).

Composite and split samples were packaged in separate polyweave bags and transported from site directly to the Alice Springs.

6.3.3 Geochemical assay methods

Samples were prepared at the Intertek Genalysis laboratory in Alice Springs (NT) and then forwarded to their Maddington laboratory in Perth (WA) for analysis. Each sample (excluding standards) was crushed and pulverised.

The 4 m composite samples were subject to an aqua regia leach with an inductively coupled plasma mass spectrometry (ICP-MS) finish testing for 33 elements including gold (from a 10 g charge). Detection limits for each element are summarised in **Table 5**. A 1 m split sample was also analysed for lithogeochemistry from the 83–84 m depth interval. The analytical method and detection limits for this sample are outlined in **Table 6**.

Table 4: IGO geochemical standard used during the 2020 drill program. AR = Aqua regia, 4A = Four acid digest.

Standard	Supplier code	Type	Method	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (%)	Au (ppb)	Ag (ppm)	Ni (ppm)	Co (ppm)	Description of Source/matrix
STDK04	OREAS 624	VHMS ore	AR	30900	6290	24000	16.14	1120	45.0	17.5	265	Zn and Cu VHMS ores sourced from Gossan Hill.
			4A	31000	6240	24000	16.21		45.3	17.5	269	

Table 5: Aqua regia assay analytical procedure for 4 m composite samples in 20LMAC046.

Method	10 g Aqua regia digest analysed by ICP-MS												
Element	Au	Ce, La	Ag, Bi, Cd, Sb, Tl	Co, Mo, Te, W	Sr	Pb	As, Ba, Cr, Cu, Mn, Ni, Sc, Zn	V	Ti	B	Al, K, P	Ca, Fe, Mg, Na	S
Detection	1	0.01	0.05	0.1	0.2	0.5	1	2	5	10	20	100	500
Units	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Table 6: Assay procedure for 1 m split lithogeochemical sample from 20LMAC046.

Sample Type	Digest (Lab Code)	Finish (Lab Code)	Element (Detection Limit)
1 m split (lithochemistry) LITH-204-X/OE	Lithium borate fusion	X-Ray Fluorescence Spectroscopy (FB1/XRF)	Al_2O_3 (0.01 %), BaO (0.005 %), CaO (0.01 %), Cr_2O_3 (0.005 %), Fe_2O_3 (0.01 %), K_2O (0.01%), MgO (0.01 %), MnO (0.01 %), Na_2O (0.01 %), P_2O_5 (0.001 %), SO_3 (0.002 %), SiO_2 (0.01 %), TiO_2 (0.01 %).
		Inductively coupled plasma mass spectrometry (MS33)	Ba (0.5 ppm), Ce (0.5 ppm), Cs (0.1 ppm), Dy (0.1 ppm), Er (0.1 ppm), Eu (0.1 ppm), Ga (0.1 ppm), Gd (0.1 ppm), Hf (0.1 ppm), Ho (0.1 ppm), La (0.2 ppm), Lu (0.1 ppm), Nb (0.1 ppm), Nd (0.1 ppm), Pr (0.1 ppm), Rb (0.1 ppm), Sm (0.1 ppm), Sn (1 ppm), Sr (0.2 ppm), Ta (0.1 ppm), Tb (0.1 ppm), Th (0.1 ppm), Tm (0.1 ppm), U (0.1 ppm), W (1 ppm), Y (0.5 ppm), Yb (0.1 ppm), Zr (1 ppm)
		Inductively coupled plasma optical emission spectrometry (OE04)	Cr (20 ppm), Sc (10 ppm), V (10 ppm)
	Four Acid (4A)	Inductively coupled plasma optical emission spectrometry (OE04)	Cu (0.5 ppm), Ni (0.5 ppm), Zn (1 ppm)
		Inductively coupled plasma mass spectrometry (MS33)	Ag (0.01 ppm), As (0.5 ppm), Be (0.05 ppm), Bi (0.01 ppm), Cd (0.02 ppm), Co (0.1 ppm), Ge (0.05 ppm), In (0.01 ppm), Li (0.1 ppm), Mo (0.1 ppm), Pb (0.5 ppm), Re (0.002 ppm), Sb (0.05 ppm), Se (0.5 ppm), Te (0.1 ppm), T 0.02 (ppm)
	N/A	CS Analyser	C (0.01%), S (0.01%)

6.3.4 Drilling results

Full drilling and assay data are included in **Appendix 3.**

Assay results

The intrusive plug tested in 20LMAC046 at the Cluster target was not mineralised. The assay results did not produce any anomalous metal concentrations of interest (**Appendix 3**).

Geology

Hole 20LMAC046 collared in 1 m of aeolian sand cover before intersecting sandstone (presumably of the Ngalia basin). At 53 m depth, a slightly weathered, coarse-grained gabbroic intrusion was intersected that became fresh from 72 m until 84 m when the hole was ended (**Figure 4**).

The drilled mafic intrusion easily explains the magnetic and conductive properties of the geophysical targets.

The true nature of the contact between the intrusion and overlying sandstone could not be established with the drilling. The sandstone may overlie the intrusion unconformably although this is speculative. The contact between the intrusion and nearby metasedimentary schist of the Lander Rock Formation (basement) was not intercepted.

Petrography

Fresh rock chips of the mafic intrusion at 80-81 metres depth (sample LM15319) were collected for petrographic examination (**Table 7**, **Figure 4, Appendix 4**). The rock chips were made into a single polished thin section, and then analysed by Dr. Tony Crawford. The mafic intrusion is comprised of a coarse- to medium-grained potassic assemblage of K-feldspar, phlogopite, augite and subordinate plagioclase, along with a significant amount of interstitial quartz and granophyre.

The distinct mineral assemblage suggests a calc-alkaline lamprophyre parent magma for this rock, with the K-feldspar-augite-phlogopite assemblage being typical of the minette variety of lamprophyre. A shoshonitic lamprophyre composition is indicated by the abundant K-feldspar and phlogopite.

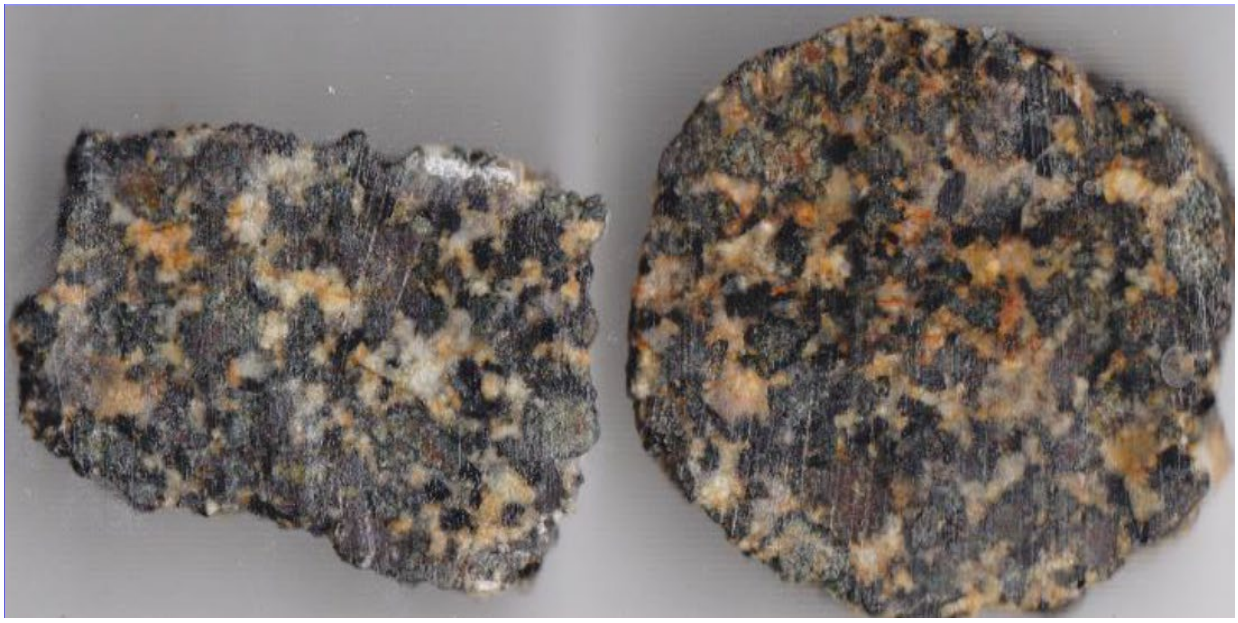

Figure 4. Photo showing 3 cm wide rock chip of lamprophyre sampled from 20LMAC046 at the Cluster target. The intrusion is not considered to have any diamond-bearing potential.

Table 7. Details of petrographic sample from 20LMAC046. Coordinates given in GDA94 Zone 52 system.

Sample ID	Hole ID	Collar Easting	Collar northing	Depth from (m)	Depth to (m)	Tenement	Sample description
LM15319	20LMAC046	623621	7472217	80	81	EL30730	Minette-type lamprophyre

Lithogeochemistry

The geochemical data generated from 20LMAC046 was assessed by IGO Geochemist Justin Drummond in early 2021. The geochemical data were consistent with the minette-type lamprophyre previously identified from the petrographic work. The whole-rock data demonstrated that the samples fall within the nominal ranges for lamprophyres on a MgO-K_2O-Al_2O_3 Ternary diagram. Plotting the data on a chlorite-muscovite-K-feldspar-biotite General Element Ratio Plot indicated that the rock composition is governed predominantly between K-feldspar and chlorite. Some samples verged toward the muscovite-chlorite control line, suggesting sericite alteration is quite significant for those samples.

The available data are consistent (but not diagnostic) of quartz-gabbro associated with the Papunya and Andrew Young Igneous Complexes although whether the intrusion drilled in 20LMAC046 (and other plugs identified from geophysical imagery) are related to these complexes, or instead a younger magmatic episode, remains uncertain.

Mineral potential assessment

The petrography results indicate that the intrusion at the Cluster target has no diamond-bearing potential. The assay results also failed to yield any significant nickel or cobalt mineralisation. Consequently, the numerous intrusive plugs identified from EM and magnetic imagery on EL30729 and EL30730 are now considered tested for economic mineralisation.

Drill chip submission

Considering the new geology encountered in 20LMAC046, split and composite interval samples of the lamprophyre, and some supplementary geological data, were donated to the NTGS Alice Springs Core Facility in April 2021. The details of the submission are attached in **Appendix 5**.

7 Reason for Relinquishment

IGO have relinquished ground in EL30730 for 3 main reasons. These are:

- Relinquished areas covered by airborne and/or ground geophysical surveys and/or surface geochemistry surveys failed to provide any follow-up exploration targets.
- Some areas were relatively unexplorable with current geophysical and geochemical methods because ground was covered in sand dunes or had significant depth of cover to basement rocks. This made drilling and further exploration impractical with current methods.
- One drill tested target failed to intercept mineralisation.

No further work is recommended on the relinquished ground.

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Suite 4, Level 5
85 South Perth Esplanade
South Perth WA 6151

PO Box 496
South Perth WA 6951
Western Australia

T. +61 8 9238 8300
F. +61 8 9238 8399
E. contact@igo.com.au

igo.com.au
Independence Group NL
ABN 46 092 786 304