Alligator Energy

ASX Announcement

29 May 2023

2022 Work Program Outcomes and 2023 Plans for Nabarlek North Project, Alligator Rivers

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Alligator Energy (ASX: AGE, 'Alligator' or 'the **Company')** is pleased to provide both a summary of insights from the inaugural work program conducted at the **Nabarlek North Project** in the Alligator Rivers Uranium Province ("ARUP") during 2022, and to detail how this has informed the work program for the current field season.

Highlights

- **Regional RAB drilling and auger soil sampling has enabled AGE geologists to determine rock types from saprolite geochemical signatures.**
- **AGE interprets the sub-surface presence at Nabarlek North of Cahill Formation that hosts all the major uranium orebodies in the region, including Ranger and Jabiluka.**
- **An integrated geological, geochemical and geophysical model has been developed which will facilitate efficient planning of future exploration programs.**
- **Numerous targets have been identified for further investigation in 2023, including adjacent the known high-grade U40 Prospect.**
- **A ground IP survey covering up to 15km^2 will be initiated in June 2023.**
- **Further geochemical sampling using RAB/Aircore and shallow Auger drilling planned to commence post the IP survey.**

Greg Hall, Alligator CEO, said: *"It has been a long wait to see the integrated geological model for Nabarlek North, but it is worthwhile. Alligator now feels that it has improved the understanding of the fundamental geology to the point where there are targets emerging that can be tested in an efficient manner. The Project area appears to contain rock types that we can assign to the Cahill Formation, which is the most uranium fertile formation present in the ARUP. This is in stark contrast to where we started a year ago, with very limited understanding of bedrock geology under only a few metres cover. Alligator has progressed the Project using low-cost methods, and the geochemical sampling and geophysics are designed to interpret the geology and structures present, with the aim of identifying likely uranium targets for deeper RC drilling. Restarting our long Traditional Owner and NLC relationships post-Covid has been important, with an update work program meeting held in early May, and heritage surveys planned for early June. An exciting 2023 awaits in the ARUP."*

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Key learnings from the 2022 Nabarlek North work program:

- The successful Falcon Plus airborne gravity survey[1] conducted on the southern section of the tenement package in July 2022 provides valuable insights into the distribution of fertile rock types and fundamental structures that are not always discernible in other datasets. AGE now interprets the sub-surface presence of the Cahill Formation that hosts all the major uranium orebodies in the region, including Ranger and Jabiluka.

- Regional RAB drilling and auger soils carried out in October-November 2022[2] has enabled Alligator to determine rock types from saprolite geochemical signatures. This has fed into an analysis of all available datasets for Nabarlek North, including: Falcon, Airborne Magnetics and Digital Terrain Model ("DTM"; acquired with the Falcon platform), Airborne Electromagnetics ("AEM") and Radiometrics, and historic drilling and soil sampling.

- Alligator now has an integrated geological, geochemical and geophysical model with which future exploration programs can be efficiently planned and implemented. It also provides a template to expand the coverage of multidisciplinary data across the broader Nabarlek North Project tenure.

How these learnings have informed the 2023 work program planning:

- Numerous targets have been identified for further investigation in 2023, using a variety of techniques: regional aircore drilling, auger soil sampling and ground Induced Polarisation ("IP").

- A ground IP survey covering up to 15km^2 will be initiated in late 2Q as soon as the camp is established for the 2023 season with the objective of mapping chargeability and subtle conductive structures in the area north of DevEx Resources (ASX: DEV) high-grade U40 Prospect.

- Geochemical sampling using RAB/Aircore drilling (15,000m) and shallow Auger (2,000m) is at an advanced stage of planning and is aimed at refining and expanding the geological model and further investigating the planned 2023 targets.

- The thick clayey saprolite identified in 2022 that sits below the cover has potential for ionic REE enrichment and this can be followed up without any significant change to the 2023 program beyond composite sampling and assaying of all holes intersecting a prospective regolith profile.

[1] ASX Announcement 8 August 2022
[2] ASX Announcement 11 October 2022

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Background

The Nabarlek North Project represents a highly prospective under-explored region within the ARUP (Fig 1), typified by the presence of an exhumed Proterozoic unconformity and enough cover sediments to mask bedrock radiometric signatures and discouraged past exploration. Alligator started 2022 not knowing if there were fertile geological formations present in the project area. Historical data has largely been ambivalent with regards to bedrock geology and it has been widely assumed that the Project is underpinned by the barren Nimbuwah Complex granites and gneisses, rather than the fertile Cahill Formation that host most of the economic orebodies in the ARUP[3].

However, the Project is located less than 7km north of the historic Nabarlek uranium mine which produced 24Mlb of U_3O_8 at an average grade of 1.84%[4]. The U40 Prospect, located 200m south of Alligator's southern tenement boundary, has historically reported grades of up to 6.3m @ 7.23% U_3O_8[4] demonstrating high-grade occurrences proximal to the Nabarlek North Project.

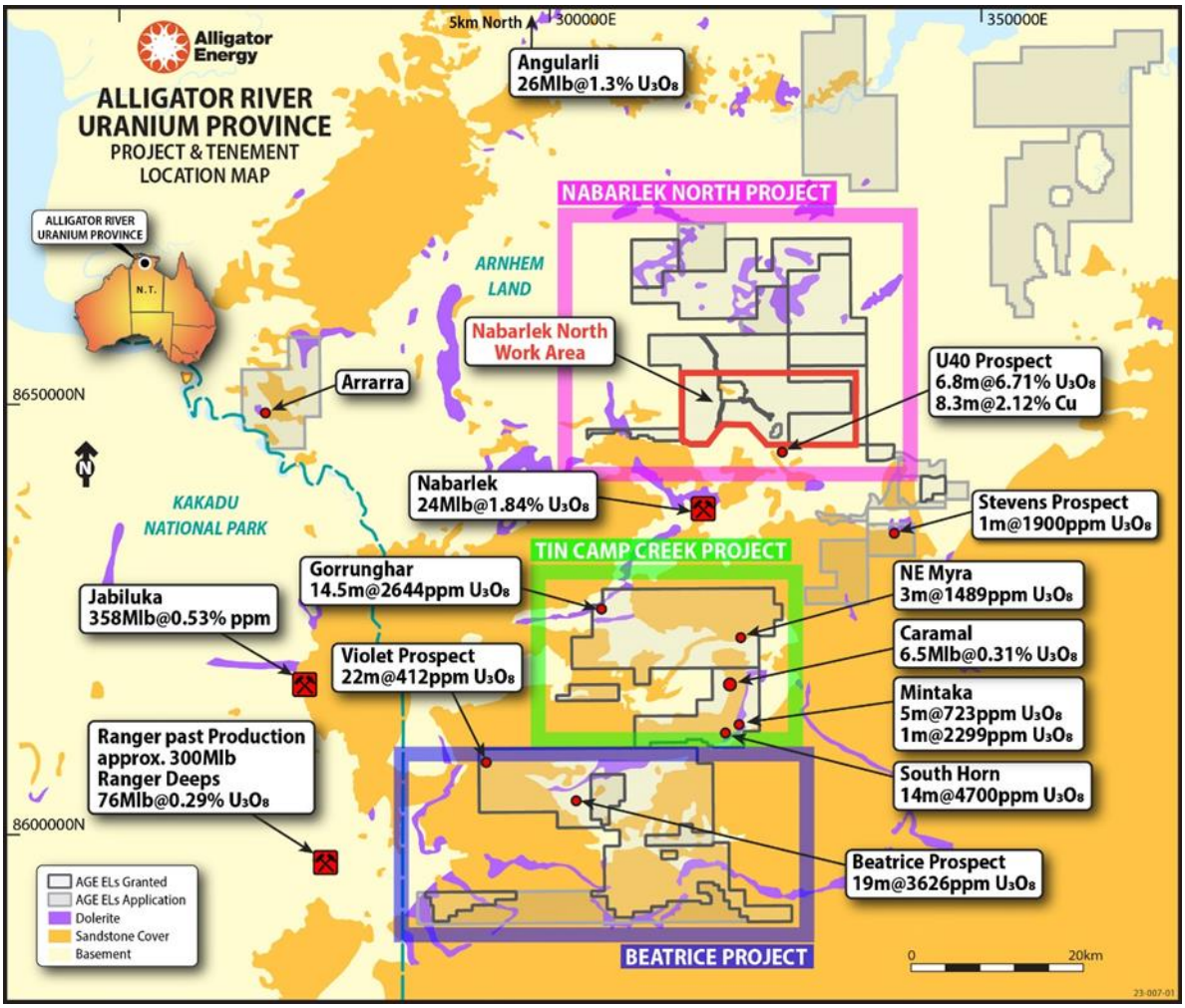

***Figure 1**: Location of the Nabarlek North work area and Alligators ARUP Project tenure in the NT*

[3] Vimy Resources Limited ASX Announcement, 21 March 2019

[4] Uranium Equities Limited (now DevEx Resources Limited) ASX Announcement, 4 October 2017

The work carried out in 2022 was the Company's first foray into this Project and was designed to establish in an inexpensive manner if there are fertile geological formations and structures under the thin cover. Outlined below are the findings of that work, which show that previous interpretations are incorrect and that the fertile Cahill Formation is likely to be widely present and is segmented by regional scale structures capable to 'plumbing' a uranium mineralising system.

Alligator believes that armed with the right datasets and a predictive geological model we will be able to take advantage of the simpler, inexpensive exploration techniques required to make a discovery where cover is thin and there isn't the impediment of thick Kombolgie Sandstone. That sandstone has previously been seen as a necessary ingredient to past exploration in Arnhem Land, due to its associated unconformity. Alligator will also be able to benefit from the excellent accessibility afforded to working in open flat environs beyond the sandstone escarpments. Alligator will not only be exploring the possibility of extensions of the U40 Prospect mineralised system into the Nabarlek North tenement package, but also be pursuing identification of new uranium systems further north where Cahill Formation is now interpreted under as little as 1m of cover.

Exploration Strategy

To achieve exploration success at the Nabarlek North Project, namely the identification of a large high-grade uranium deposit, the Company is focussing its exploration targeting strategy around the following key criteria:

- Presence of Cahill Formation which hosts all known uranium deposits in the Alligator Rivers Uranium Province.
- Existence of major low-angle structures that would have promoted long-lived fluid flow from above and below the Kombolgie unconformity.
- Identification of trace elements associated with the presence of uranium including REE, PGEs and certain Pb isotope ratios.
- Chlorite and haematite alteration related to uranium mineralisation that has a broader footprint.

Ongoing relationships with Traditional Owners

Alligator Energy has had a long relationship with the western Arnhem Land Traditional Owners from its inception and start of work in the region in late 2010 / early 2011. We have been pleased and proud to work with the Northern Land Council and the TO's in the TCC and Beatrice Project areas (refer Fig 1) over many years. During our many seasonal work programs we have employed over 35 indigenous employees, and have provided support to weed eradication programs, summer camp setups, burn-offs and access roads for traditional activities.

The first work on our Nabarlek North Project last year allowed us to re-start those relationships post the Covid access restrictions into Arnhem Land. We have been very pleased to be able to do this, with an initial work program meeting and heritage survey's undertaken in 2022. A further update work program meeting was held in early May this year, and further heritage surveys are planned for early June.

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As stated in our 26 February 2020 ASX release, Alligator finalised an Exploration Agreement with the Traditional Owners (facilitated by the NLC) over the Nabarlek North package of tenements. In a first for Alligator and the Traditional Owners, the Exploration Agreement allows for a one-off option for the Traditional Owners to acquire a 25% direct ownership in an economic uranium resource (if found), in exchange for a reduction in certain ongoing production related royalties and payments. This option arises at the time a feasibility report is finalised in relation to a proposed mining right application.

We very much look forward to working with the Traditional Owners and the NLC again in this region.

Key insights from the 2022 work program at Nabarlek North

Alligator was aware of the limitations of many of the current datasets to "see through" the complex swarm of magnetic dolerite dykes and sills that typify Arnhem Land. While there is no definitive evidence that these dolerites are unrelated to the uranium mineralising system, the simple fact is that there is no economic orebody hosted within them. Under the cover of modern transported sediments, there has been no means of determining if the magnetic signature evident in airborne datasets is exclusively due to dolerite.

This is important, as the Cahill Formation around Ranger has a strong magnetic character due to the presence of metamorphic magnetite in graphitic schists. Alligator had no way to understand if a similar unit is present at Nabarlek North and chose to acquire regional-resolution gravity data to aid mapping of the subsurface geology. Falcon Plus was flown at 100m spacing across the southern granted tenements of the Nabarlek North Project and has provided a density input to geological modelling. The logic was that homogenous felsic gneisses and granites of the Nimbuwah Complex and Archaean "Domes" have relatively low density, while mafic schist, amphibolite and calc-silicate rocks in the Cahill Formation are significantly denser. Similarly dense dolerite can be differentiated using magnetics (Fig 2).

This has proven to be a good choice and AGE now has a well-defined map of subsurface dolerite and non-magnetic mafic rocks. We also now have a local structural template that is not overwhelmed by the dolerite signature in magnetic datasets. Gravity images also define structures that are not evident in any other datasets (Fig 3). Falcon was chosen because is it logistically simple to acquire and can cover larger areas at lower cost than conventional ground gravity surveys. The trade-off is well understood, that airborne gravity data has poorer resolution and thus is not viable as a direct orebody detection technique and cannot refine complex structure.

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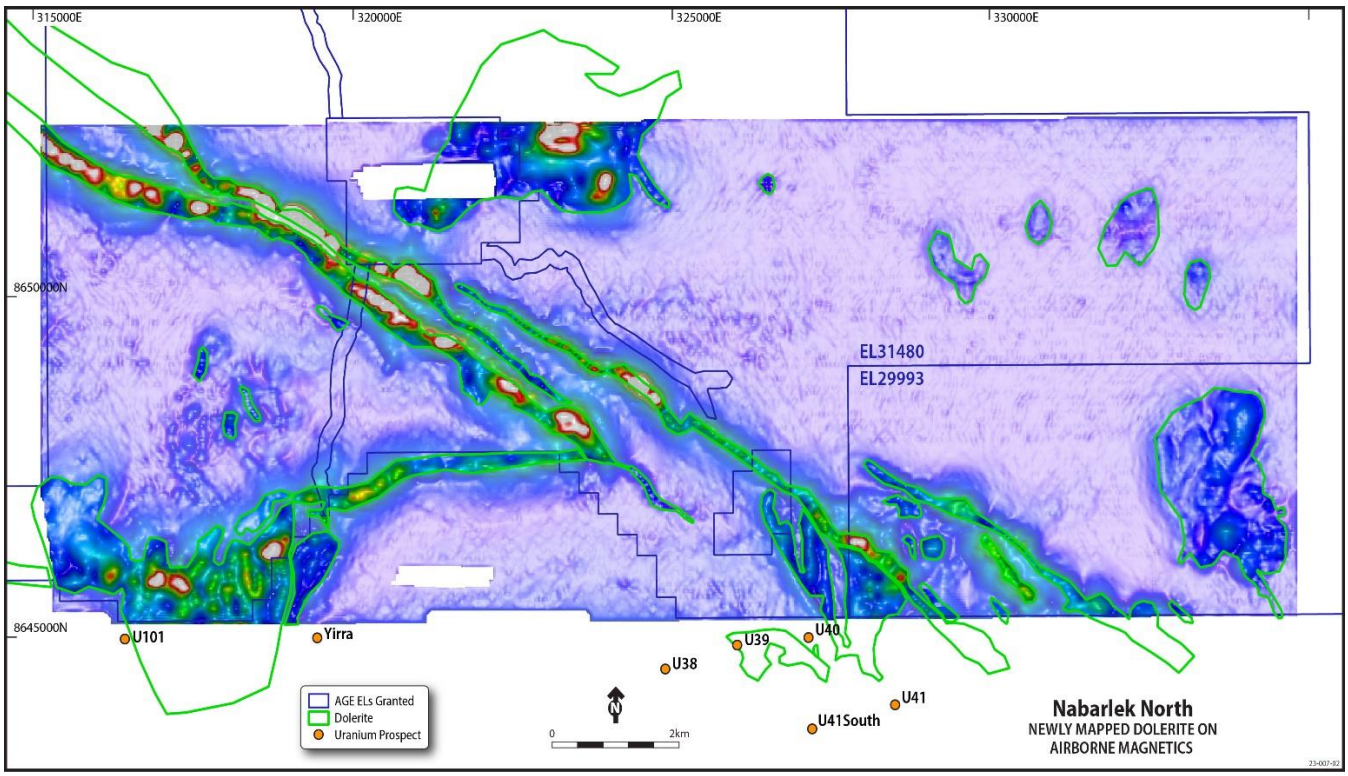

Figure 2: *Airborne magnetics analytic signal image and dolerite mapping for the work program area (green polygons). Magnetic data acquired with Falcon platform.*

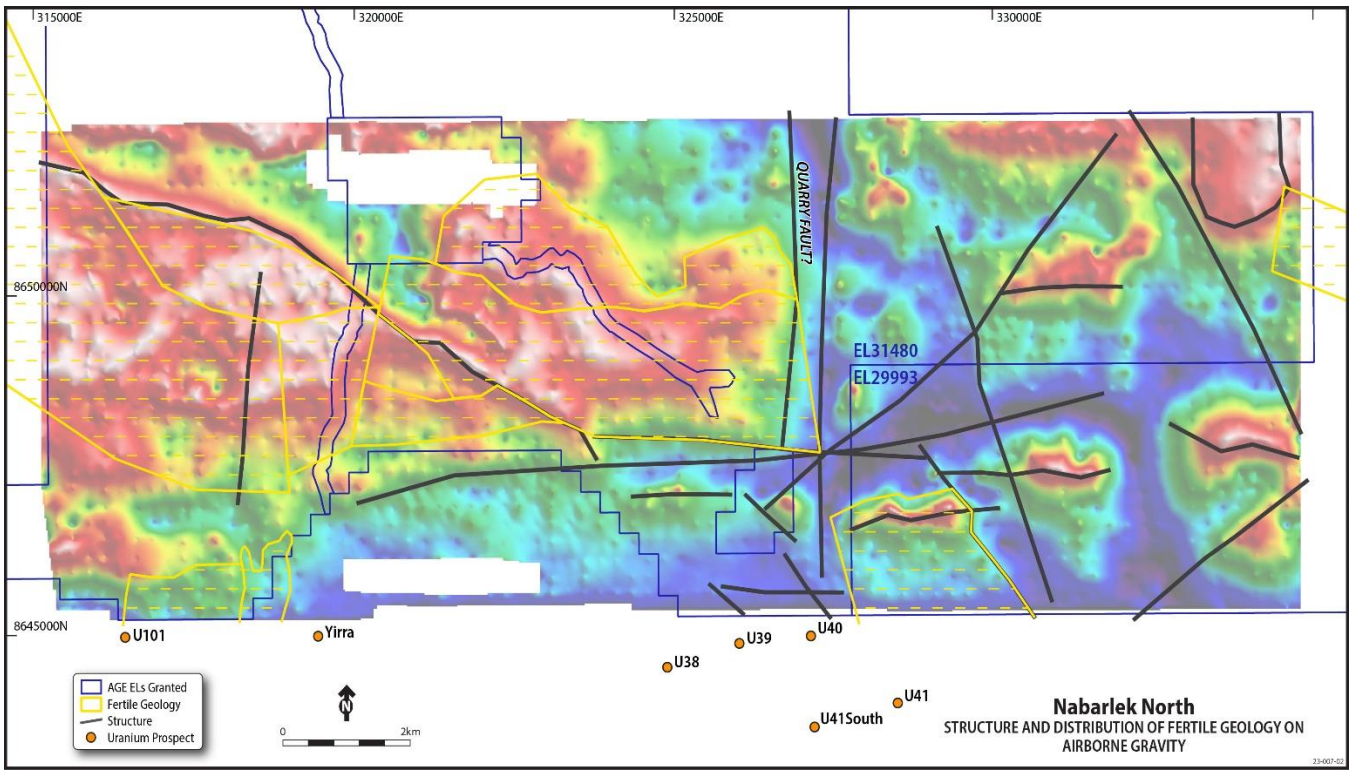

Figure 3*: Falcon gravity image for the work program area showing the interpreted structure and distribution of fertile geology (yellow polygons).*

Alligator commenced the Project with little subsurface data in the form of drilling. Previous exploration had involved collection of conventional soils in the far southern parts of the Project and ad hoc RC drillholes immediately north of the U40 Prospect. The historic soils are effective over only 20% of the area surveyed due to the shallow nature of sampling. It was also unable to predict bedrock geology due to the narrow element suite used and the influence of cover. Reverse Circulation ("RC") drilling was too sparse to extrapolate beyond the U40 Prospect.

AGE collected regional traverses of ATV-mounted Auger and 4WD-mounted Rotary Air Blast ("RAB") in late 2022 to determine if these were an effective tool in deciphering and mapping bedrock lithology and identify alteration patterns. A total of 176 RAB holes for 2,376m and 516 Auger holes for 884m were completed. Samples were collected at the end of each hole and ad hoc through many of the holes. The samples were analysed for a broad suite of elements including majors and traces, full REEs, PGEs and U-Pb isotopes, which proved pivotal to getting the maximum down-stream value out of the program.

Auger was found to be very effective in the far south in the vicinity of the U40 Prospect and several other areas that had been predicted to have thin over. Effectiveness diminished quickly northward where drainage channels cut down beyond 2m into the bedrock saprolite. Overall, 75% of auger holes were effective in identifying the protolith.

RAB was used on broader spacings across the Project area, largely to map bedrock geology, but also to help develop a regolith map and depth-to-basement contours. Of these, 72% of holes were successful in reaching bedrock, either as weathered or as saprolitic clay. Utilising the geologist logging data, augmented by a "trained" geochemical dataset, the nature of bedrock lithology could be ascertained to a reasonable level of confidence (Fig 4). Expectedly, assigning bedrock lithology to some holes was less confident.

The remaining 28% of holes failed to reach beyond cover due to a variety of reasons, including excessive cover thickness, collapsing sand, shallow groundwater or unacceptably low rates of penetration. None-the-less, these holes contribute to the understanding of cover thickness and its composition. Notably, they help define the extent of a flat-lying Cretaceous plateau up to 30m thick in the central part of the Project area (Fig 4). This information will be guiding deployment of auger and aircore in 2023 (see outline of plans below).

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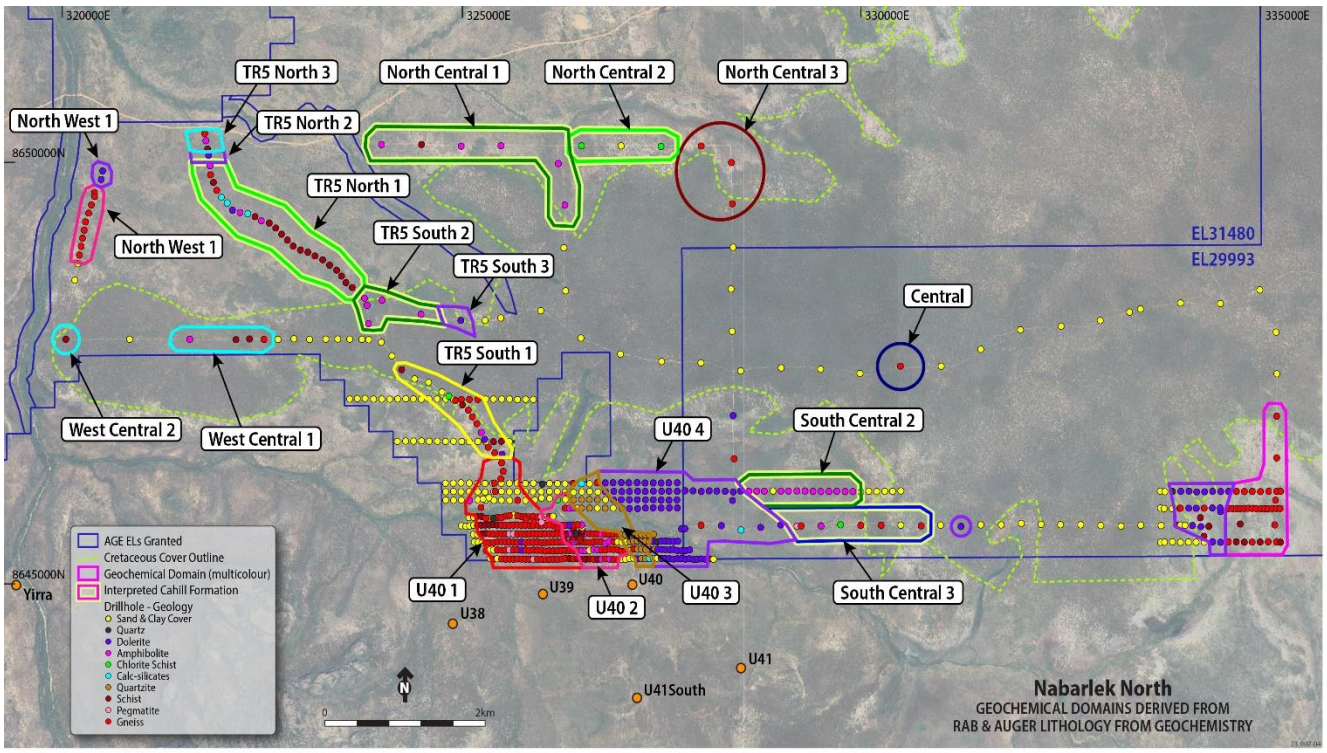

Figure 4: *Geochemical domains in the Nabarlek North work program area as derived from RAB and auger litho-geochemistry.*

Bottom-of-hole geochemistry data was interrogated using various elements and element ratios, against a library of regional data for fresh rock types, spanning the stratigraphic column from Archaean (Nanambu/Arrarra Gneiss), Pine Creek Orogen (Kudjumarndi Quartzite, Cahill Formation, Nourlangie Schist, Nimbuwah Complex), McArthur Basin (Kombolgie Sandstone, Oenpelli Dolerite), Cretaceous (Bathurst Island Fmn) and recent cover. Especially important was identifying rock types according to their basicity (felsic to mafic) and key trace element ratios (e.g., Ti/Zr), and REE and Pb isotope signatures that resist weathering. The process was initially carried out without spatial bias and then iteratively massaged using various spatial datasets, to ensure a degree of consistency and contiguity in lithotyping. The result is a series of maps ranging from “fact” to “extrapolation”, the latter intended to be a work in progress that will evolve with exploration in 2023 and beyond. The most basic is a spatial dataset that defines geochemical domains, which involves minimal extrapolation (Fig 4).

The most interesting outcome of exploration in 2022 is the identification of a mafic formation that spans the northern part of the work program area with attributes similar to the Cahill Formation (TR5_north_1 in Fig 4). Lithologies recognised in the logging and geochemistry include biotite schist, chlorite schist, amphibolite and calc-silicate rocks. This interpreted Cahill Formation corresponds with contiguous belts of weak to moderate conductivity in AEM data and to higher density domains in the gravity (Fig 3 and Fig 5). A reasonable degree of consistency is evident across these three independent datasets. The conductivity is thought to reflect more intense clay-weathering of mafic metasedimentary rocks, rather than inherently conductive bedrock characteristics, such as graphite. The drilling dataset and Falcon data also distinguishes a potential Archaean nucleus, structurally draped by Kudjumarndi Quartzite, immediately north of the U40 Prospect, which might explain why the U40 uranium mineralisation is present.

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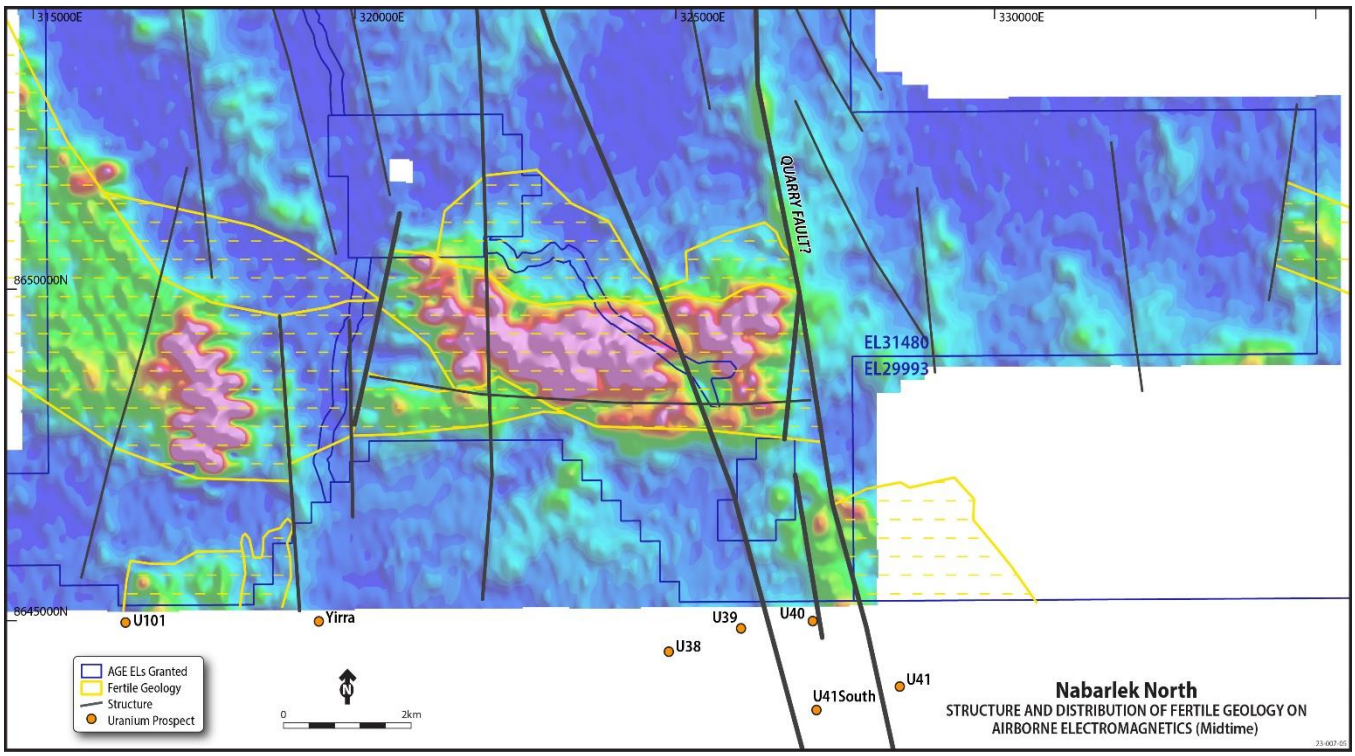

Figure 5: *Airborne electromagnetic (mid time) image for the work area showing interpreted structure and distribution of fertile geology (yellow polygons)*

From a direct exploration perspective, the drilling/auger geochemistry has generated roughly 50 targets ranked 1 to 5, where certain indicator elements or ratios are at odds with the norm (Fig 6). Examples include high REEs, Nd/La, U/Th, total base metals, PGEs, Pb208/Pb206 to Pb207/Pb206 ratio and Alumina. Importantly, there is evidence that REEs are enriched in the clayey saprolite in a number of areas, adding a new exploration play to the Project. The naturally REE-bearing phases of the Nimbuwah Complex combined with a tropical climate provide two important ingredients for ionic REE enrichment.

Another 20 anomalies have emanated from interpretation of the geophysics. These include discrete, low-order conductors in otherwise resistive geology, chargeability zones along AIP-reprocessed AEM lines, prognosed structural edges of fertile “Cahill” domains, and density anomalies unexplained by other datasets. One of the more noteworthy is the potential northerly extension of the Quarry Fault, which has been argued to have a gross control on the distribution of U40 and U42 Prospects to the south[4]. While it is widely acknowledged that low-angle structures ultimately control economic mineralisation in the ARUP, these are expected to sole-out into more regional vertical structures like the Quarry Fault and thus mapping them is very important. This structure is imaged well in the Falcon data, as a distinct gradation from dense Cahill Formation into less-dense Nimbuwah gneisses (Fig 6).

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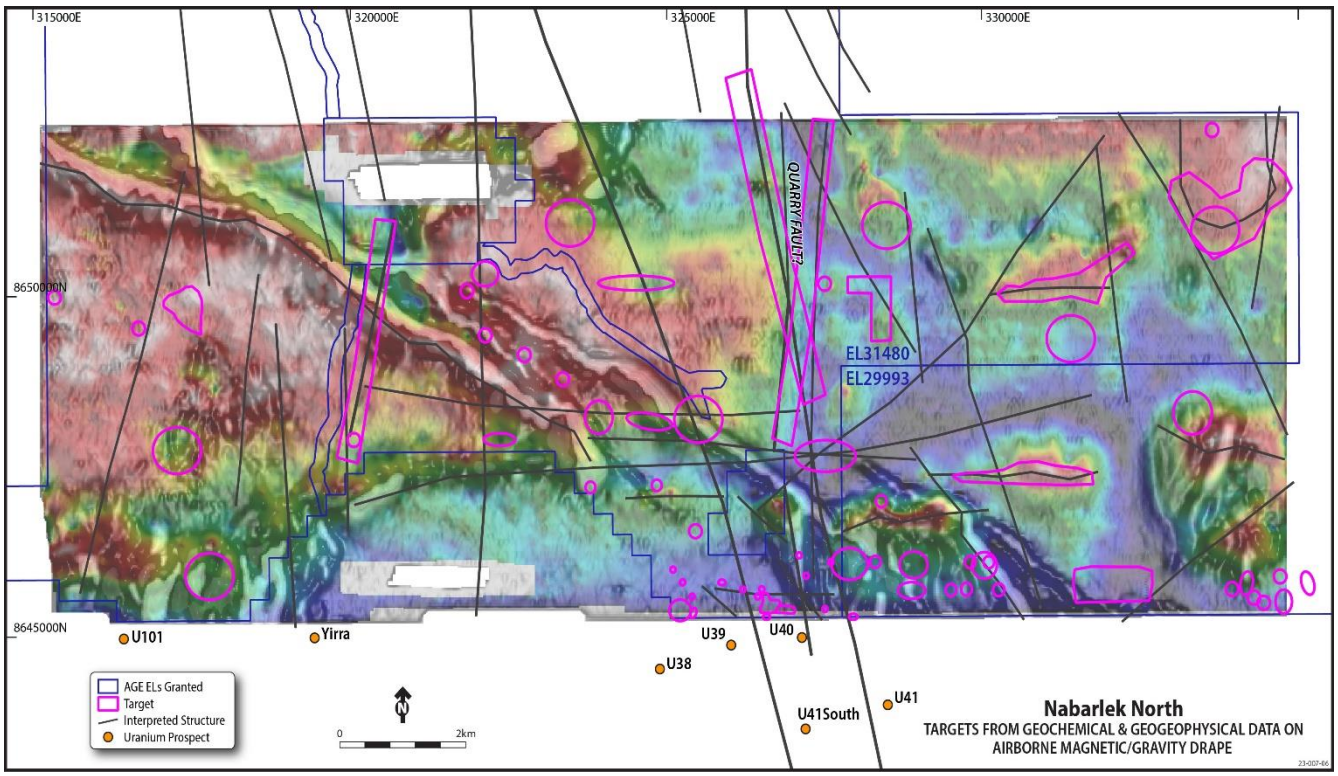

Figure 6: *Targets generated from geophysical and geochemical data in the Nabarlek North work area (magenta polys) on a 1VD magnetics-gravity drape.*

Plans for 2023

The 2022 Falcon, RAB and Auger programs represent a giant step in understanding bedrock geology, cover thickness and rationalising areas for efficient exploration going forward. In 2023, AGE will dramatically expand its geochemical sampling using RAB/Aircore drilling (15,000m) and shallow Auger (2,000m). The main drilling focus is where Cahill Formation is interpreted under <5m of cover. There will be a component of widely-spaced drilling in areas of thicker cover to broaden the bedrock geology mapping.

Alligator will also use the aircore drilling method, which is able to penetrate through flowing sands, regardless of whether they are dry or groundwater saturated. This will increase the likelihood of penetrating cover into basement. The Company will also be aircore-drill testing the most highly ranked geochemical, geophysical and structural targets (Fig 6). The program in 2022 also recognised that the thick clayey saprolite that sits below the cover has potential for ionic REE enrichment and this can be followed up without any significant change to the program beyond composite sampling and assaying of all holes intersecting a prospective regolith profile.

Unconformity-type uranium orebodies are small, high-grade and have a narrow or subtle alteration halo[3]. They do not generally exhibit a distinct geophysical signature, beyond a radiometric anomaly for those historic discoveries exposed at surface. However, recent exploration in ARUP suggests basement-hosted mineralisation at Deep Yellow Limited's (ASX: DYL) Angularli deposit has an IP signature[5] and DevEx Resources has widely used IP to map out geology and sulphide distribution to the south around the U40 Prospect[6]. AGE plans to acquire up to 15km2 of IP to assist in understanding the extension of the U40 Prospect chargeability and conductivity structure in the Nabarlek North Project. IP will also be utilised in other areas of the Project where there is conductivity associated with interpreted Cahill Formation and adjacent structures like the Quarry Fault (Fig 7). AGE has also commenced reprocessing and inversion of the Falcon data to maximise its value. The aim is to enhance structure and map density in a semi-constrained manner.

Making the most of drilling data is critical in understanding the baseline and what is anomalous, hence why Alligator utilises a broad element suite with assays. It is also why broad shallow drilling in thinly-covered areas is more likely to intersect mineralisation or alteration at this early stage. However, the Company has built capacity in its authorisations and clearances to quickly test well-defined targets using RC or diamond core drilling during the field season.

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[5] Vimy Resources Limited ASX Announcement, 18 July 2022

[6] DevEx Resources Limited ASX Announcement, 12 September 2018

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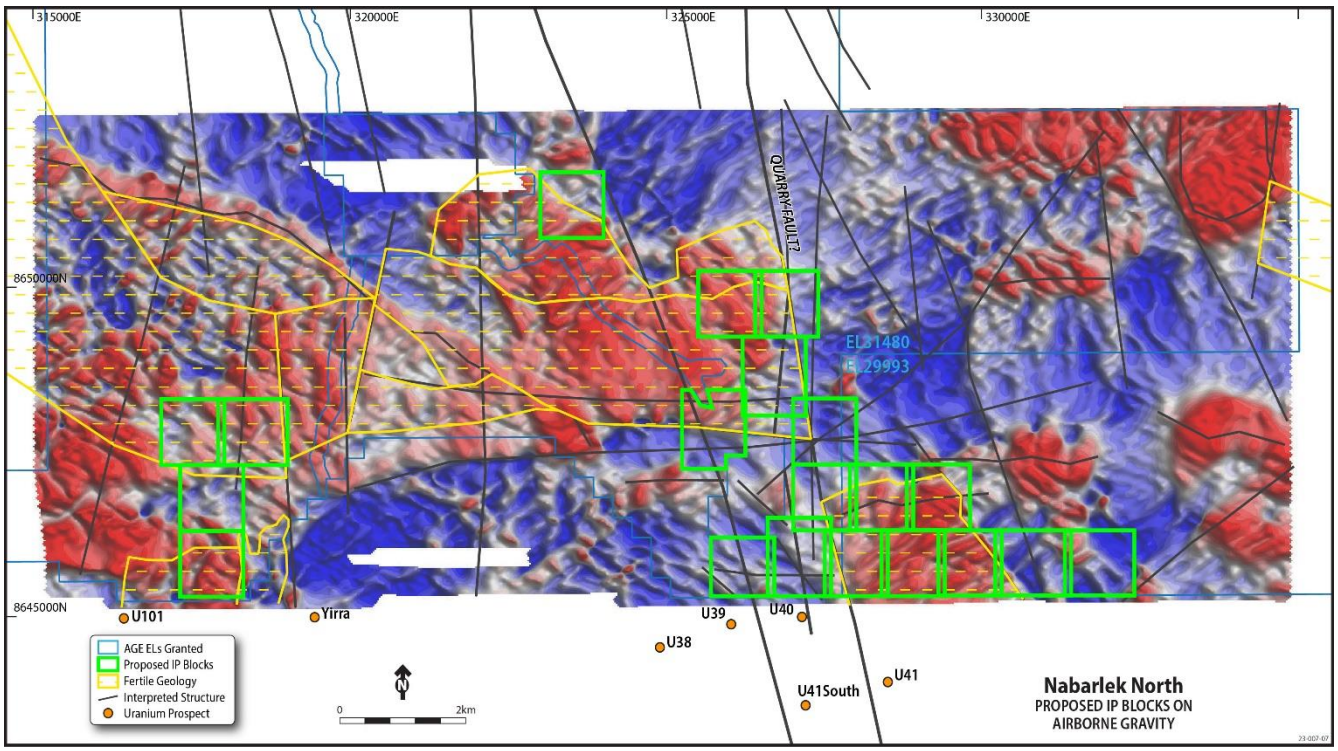

Figure 7: *Proposed IP survey grids to be acquired in Q2, on a Falcon gravity base (AGG shape index)*

This announcement has been authorised for release by the Alligator Energy CEO.

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Forward Looking Statement

This announcement contains projections and forward-looking information that involve various risks and uncertainties regarding future events. Such forward-looking information can include without limitation statements based on current expectations involving a number of risks and uncertainties and are not guarantees of future performance of the Company.

These risks and uncertainties could cause actual results and the Company's plans and objectives to differ materially from those expressed in the forward-looking information. Actual results and future events could differ materially from anticipated in such information. These and all subsequent written and oral forward-looking information are based on estimates and opinions of management on the dates they are made and expressly qualified in their entirety by this notice. The Company assumes no obligation to update forward-looking information should circumstances or management's estimates or opinions change

Competent Person's Statement

Information in this report is based on current and historic Exploration and Drilling Results compiled by Dr David Rawlings who is a Member of the AusIMM. Dr Rawlings is employed on a part-time consulting basis with Alligator Energy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Rawlings consents to the inclusion in this release of the matters based on his information in the form and context in which it appears.

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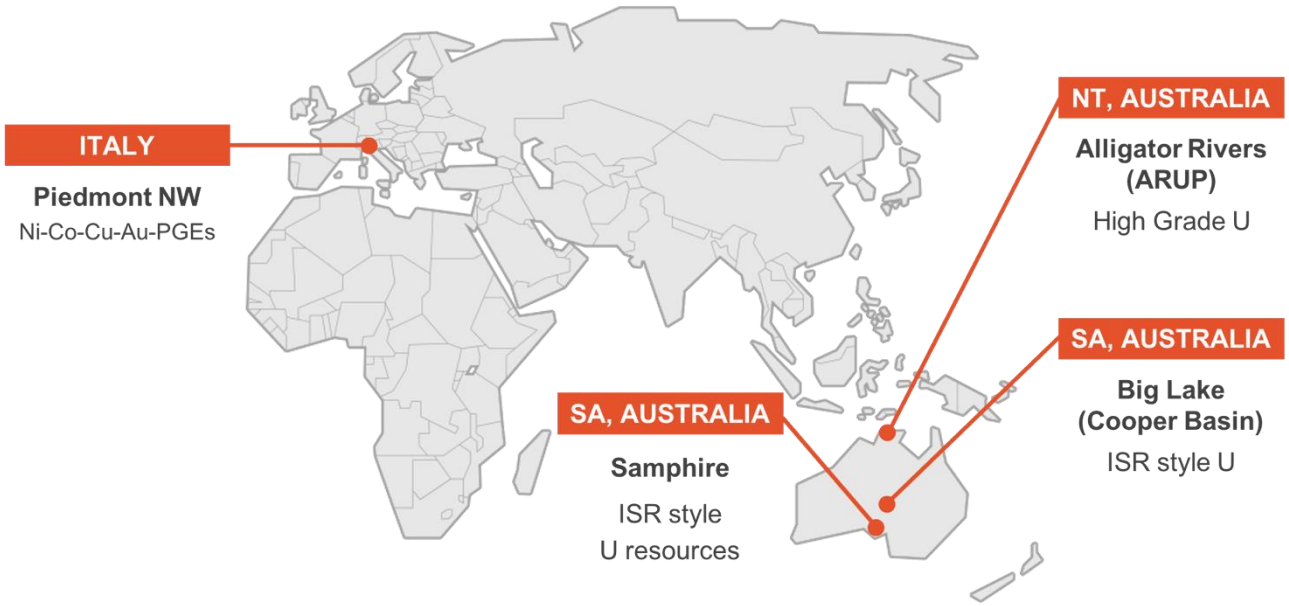
About Alligator Energy

Alligator Energy Ltd is an Australian, ASX-listed, exploration company focused on uranium and energy related minerals, principally cobalt-nickel. Alligator's Directors have significant experience in the exploration, development and operations of both uranium and nickel projects (both laterites and sulphides).

Projects



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Appendix 1

JORC Code, 2012 Edition – Table 1 Sections 1 & 2

Section 1 – Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary

Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*
	• *Aspects of the determination of mineralisation that are Material to the Public Report.*
	• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*
		• Results reported in this announcement relate to two exploration programs at the Nabarlek North Project in the Alligator Rivers Uranium Province ("ARUP"), Northern Territory: (a) airborne gravity ("Falcon"); and (b) shallow regional RAB drilling and auger soils to establish regolith geochemistry and bedrock depth below cover. Neither is intended as a direct detection method for mineralization and absolute values for various elements are not reported for this reason.
		• RAB drilling: spoils are laid next to the hole and spear or scoop sampling was carried out at 1m (original) and multi-metre (composite) intervals to obtain a ~1kg laboratory sample. This is sufficient for this regional style exploration.
		• Auger soils: spoils are laid next to the hole and scoop bottom-of-hole sampling carried out to obtain a ~0.5kg laboratory sample.
		• Sample preparation and analysis methods for both are the same and described in the relevant sections below.
		• Airborne gravity: Falcon Airborne Gravity Gradiometer System, including Lockheed Martin Airborne Gravity Gradiometer (AGG) with single near-vertical spin-axis, dual complement Gravity Gradiometer Instrument (GGI). In addition, a single-sensor magnetometer was mounted on a stinger that provides high precision magnetic data collection. Elevation data was also collected via a laser scanner. Data recording specifications:
		  ○ FALCON® AGG data: recorded at different intervals.
		  ○ Airborne total magnetic field: recorded with a 0.1 s sampling rate.
		  ○ Terrain clearance: provided by the radar altimeter at intervals of 0.1 s.
		  ○ Airborne GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked): recorded at intervals of 1 s.
		  ○ Time markers: in digital data.
		  ○ Ground total magnetic field: recorded with a 1 s sampling rate.
		  ○ Ground based GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked): recorded at intervals of 1 s.
		  ○ Ground surface below aircraft: mapped by the laser scanner system (when within range of the instrument and in the absence of thick vegetation), scanning at 36 times per second, recording 276 returns per scan.
		  ○ Base station location: Batchelor Airfield

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Criteria	JORC Code explanation	Commentary
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Rotary Air Blast (RAB) drilling technique utilizes a 3 and ¼ inch blade bit and NQ rods. The RAB rig is mounted on a 4 x 4 utility. It utilises a low-pressure compressor of maximum 150 psi. It is capable of drilling to 40m but is generally halted by groundwater or flowing sands by that stage. The rig is operated by Colling Exploration Pty Ltd of Cobar, NSW. • Auger is a hydraulic driven narrow-flight auger mounted on an ATV. Its is capable of drilling to 1.8m, but additional flights can be added to extend to as much as 4.5m, but this was rarely utilised due to the time involved and difficulty retrieving the flights.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• RAB sample recoveries are visually estimated and poor recovery intervals recorded in the log. To date sample recoveries have averaged >90%, except where flowing sand or wet sediments were encountered. • Contamination is monitored regularly. No issues have been encountered in this program, except where water was encountered and drilling was stopped at that point.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Standard sample logging procedures are utilised, including logging codes for lithology, minerals, colour, weathering etc. • A chip tray for end-of-hole and selected RAB intervals is completed. Chip-tray samples for auger are ad hoc for interesting lithologies. A sub-sample is sieved from the spoils at site into chip trays to assist in geological logging. • Geology of the RAB drill chips were logged on a metre basis with attention to main rock forming minerals and clay characteristics in saprolite. • Entire drilled interval of RAB was logged. • Average radiation counts per second are recorded for sampled intervals.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected,*	• RAB and Auger samples are collected exclusively via a spear or scoop and weight 0.5-1 kg. Samples are largely dry, but occasionally they are wet at the bottom of the hole if stopped by groundwater. • Duplicates are collected at a rate of 1 in 40. Data indicates good representivity. • Sample prep occurs at Bureau Veritas, SA. • The laboratory samples are prepared by pulverising to 95% passing -75 um. Samples were pulverised with Steel Ring Mills (LM5).

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Criteria	JORC Code explanation	Commentary
	including for instance results for field duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	

Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
	• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*
		RAB and Auger
		• No assay data is reported here, as it weathered (saprolitic) and therefore does not provide any direct indicator of the grade of fresh material at depth. It is used purely to identify the various rocktypes that the saprolite evolved from and any alteration indicators that may be present.
		• Sample analysis occurs at Bureau Veritas, SA
		• Samples were pulverized and then split to obtain separate aliquots:
		  ○ 0.2g aliquot dissolved in classic four acid mixture and assayed for minor elements (inc REEs) using ICP-MS and ICP-OES. Resistate minerals may not be dissolved in this method and as such certain elements can be considered minimum values (e.g., Zr, Ti).
		  ○ 1g aliquot that has been fused with lithium metaborate and dissolved in nitric acid and assayed for major elements using ICP-OES. This is close to a full digestion of resistate minerals.
		  ○ 40g aliquot used for classic Firing technique (ICP-OES) to determine Au, Pt and Pd (PGEs).
		  ○ Aliquot for gravimetric analysis (Loss on Ignition)
		  ○ 0.2g aliquot dissolved in classic four acid mixture and assayed for lead and uranium isotopes using ICP-MS. Resistate minerals may not be dissolved in this method (e.g., Zircon), which is intentional, as the isotope values being sought are for remobilised materials that can provide evidence of alteration or pathways for mineralising fluids.
		• Bureau Veritas employs standard NATA procedures for internal standards and duplicates.
		• Alligator employed procedures for duplicates and replicates for Auger and RAB samples. Owing to the baseline values of elements in this regional saprolite program, there are no sensible standards or blanks that are available. Standards would offer very little value as no material or economic grades of mineralisation were expected.
		Falcon gravity and magnetics
		• Data processors complete daily Quality Control of each of the re-flight specifications (along with other quality indicators) and produce a range of QC products for quality

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		control monitoring. • A bi-weekly QC Processing Report is provided to the Company, and presents a wide range of data quality measures, along with progressive images of flight path (planned and realized), DTM, GDD, GD in a spreadsheet format. • The gravity data is analysed to verify turbulence, speed, position and noise for each data stream and any lines found to exceed specified tolerances are noted for possible reflight. • Most reported gravity data passed QAQC checks. Lines that failed the tests were reflown at the contractors expense as required by the Falcon Plus specifications that the survey was under. • Issues with AGG instrumentation: After flight 7, there was a technical issue with the Feynman AGG system which could not be fixed on site. The aircraft was flown back to Jandakot base and the Feynman system was replaced with a similar digital system, Cavendish. Flights 1 to 7 used the Feynman system and flights 8 to 15 use the Cavendish system.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	**RAB and Auger** • Alligator's experienced project geologists are supervised by the Senior Consulting Geologist. • All field data is entered into excel spreadsheets (supported by look-up tables) at site and subsequently validated as it is imported into the centralized Access database. • Hard copies of logging and sampling data are stored in the local office and electronic data is stored on the company server. • Replicate auger holes are completed at a rate of 1 in 40, roughly 2-5m from the original hole. This is carried out to test for local geochemical variability. Results were generally well aligned. **Falcon gravity and magnetics** • Data was reviewed by Xcalibur Multiphysics field contractors and Alligator on completion of the survey. • Terrain corrections have been applied assuming two different densities: 2.2g/cm^3 and 2.67cm^3. • Data were levelled using Geoscience Australia's "2019 Australian National Gravity Grids" (ANGG19). • Enhanced processing is applied: this technique improves the noise amplitude density (as discussed by Christensen et al, 2015) by 25-50% for surveys with line spacing of less than 1 km. The method exploits the different spatial frequencies of system noise and geologic signal. After converting the data into the 2D spatial

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		domain, a custom spatial filter is applied that removes the system noise, while retaining the remaining geologic signal. The process will limit the data resolution to the survey line spacing. The Falcon Difference Noise of the standard product is 1.89 E at 169 m resolution and after applying the processing enhancement, the Falcon Difference Noise is 2.73 E at 100 m resolution. Calculating the noise amplitude density is a more appropriate means to evaluate noise with data at different resolutions. The standard product has a noise amplitude density of 1.10 E√km and the enhanced product has a noise amplitude density of 0.86 E√km. • The transformation into GDD and gD was accomplished using a Fourier domain transformation method. • Data has subsequently been reprocessed by Nordic Geoscience Pty Ltd to generate a range of outputs suitable for interpreting the broader patterns in the RAB and auger data. • Gravity data is currently being inverted for 16km^2 of the survey area immediately north of U40 by Nordic Geoscience.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	**RAB and Auger** • All coordinate information was collected using hand held GPS utilizing GDA 94, Zone 53. RLs are obtained via a spatial cross-check of a detailed DEM, which is far more accurate than from a hand-held GPS. • Holes are vertical and short, so are not surveyed. • These location data are sufficient for this early stage of exploration. **Falcon gravity and magnetics** • Dual frequency phase measurement GPS system suitable for real-time position accuracy of 5m and post-processed accuracy of 1m and a GPS ground station for phase-smoothed pseudo-range differential correction of flight position data.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	**RAB and Auger** • Hole distribution and spacing varies across the project area between 50m spaced in areas of interest (e.g., north of U40 prospect) to 1km spaced along regional traverses where thick cover was encountered. Refer to figures in the report for a summary of the spatial distribution. • Auger holes were generally deployed in areas where cover was predicted to be thin and RAB deployed in thicker covered areas. Given the lack of existing data to define cover thickness, there was a level of ineffectiveness in both the auger and RAB sampling. This is evident in the sample descriptions and geochemistry. Samples deemed to be from transported cover are designated as such. These provide

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		guidance to future programs, including location of drilling and type of drilling. For example, the depth to basement and drilling challenges presented in certain areas during the 2022 program will be assessed via aircore drilling in 2023. This technique provides a better solution where flowing sands or groundwater are present. • This data was not composited and will not be used to support a resource at any time in the future. **Falcon gravity and magnetics** • Line spacing of the Falcon airborne gravity survey was 100m, which is considered ideal for the level of geological and structural interpretation that was completed. Flight line direction of the survey was east-west. Minimum drape height was 80m. No tie lines were deemed necessary. • The extent of the survey is shown in the figures in the release and a flight line summary is shown below.

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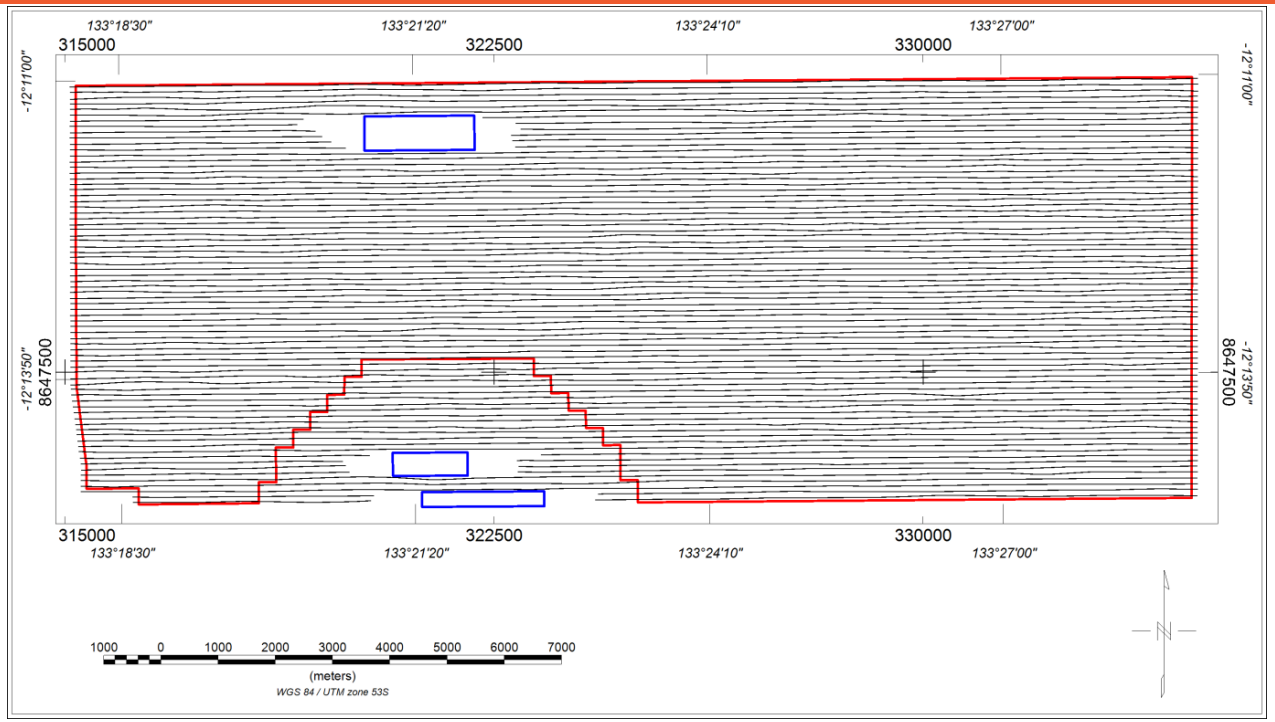		
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	**RAB and Auger** • Drill traverses are generally designed to be orthogonal to the predicted strike of geology and structure, however, this is impractical in many cases owing to the access available and the uncertainty of the geological geometry at this early stage of exploration. The steepness of dip in the bedrock geology is rarely evident in outcrop to enable an ideal design of angled holes. Hence for the purposes of regional bedrock mapping, vertical holes are sufficient. **Falcon gravity and magnetics** • Flight line direction of the survey was east-west, which was deemed to be a reasonable trade off between: (a) the general geological grain of the southern part of the survey area as interpreted from previous geophysics (NW-strike); (b) the interpreted presence of Cahill Formation south of Nimbuwah Rock (WNW-striking); and (c) the interpreted main structural features, such as the Quarry Fault (N-

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		striking).
Sample security	• *The measures taken to ensure sample security.*	• Company geologists supervise all sampling and subsequent storage in field and transport to point of dispatch to the assay laboratory.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Audits or reviews of the sampling techniques were not undertaken.

Section 2 – Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Exploration reported herein covers the southern part of the Nabarlek North Project area on ELs 29993 and 31480, as shown in the figures in the report. • More broadly, the Nabarlek North project comprises Exploration Licenses (ELs) 31480, 27252, 27253, 28389, 28390, 29991, 29992 & 29993. The Nabarlek North licences were granted to Northern Prospector Pty Ltd, a wholly owned subsidiary of Alligator Energy Ltd on 20th April 2021. • The project lies within the Arnhem Land Aboriginal Reserve on Aboriginal Land Rights Act (ALRA) land, about 250km east of Darwin, NT. • Alligator has obtained consent under the ALRA and an exploration agreement is in place, enabling work programs to take place on the basis of annual approval by Traditional Owners and the Northern Land Council. • Sacred sites in the areas take the form of registered sites, which the company has full understanding of the location, and are excluded from exploration. Like any other jurisdiction, Alligator is required to protect heritage and archaeological sites via work area clearances on an as-needs basis. • Alligator operates under an approved authorisation (Mining Management Plan; MMP) with the NT Government.

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Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Modern exploration for uranium commenced in the region following regional airborne radiometric surveys over the Alligator Rivers Province by the BMR in 1969. The Nabarlek deposit, approximately 7km south of EL31480, was subsequently discovered by Queensland Mines Ltd (QML) following a regional fixed wing airborne radiometric survey. QML undertook follow up work consisting of radiometric surveys, regional stream sediments surveys, ground follow up and geological mapping. As a result of this work several prospects in proximity to the Nabarlek North packages were identified however modest Cenozoic and Lateritic cover obscure basement and potential radiometric anomalies through the licences and limited follow-up exploration has been conducted. • Exploration ceased in 1973 following the Federal Government decision to inhibit uranium mining in the Alligator Rivers region. No work was undertaken in the area between 1973 and 1987 due to an embargo on the grant of exploration licences in Arnhem Land. • Historically 9 licences have covered varying large and small parts of the Nabarlek North licences with ELs 734 and 5890 operated by Cameco and PNC, AP2543 operated by Union Carbide, EL22707 operated by Rio Tinto and EL24868 operated by UXA resources being the primary historic licences of note. • PNC/Cameco collected regional geophysical datasets and drilled sparse shallow RAB holes and collected soil samples in the northern and western part of the current work area. No anomalous uranium was encountered. • UXA collected AEM and Hyperspectral over a large part of the work area in 2011. This was followed by soil sampling in a similar area to Alligator's current work program area, but was largely ineffectual due to transported cover. Radon cup and ground scintollometer surveys were also of mixed success. In 2011-2012 UXA drilled 48 RC holes for 4056m in areas of elevated radioactivity, most of which lie on the southern boundary of the tenement package closer to the U40 Prospect (currently held by DevEx Resources Ltd). Holes were gamma logged but no significant mineralisation was encountered. A small ground gravity survey was undertaken, which has now provided Alligator with a comparative dataset for the airborne gravity (Falcon).

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Geology	• *Deposit type, geological setting and style of mineralisation.*	• The projects area is located within the eastern margin of the Pine Creek Orogen (PCO) and lies on the eastern boundary of the Nimbuwah structural domain (Needham 1988). • The Nabarlek North licences represent a region with poor sub-surface geological understanding and limited historic exploration and subsequent interpretation. The majority of the licences are covered by undifferentiated Cretaceous and Cenozoic sediments and lateritic cover with limited basement exposure. A central sandstone stack (Nimbuwah Rock) within the licences and minor, thin Kombolgie sandstone cover in the southeast indicate stratigraphy throughout the licences is close to the main basal Kombolgie unconformity level. • NT department datasets, neighbouring exploration licence interpretations and historic works have identified an Archean dome encroaching the western sides of EL31480. This Archean dome has recently been reclassified from Nimbuwah Complex within NTGS datasets to Arrarra Gneiss, a lateral equivalent of the Nanambu Complex proximal to the Ranger and Jabilika Uranium deposits (Ahmad et al, 2013). With the identification of this Archean unit, it is inferred that Proterozoic units of the Lower Cahill, Upper Cahill and Nourlangie Schist are likely present under cover sequences throughout the Nabarlek North licences. • Extensive work has been undertaken just south of EL31480 at the U40 prospect where a small high grade Uranium occurrence resides in a regional NNW orientated structure known as the Quarry Fault (DevEx Resources Ltd). This interpreted structural zone extends through the Nabarlek North licences and has associated Uranium, Copper, Gold and Platinum group mineralisation know to the south of the Nabarlek North licences. From drilling and geophysical interpretation at the U40 prospect (DevEx Annual Report, 2019) the Quarry Fault is highlighted by a conductive anomaly from IP geophysics and has a downthrown western side. The western margin of the Quarry Fault at U40 has shallow Kombolgie cover with underlying Cahill Formation to depth whilst the hanging eastern wall has Cahill Formation to approximately 120m depth overlying basement gneiss. Several other major structures are evident in existing airborne geophysics at varying orientations with little understanding, often with interpreted younger dolerite intrusions. • The exploration model for uranium in the ARUP is based on the Ranger and Jabiluka Deposits in Kakadu, and the McArthur River and Cigar Lake Deposits in the Athabasca Basin of Canada. These are referred to as “unconformity style” uranium deposits. It is generally believed that oxidised fluids circulating in the Kombolgie sandstones corroded various uranium-bearing mineral phases and this fluid was able to interact with the underlying reduced basement rocks along low-angle structures. Uranium mineralisation took place at or near that unconformity by Redox processes. The host rock is typically Mg or Fe bearing and, in some

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		circumstances, graphitic. The ideal formation for these attributes is the Cahill Formation, which host all of the main deposits in the region. Alligator believes that this formation is also present in the Nabarlek North Project under only thin cover, and this has encouraged the company to explore the area rather than areas with thick sandstone cover.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• A total of 176 RAB holes for 2376m and 516 Auger holes for 884m were completed in September-October 2022. • RAB and Auger locations are presented in the figure maps in the report.

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Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No data has been aggregated.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• No mineralising was encountered and the angular relationship between drilling ang geology is unknown.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• See figures in release.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Exploration results are discussed in the report and shown in figures.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating*	• See release details. • All meaningful and material data reported.

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	substances.	
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Alligator has prepared plans to undertake Induced Polarisation (IP and expanded aircore and auger exploration as described in the release. This is effectively designed to continue the exploration strategy from 2022 into 2023. Target areas that emanated from the 022 program and interpretation of the various geophysical datasets are shown in figures in release. These will be tested in 2023 via shallow drilling and/or IP. Should more compelling targets evolve from this work, Alligator is authorised via its MMP to undertake deeper RC or DDH drilling.