

Mining Management Plan Exploration Activities

Northern Territory of Australia – Mining Management Act

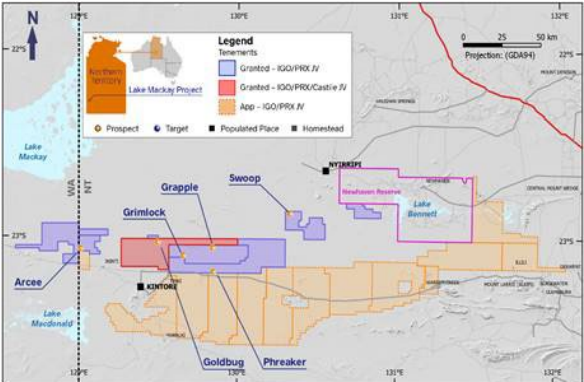
It is recommended that the Mining Management Plan is completed in conjunction with the user guide, available on the [Northern Territory Government website](http://www.nt.gov.au/primary-industry-and-resources/mining-management-act/).

Section 1 – Project Details

Project Name Provide new or existing project name	Lake Mackay Project
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Authorisation Number Insert existing authorisation number, where applicable	0815-01
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Operator Name Use ASIC-ABR registered name (if a company), or	IGO Limited (ABN 46 092 786 304)
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Location and Access Details Include brief description of the location, access details, and distance to nearest town or community	<p>The Lake Mackay Project is 400 km west-northwest of Alice Springs and extends from the West Australian Border directly eastwards to the Newhaven Wildlife Sanctuary. It is accessible from Alice Springs either via the Namatjira Drive on to the Kintore Road, or the Tanami road on to the Newhaven sanctuary access road, through to Nyirripi. The Kalipimbut road from Sandy Blight Junction is used for access to central areas of the project. The project is close to several Aboriginal Communities, including Kintore, Nyirripi, Papunya and Mount Liebig. Kintore is the closest community to most of the projects activities and is only 25 km from Sandy Blight Junction.</p> <p>Temporary access tracks exist to provide access to specific prospects within the project and more will be created this year to access remote drill targets.</p>  <p>Map showing location of Lake Mackay project</p>
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Mining Management Plan Exploration Activities

<p>Target Commodity Details Include target commodities (i.e. gold, copper etc)</p>	Gold, Copper, Nickel, Cobalt.
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<p>Mining Activities Summarise the mining activities (exploration) to be the subject of the proposed Authorisation or Variation</p>	<p>Exploration activities including drilling and ground electromagnetic (EM) will occur on the project between March and November 2022 governed by weather conditions. The drilling work will be completed by IGO or JV partner Prodigy Gold NL.</p> <p>Reverse circulation (RC) and diamond drilling are required to test several discrete geochemical and electromagnetic targets in western areas of the Lake Mackay Project tenure from March to November.</p> <p>All of the RC drill targets, and drill holes have previously been approved in 2020 and 2021 MMPs but were not drilled due to delays in heritage surveys because of the COVID-19 pandemic.</p> <p>Four new diamond drill holes are requested at the Phreaker prospect following successful results from drilling in 2021.</p> <p>The drilling will require the clearance/re-entry of some temporary access tracks and drill pads, as well as sumps to catch/contain any water.</p> <p>Ground EM surveys will be completed using ATV's and will be required from early March to August in some areas to help define undercover mineralisation before any future drilling begins.</p> <p>Temporary camps consisting of tents and caravans, will be established in clear areas, and will be deconstructed at the end of the exploration campaign.</p>
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<p>Proposed Schedule Include start and finish dates of ground disturbing work</p>	<p>15th March-25th March: Temporary track and drill pad clearance and touch ups for drill rig to access EL31234, EL31794, EL25146 and EL30731 drill targets.</p> <p>1st April-31st May: RC and diamond drilling at selected targets on EL30731, EL31794, EL31234 and EL25146. This includes 4 new diamond drill holes at the Phreaker prospect in EL30731.</p> <p>1st June to 31st July: Rehab of remaining pads and drill access tracks at all tested targets and where not requested to remain by Traditional Owners/Central Land Council.</p> <p>1st August to 30th October: Ground EM survey over parts of EL30739 using ATVs on cross-country tracks.</p> <p>Note: Schedule is likely to change dependent of COVID-19 outbreak and restrictions and therefore impact on local contractors and ability to travel to and from the area.</p>
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Mining Interest and Land Ownership

List the mining interests (titles), the title holder name/s, the title expiry date and the Property name/Land holder (e.g. pastoralist or Aboriginal land trust) for each title.

Title Number	Title Holder	Expiry Date	Property Name or Land Holder
EL24915	Prodigy Gold NL	22/09/2021	Haasts Bluff Aboriginal Land Trust
EL25146	Prodigy Gold NL	12/10/2023	Lake Mackay Aboriginal Land Trust
EL30730	Prodigy Gold NL	12/10/2023	Lake Mackay Aboriginal Land Trust
EL30731	Prodigy Gold NL	12/10/2023	Haasts Bluff Aboriginal Land Trust
EL30739	Prodigy Gold NL	12/10/2023	Yunkanjini Aboriginal Land Trust Lake Mackay Aboriginal Land Trust
EL31234	IGO Limited	12/10/2023	Lake Mackay Aboriginal Land Trust Haasts Bluff Aboriginal Land Trust
EL31794	Castile Resources Pty Ltd.	27/02/2024	Haasts Bluff Aboriginal Land Trust

In 2021, a number of project relinquishments led to the surrender of multiple granted tenements including EL29747, EL30729, EL30733 and EL30740.


Organisational Structure

Position Title	Name
Managing Director	Peter Bradford
General Manager - Exploration	Ian Sandl
Exploration Project Manager – Northern Australia	Andrew Fitzpatrick
Project Geologist	Matt McGloin
HSEC & Logistics Manager - Exploration	Chris Tiemann

Section 2 – Operator Self-Assessment of the Environmental Risk

The purpose of this self-assessment is to ensure Operators complete a project risk assessment of potential environmental impacts and are aware of other legislative obligations from various Agencies. As a result of this self-assessment, further information may be required in the form of a management plan to enable full assessment of the MMP. If you have any queries, please contact a Mining Officer prior to submitting the MMP. Useful resources to assist with this self-assessment are provided in the User Guide.

Environmental assessment and cultural considerations

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DEPWS and/or management plan)
<p>Step 1: Are there any threatened flora and fauna species or habitats of significance that may occur in the proposed work area?</p>	<p>Yes</p>	<p>IGO have conducted an Environmental Impact Assessment (EIA) for the proposed exploration work program at the Lake Mackay JV Project for 2022. Land clearing and drilling activities are the highest risk activities which will occur in the 2022 work program. Specific mitigation measures have been put in place to minimise the potential impact upon all threatened flora and fauna species or habitats of significance that occur within the Lake Mackay JV Project. The proposed 2022 drilling targets work on areas previously drilled, with drill pads located away from sand dunes. There is not expected to be any significant environmental impact.</p> <p>IGO have conducted database searches of the EPBC Act Protected Matters database, TPWCA Flora Atlas NT, TPWCA Fauna Atlas NT, Birdlife Australia's Atlas and Bird data Datasets for within 40 km of the project area.</p> <p>The Lake Mackay project has a high floristic diversity, however no EPBC Act listed plant species are listed as potentially occurring within the project area.</p> <p>No Threatened Ecological communities occur within the project area.</p> <p>Correspondence with the DEPWS alongside IGO database searches indicate numerous EPBC Act listed threatened fauna may occur within the project area.</p> <p>Birds: Night Parrot (<i>Pezoporus occidentalis</i>) Princess Parrot (<i>Polytelis alexandrae</i>) Red Goshawk (<i>Erythrotriorchis radiatus</i>) Curlew Sandpiper (<i>Calidris ferruginea</i>)</p>	<p>2022 EIA for Lake Mackay.docx</p> <div style="text-align: center;">  </div> <p>Independence Group NL - Lake Mackay P</p> <p>LMKJV PMST 2021.pdf</p>

Mining Management Plan Exploration Activities


ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DEPWS and/or management plan)
		<p>Australian Painted Snipe (<i>Rostratula australis</i>) Grey Falcon (<i>Falco hypolecos</i>)</p> <p>Mammals: Greater Bilby (<i>Macrotis Lagotis</i>) Warru, Black-footed Rock-wallaby (<i>Petrogale lateralis</i> MacDonnell Ranges race) Central Rock-rat, Antina (<i>Zygomys pedunculatus</i>) Bush tailed Mulgara (<i>Dasyercus blythi</i>) Southern Marsupial Mole (<i>Notoryctes typhlops</i>) Golden Bandicoot (<i>Isodon auratus</i>)</p> <p>Reptiles: Great Desert Skink (<i>Liopholis kintorei</i>)</p> <p>The threatened species listed above have a moderate to high likelihood of occurrence across the project area. Historical records indicate the Greater Bilby, Brush-tailed Mulgara and the Golden Bandicoot have been recorded within the project area.</p> <p>The DEPWS provided the following advice and recommendations in 2019 and 2020, which have been adopted to reduce the impacts of exploration activities on biodiversity.</p> <p>The Grey Falcon is known from the region and will nest in large trees or telecommunications towers. Nesting Grey Falcons are susceptible to disturbance from the presence of people or vehicles within about 300 m. If a Grey Falcon nest or suspected nest is encountered, then a minimum buffer distance of 300 m will be maintained to reduce disturbance and potential impacts.</p> <p>Although there are no recent verified records of the Night Parrot in the Northern Territory, the species is potentially still extant across the large project area and is most likely to occur in long-unburnt spinifex, particularly near low hills or lake systems. If a suspected Night Parrot is encountered, such as by flushing while clearing access tracks, works will immediately cease in that location and the Department of Environment, Parks, and Water Security, and the Night Parrot Recovery Team will be notified.</p> <p>The Princess Parrot is known to travel widely across the project area. The species is known to nest in Marble</p>	

Mining Management Plan Exploration Activities

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DEPWS and/or management plan)
		<p>Gum, River Red Gum and other hollow bearing trees. Any large, hollow bearing trees will be identified and excluded from clearing so as to maintain the nesting habitat for this species.</p> <p>The Brush-tailed Mulgara and Southern Marsupial Mole are widespread in the desert regions of the Northern Territory and as such the relatively small amount of clearing associated with exploration is unlikely to have a significant impact.</p> <p>The Greater Bilby and Great Desert Skink are both known from the project area and live in burrows in the soil. Prior to the undertaking of any land clearing activities, experienced IGO field personnel, under the direction of the IGO Environmental department will conduct a burrow survey within the areas to be cleared, to identify any indication that either the greater bilby or great desert skink are present. If any fauna burrow is identified, then no clearing of the area can occur, without prior permission from DITT. The identified fauna burrow will be given a 50m buffer zone from any exploration disturbance and access tracks and pads should be aligned or sited to avoid impacts. The GPS coordinates of the identified fauna burrow will be recorded along with photographic evidence and provided to the IGO GIS and database team for recording in the IGO protected fauna database and GIS layers. This data will help IGO avoid the protected fauna habitat sites during the planning of future exploration programs.</p> <p>The Black-footed Rock-wallaby is known from rocky ranges and mountains across the project area. As drill pads and access tracks are unlikely to be cleared in these habitats there is not likely to be an impact to this species.</p> <p>The Golden Bandicoot was historically recorded within the study area, but the species no longer persists in central Australia. It is considered unlikely to be found within the project area. Its preferred habitat type is in dense vegetation. None of the proposed work areas coincide with areas of dense vegetation.</p> <p>Introduced predators (Red Fox, Feral Cat) may benefit from the increased clearing of tracks and access across the landscape. Roads, tracks, camps and drill pads will be revegetated after clearing and once deemed inactive, to reduce the access for introduced predators and their</p>	

ASSESSMENT ASPECT	YES or NO	ACTIONS REQUIRED (if answered YES)	APPENDED INFORMATION (Evidence of consultation with DEPWS and/or management plan)								
		potential impacts on threatened species. Putrescible waste will either be completely incinerated on site or removed and taken to Kintore or Alice Springs when convenient so as not to attract feral animals.									
<p>Step 2: Are there any known declared weeds within the proposed work area?</p>	Yes	<p>Four weed species were identified as likely to occur in the project area using a protected matters search. These are:</p> <p>Buffel-Grass (<i>Cenchrus ciliaris</i>) Athel Pine (<i>Tamarix aphylla</i>) Jerusalem Thorn (<i>Parkinsonia aculeata</i>) Prickly Pears (<i>Opuntia</i>)</p> <p>The introduced environmental weed Buffel Grass (<i>Cenchrus ciliaris</i>) is known from the region and can be easily spread by vehicles, machinery, and earthworks. This species causes changes in the landscape through competition and altering fire cycles which is ultimately detrimental to native species. The Athel Pine, Jerusalem Thorn and Prickly Pears can occur in the eastern end of the project. Therefore, IGO ensure all vehicles coming to the project area are suitably washed down before leaving Alice Springs. Contractors are required to provide photographs of vehicles prior to entry on to the project show their vehicles are adequately washed down. The exploration undertaken at this early stage does not present a major risk.</p> <table border="1" data-bbox="435 1346 1177 1908"> <thead> <tr> <th colspan="2" data-bbox="435 1346 1177 1424">WEED MANAGEMENT</th> </tr> </thead> <tbody> <tr> <td data-bbox="435 1424 619 1509"><u>OBJECTIVES</u></td> <td data-bbox="619 1424 1177 1509">To prevent spread of established weeds within Project Area and the region.</td> </tr> <tr> <td data-bbox="435 1509 619 1603"><u>TARGETS</u></td> <td data-bbox="619 1509 1177 1603">No increase in the distribution of existing weed species. No introduction of new weed species.</td> </tr> <tr> <td data-bbox="435 1603 619 1908"><u>ACTIONS</u></td> <td data-bbox="619 1603 1177 1908">Field personnel are to wash down vehicles and equipment prior to entering the project area. This will be done in Alice Springs prior to coming out to the project site or at the mine site location that they are coming from. Radiators will be free from grass, seeds, and other vegetation. All mud and debris under the vehicle chassis will be removed. Photographs will be taken prior to entry on to site.</td> </tr> </tbody> </table>	WEED MANAGEMENT		<u>OBJECTIVES</u>	To prevent spread of established weeds within Project Area and the region.	<u>TARGETS</u>	No increase in the distribution of existing weed species. No introduction of new weed species.	<u>ACTIONS</u>	Field personnel are to wash down vehicles and equipment prior to entering the project area. This will be done in Alice Springs prior to coming out to the project site or at the mine site location that they are coming from. Radiators will be free from grass, seeds, and other vegetation. All mud and debris under the vehicle chassis will be removed. Photographs will be taken prior to entry on to site.	
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Mining Management Plan Exploration Activities

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		<u>MONITORING</u>	Monitoring inspections of work sites, tracks and camp areas is to include recording and control of weed infestations that appear to be associated with exploration e.g., weeds do not present in the “before” photographs, and weeds not previously seen/recorded from the area/region.	
		<u>REVIEW & REPORTING</u>	The Site Manager is to record weed conditions and control outcomes during inspections/monitoring. Any significant infestations of Class A weeds to be reported to DEPWS. Review of data and summary of weed management activities in annual MMP reporting.	
Step 3: Will you be using water from bores or other sources for the operation?	YES	<p>In 2022 potable water will be supplied from Alice Springs. Some drinking water may be purchased at Kintore, Papunya or Nyirippi.</p> <p>Weekly water use projections for 2022 are:</p> <ol style="list-style-type: none"> 1. Ground geophysics: 1000 L per week. For a 4-man mobile camp which includes kitchen, showers and clothes washing. 2. RC drilling: 5000 L per week. (2500 L for camp, 2500L for drilling and dust suppression) 3. Diamond Drilling: (2500 L for camp, 15000 L for drilling) <p>In 2020, advice was sought from the DEPWS Water Resources division to give clarity on the requirements of a water extraction license. At this early stage of exploration, IGO considers that the volume and rate of extraction exempts the company from seeking a formal extraction license.</p> <p>IGO has a certified water bore on the project (19124) near the Bumblebee prospect.</p>		 RE_ Mining activities and Water

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS						
<p>Step 4: Is your project likely to have a significant impact on the environment?</p>	<p>No</p>	<p>In 2020 and 2021, IGO completed aircore, RC and diamond drilling on a number of prospects including Phreaker, Grimlock and Swoop. This including drilling on smaller 200 x 200 m grids at the last two prospects.</p> <p>The clearing of pads and access tracks at these prospects was assessed to represent a higher density of disturbance to exploration activity completed prior. The majority of these pads were drilled on naturally clear areas without any earthmoving equipment being utilised.</p> <p>The new 2022 drilling reverts back to drilling of targets where no significant exploration has previously occurred. Consequently, the disturbance when drilling at the 2022 sites is considered less than the grid drilling completed in the last two years.</p> <p>Any clearing of vegetation will be minimised wherever possible and be consistent with the NT Land Clearing Guidelines.</p> <p>IGO completed an Environmental impact assessment for the Lake Mackay Project 2021 work program. A revised EIA document is included in this MMP containing the recommendations from that study. These recommendations will also govern how clearance occurs at advanced prospects in future to minimise the impact on the environment.</p> <p>At the completion of drilling the drill pads are inspected to ensure that no spills are observed, or rubbish is present. Drill collars are temporarily capped until the full rehabilitation is undertaken.</p> <p>If camp sites are established for longer periods a monthly audit is undertaken. At the completion of each phase of work all rubbish is removed from the camp sites and any contaminated soil is removed for disposal at the licensed facility in Alice Springs.</p> <p>Photographs are taken of the camp sites prior to establishment and the drill sites prior to clearing. Once rehabilitation is completed the sites are photographed again.</p> <p>Environmental impacts will be continuously assessed through frequent site inspections by the Project Manager and Project Geologist, ensuring that IGO's expectations are being met by all employees and contractors. Should a site inspection determine that additional control measures are required, they will be put in place in a timely and effective manner.</p> <table border="1" data-bbox="528 1671 1437 2029"> <thead> <tr> <th colspan="2" data-bbox="528 1671 1437 1727">GROUND DISTURBANCE MANAGEMENT</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 1727 759 1973">OBJECTIVES</td> <td data-bbox="759 1727 1437 1973"> To minimise disturbance to vegetation and soil as far as possible. To avoid disturbance to key vegetation communities that may impact on significant fauna species as defined in Section 4.4.6 in <u>Land-Clearing-Guidelines Northern Territory Planning Scheme</u>, that sensitive or significant vegetation types will be avoided from clearing. </td> </tr> <tr> <td data-bbox="528 1973 759 2029">TARGETS</td> <td data-bbox="759 1973 1437 2029"> No disturbance to key vegetation communities. No disturbance of areas with higher risk of soil erosion. </td> </tr> </tbody> </table>	GROUND DISTURBANCE MANAGEMENT		OBJECTIVES	To minimise disturbance to vegetation and soil as far as possible. To avoid disturbance to key vegetation communities that may impact on significant fauna species as defined in Section 4.4.6 in <u>Land-Clearing-Guidelines Northern Territory Planning Scheme</u> , that sensitive or significant vegetation types will be avoided from clearing.	TARGETS	No disturbance to key vegetation communities. No disturbance of areas with higher risk of soil erosion.
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Mining Management Plan Exploration Activities

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS	
			<p>Avoid damage to mature trees exceeding two metres, as required under Aboriginal Land Access agreements.</p>
		<u>ACTIONS</u>	<p>Utilise existing roads, tracks, or open cross-country routes to gain access into a tenement or prospect area.</p> <p>Minimise clearing of tracks and ensure that vehicle movements are restricted to cleared access tracks and nominated tracks.</p> <p>Avoid tracks crossing sand dunes.</p> <p>Utilise 'cross-country' tracks as much as possible (i.e., no clearing).</p> <p>Avoid field activities during wet conditions to minimise risk of vehicle/equipment bogging.</p> <p>The Grey Falcon use nests built by other species and prefer nests in the tallest trees along watercourses. Breeding and nesting of the Princess Parrot is known to take place in hollows in large Eucalypts, particularly river red gums (<i>Eucalyptus camaldulensis</i>) and the desert oaks (<i>Allocasuarina decaisneana</i>).</p> <p>Mitigation through elimination - IGO Exploration will not clear large trees during its exploration activities. If a Grey Falcon nest or Princess Parrot nest, or suspected nest is encountered then a minimum buffer distance of 300 m will be maintained to reduce disturbance and potential impacts.</p> <p>Numerous conservation significant burrow dwelling species are known to be present through the Lake Mackay project area, including but not limited to the Greater Bilby, Brush-tailed Mulgara and Great Desert Skink.</p> <p>Mitigation through elimination - Prior to the undertaking of any land clearing activities, experienced IGO field personnel will conduct a burrow survey within the areas to be cleared, to identify any indication that either the greater bilby or great desert skink are present. If any fauna burrow is identified, then no clearing of the area can occur, without prior permission from DITT. The identified fauna burrow will be given a 50m buffer zone from any exploration disturbance. The GPS coordinates of the identified fauna burrow will be recorded along with photographic evidence and provided to the IGO GIS and database team for recording in the IGO protected fauna database and GIS layers. This data will help IGO avoid the protected fauna habitat sites during the planning of future exploration programs.</p>
		<u>MONITORING</u>	<p>Regular inspections of work sites, tracks, and camp areas, including photo monitoring.</p> <p>Records in Environmental Observations and Incident Register.</p>

Mining Management Plan Exploration Activities

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS	
		<u>REVIEW & REPORTING</u>	Report any significant disturbance to key vegetation communities as an incident to DITT, in accordance with Section 29 of the Mining Management Act. Review of monitoring data and summary of disturbance activities in annual MMP reporting.
FAUNA MANAGEMENT			
		<u>OBJECTIVES</u>	To minimise disturbance and potential impact on fauna as far as possible. To avoid introduction of non-native fauna species.
		<u>TARGETS</u>	No impact on native fauna (i.e., injuries or death), especially species of conservation significance. No introductions of non-native fauna species.
		<u>ACTIONS</u>	Food scraps are to be burnt or regularly removed, standing water is to be avoided and feeding and any other interaction with fauna is not permitted. Field personnel are prohibited from killing or attempting to handle snakes and any other fauna. Field personnel are not permitted to bring any domesticated animals to the Project Area and are prohibited from interacting or interfering with any wild fauna. Personnel trained in identification of all threatened species (Flora and Fauna) listed in the EPBC Protected Matter Search Report. Avoidance of areas known or suspected to contain habitat/signs of threatened species (Flora and Fauna) listed in the EPBC Protected Matter Search Report. Keep vehicle speeds to a minimum and avoid driving during periods of peak fauna activity (e.g., sunrise/sunset, night-time). Vehicles and equipment entering the Project Area from interstate will be washed down in Alice Springs to lower the probability of transporting small species of introduced animals (e.g., rodents, ants). If coming from another mine site in NT they may be washed down at this site. Follow Ground Disturbance Management actions regarding nests and burrows.
		<u>MONITORING</u>	Regular inspections of work sites, tracks, and camp areas. GPS coordinates and photographs of suspected evidence of significant fauna, such as scats, tracks, scratchings or burrows, are to be recorded by field personnel. Records in Environmental Observations and Incident Register.
		<u>REVIEW & REPORTING</u>	Report any significant fauna deaths (i.e., species of conservation significance) as an incident to DITT, in accordance with requirements of Section 29 of the Mining Management Act. Report any high-density populations of feral animals to government authorities. Review of data and summary of fauna injuries/deaths in annual MMP reporting.

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS	
		NON-MINERAL WASTE MANAGEMENT	
		<u>OBJECTIVES</u>	To avoid and minimise the production of waste wherever possible. To prevent wastes from contaminating the surrounding environment. To manage and control disposal of all wastes.
		<u>TARGETS</u>	No contamination of surrounding environment.
		<u>ACTIONS</u>	Employ principles of avoid, reduce, reuse, and recycle wherever possible. All non-biodegradable waste (e.g., plastic, steel, aluminium) is removed from site to be relocated at an approved waste disposal site and recycled wherever possible. Certain waste materials (i.e., cardboard, food scraps) will be burnt on site to reduce the risk of attracting fauna. Waste that may cause contamination (e.g., waste oils) is to be stored appropriately (see Hazardous Materials Management) and removed from site for disposal at a suitable facility in Alice Springs. Wastewater from the shower and washing machine will be discharged in a manner so that no standing water is present.
		<u>MONITORING</u>	Regular inspections/audits by the Site Manager of camp and operational areas to ensure that waste is being managed appropriately.
		<u>REVIEW & REPORTING</u>	Include summary of inspections/audits and waste management activities (including recycling) in annual MMP update.
		HAZARDOUS MATERIALS MANAGEMENT	
		<u>OBJECTIVES</u>	To ensure that transport, storage and handling of dangerous goods on-site does not cause environmental harm or harm to persons. To minimise potential for land contamination.
		<u>TARGETS</u>	No harm to environment or persons resulting from transport, storage and handling of dangerous goods.
		<u>ACTIONS</u>	Field personnel will respond to an emergency as described in Section 4.7. Hydrocarbons will be stored in appropriately banded areas according to Australian standards (e.g. AS1940:2004). Bunding will be inspected for damage regularly and repaired as soon as any damage is detected.

Mining Management Plan Exploration Activities

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			<p>Hazardous substances will be stored on site in accordance with the relevant legislative requirements and guidelines.</p> <p>Key personnel will be trained in the appropriate handling of the various chemicals to be stored on site.</p> <p>A set of the relevant MSDS for hazardous and dangerous materials will be kept on site.</p> <p>Personnel working with dangerous goods will be aware of handling, storage and disposal requirements and as appropriate, have received relevant training.</p> <p>Spill kits will be available where hazardous materials are used and stored, and personnel trained in correct use.</p> <p>Refuelling on site shall utilise auto shut off valves and refuelling shall not be done within 100 metres of a watercourse.</p>
		<u>MONITORING</u>	<p>Storage facilities will be inspected regularly (at least weekly), and any resulting recommendations and corrective actions shall be implemented.</p> <p>Records in Environmental Observations and Incident Register.</p>
		<u>REVIEW & REPORTING</u>	<p>Reporting of any incidents internally and to DITT in accordance with Section 29 of the Mining Management Act.</p> <p>Summary of inspections to be provided in annual MMP reporting.</p>
FIRE MANAGEMENT			
		<u>OBJECTIVES</u>	<p>Minimise the risk of impact of fires associated with exploration activities.</p>
		<u>TARGETS</u>	<p>No wildfires caused by exploration activities, whether deliberate or accidental.</p>
		<u>ACTIONS</u>	<p>The following guidelines are to be followed by all field personnel:</p> <ul style="list-style-type: none"> • Open fires must be dug into the ground and/or surrounded by a low earthen or rock wall to prevent spreading of hot embers and burning wood. • Open fires must be sited on cleared ground which is barren of vegetation over a radius of at least five metres from the fireplace. • Fires should only be used as needed for cooking.

Mining Management Plan Exploration Activities

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS	
			<ul style="list-style-type: none"> • Fires are not to be lit under windy conditions. • A shovel and/or ready supply of water must be nearby; and • Only dead wood should be collected for fuel and firewood should be checked for inhabitants prior to use, e.g., lizards within hollow logs. <p>To minimise risk of vehicle fire, all vehicles must carry fire extinguishers and/or 'on-board' fire suppressant systems.</p> <p>If a wildfire is encountered or is accidentally caused this should be reported to Bushfires NT and seek advice on advising the nearest emergency services provider. Personnel should avoid the area and evacuate any downwind positions. For safety reasons, IGO personnel or contractors are not permitted to try to fight such fires as they can be highly unpredictable.</p>
		<u>MONITORING</u>	<p>Regular inspections of firefighting equipment to ensure that it is serviceable.</p> <p>Regular checks of undercarriage of light vehicles and ATV's and cleaning, to ensure build-up of grass is limited, thus minimising the risk of vehicle fires and trailing spot fires.</p> <p>Records in Environmental Observations and Incident Register.</p>
		<u>REVIEW & REPORTING</u>	<p>Reporting of any incidents internally and to DITT in accordance with Section 29 of the Mining Management Act.</p> <p>Review of inspections/checks to be provided in annual MMP reporting.</p>
Step 5: Are there Aboriginal sacred sites in the Project area?	Yes	<p>The Aboriginal Traditional Owners for the project area are the Kukatja, Warlpiri and Pintupiluritju people. All of the project falls under Aboriginal Land and is held as inalienable freehold title under the Aboriginal Land Rights Act 1976 (ALRA 1976). Aboriginal rights and interests in land are also recognised under the Commonwealth Native Title Act 1993 (NTA 1993). The NTA 1993 gives Aboriginal people the right to negotiate in regard to 'future acts' on their land and the ALRA 1976 gives Aboriginal people a right of veto for mining projects.</p> <p>IGO recognises and respects the rights of the Traditional Owners and before any activity is carried out on-ground consults with, and submits work programs to, the Central Land Council (CLC) for</p>	

Mining Management Plan Exploration Activities

ASSESSMENT ASPECT	YES or NO	MANAGEMENT REQUIREMENTS
		<p>Sacred Site Clearances and their approval. All versions of this and other IGO Mining Management Plans are sent to the CLC for their overview and instruction. The CLC has been made aware of our intention to carry out the 2022 exploration program and final details will be provided on approval of the MMP.</p> <p>The most recent Sacred Site Clearances Certificate for areas of EL31234 and EL25146 was issued by the CLC on 4TH August 2021. Previous Sacred Site Clearance Certificates C2018-108v1 and C2019-056 were renewed in late 2021 until the end of the 2022 field season.</p> <p>Most of the proposed areas in which activities are to be conducted have now undergone a Sacred Site Clearance survey. An additional survey is planned to cover areas of EL30739 if necessary.</p> <p>The CLC has requested that the sacred site surveys cannot be released or discussed. IGO is unable to provide the Sacred Site Clearance Certificate survey data. If this information is required, the DITT needs to consult directly with the CLC. This MMP will be submitted to the CLC for review and comment.</p> <p>IGO has discussed the lack of an Aboriginal Areas Protection Authority (AAPA) certificate with our joint venture partners and the CLC. They are fully aware that this project does not have an authority certificate, however as the CLC are not prepared to release information to the AAPA, a certificate issued by the AAPA cannot be gained.</p>
<p>Step 6: Are there archaeological and heritage sites in the Project area?</p>	No	

Section 3 – Amendments

As per Section 41(3) of the *Mining Management Act*, an MMP reviewed and amended under Section 41(1)(a) is to clearly identify amendments made.

Section	Amendment
Section 2; Step 1, Step 2	
Section 2; Step 4	
Section 4	Updated values in entire table.
Section 5	Updated values in entire table.

Mining Management Plan Exploration Activities

Section 4 – Activities Proposed

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30731	EL30739	EL30730			
Number and type of proposed drill holes					4 x DD Holes					
	Final number of holes is reliant on confirmation of anomalies by downhole EM geophysics and possible subsurface extensions that may require drilling.									
Maximum depth of proposed holes (m)					800 m					
	Please note. Hole depths for much of the drilling are not known and are dependent on the depth of any modelled anomaly generated from geophysics and previous drilling data.									
Number and size of drill pads to be cleared (Length: m x Width: m)					4 @ 35 x 25 m					
Total area of drill pads to be cleared (ha)					0.35					
Is drilling likely to encounter groundwater? (Y, N, unsure)					Y					

Mining Management Plan Exploration Activities

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30731	EL30739	EL30730			
Number of costeans (Length: m x Width: m x Depth: m)	0	0	0	0	0	0	0			
Number of bulk sample pits	0	0	0	0	0	0	0			
Total bulk sample (tonnes) (Length: m x Width: m x Depth: m)	0	0	0	0	0	0	0			
Bulk sample pits approved under <i>Mineral Titles Act?</i> (Y or N)	N	N	N	N	N	0	0			
Length of line/track clearing (km: x Width: m) (Area (Ha))	0	0	0	0	0.72 km x 3 m (0.22)	0	0			
All tracks will start off as driven in (by 2xLV's) bush tracks and will only be cleared where required to allow access to the drill rig whilst minimising environmental impact. For EL30731 planned drilling, old, rehabilitated tracks will be re-visited wherever possible.										
Camp area to be cleared (ha)	0	0	0	0	2 x 0.5	0	0			

Mining Management Plan Exploration Activities

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30731	EL30739	EL30730			
Camp Infrastructure (i.e. demountable, tents)	Temporary Camps to be established on EL30731 at previous geology and drilling camps used in 2021. Geophysical activity locations in naturally clear areas. Minor blade up clearing maybe conducted in areas to create a fire break to a maximum of 0.5 Ha. Drilling camps can consist of 2-3 caravans, 4-8 tents, 2-4 Light vehicles, 2-3 Light trucks. Fly camps will consist of tents and 2 vehicles.									
Previous disturbance yet to be remediated on title (ha) if known	93.63	70.1	0.57	53.83	29.33	49.9	30.53			
	Cleared tracks were cleared with a backhoe to allow easy access for the drill rig. 4WD tracks are claimed, however will not need rehabilitative work due to the low disturbance footprint.									
Other	N	N	N	N	N	N	N			
Total area disturbed proposed (ha)	0	0	0	0	1.57	0	0			

Section 5 – Previous Disturbance (for existing Authorisations only)

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30729	EL30731	EL30739	EL30733	EL30740	EL30730	EL29747
Number/type of holes drilled	32 RC holes	46 RC holes 134 AC holes 10 DD holes 2 WB holes	1 RC Hole	10 RC holes	7 RC holes	14RC holes 3 AC holes 3 DD holes	Nil	1 RC hole 1 DD hole	6 RC holes, 1 DD hole	1 RC hole 18 AC hole	Nil

Mining Management Plan Exploration Activities

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30729	EL30731	EL30739	EL30733	EL30740	EL30730	EL29747
			RC- Reverse Circulation, AC- Air Core, DD- Diamond Drilling, WB- Water Bore.								
Maximum depth of holes drilled (m)	360	639.7	268	346	300	747.9	0	400.6	552.9	84	0
Number of holes remediated (i.e. plugged/capped)	31	189	1	7	8	17	0	2	12	19	0
			EL24915 - RN19124 collar not rehabbed. 25 capped collars below ground not buried to allow further downhole geophysics in future. Note that rehabilitation of some 2021 drill pads and tracks was delayed due to COVID-19 restrictions. These drill pads, sumps and tracks are planned for 2022 rehab. EL31794 hole 19LMRC047 left open as water source till end of project.								
Number and size of drill pads cleared (Length: m x Width: m)	32@30x25m	193 @ 30 x 25m	1 @ 30x25m	10 @ 30x25m	10 @ 30x25m	20 @ 30x25m	0	2 @ 30x25m	12 @ 30x25m	19 @ 30x 25m	0
Total area of drill pads cleared (ha)	2.40	41.71	0.07	0.75	0.75	1.5	0	0.15	0.9	1.43	0
Total area of drill pads remediated (ha)	2.33	41.64	0.07	0.525	0.75	1.425	NA	0.15	0.9	1.43	NA
Was groundwater encountered? (Y or N)	Y	Y	Y	Y	Y	Y	NA	Y	Y	Y	NA
Length of line/track cleared (Length: 1 km x Width: 3 m)	127.7	153.2	0.6	53.4	47.8	84.65	59.0	35.3	21.54	46.6	2.3

Mining Management Plan Exploration Activities

Mining Interests (i.e. titles)	EL31794	EL24915	EL25146	EL31234	EL30729	EL30731	EL30739	EL30733	EL30740	EL30730	EL29747
Length of line/track remediated (Length: 1 km x Width: 3 m)	34.3	86.6	0	0	47.8	56.2	59.0	35.3	21.54	46.6	2.3
Number of costeans excavated (L: 3 m x W: 0.5 m x D: 1 m)	0	0	0	0	0	0	0	0	0	0	0
Number of costeans remediated	0	0	0	0	0	0	0	0	0	0	0
Total bulk sample pits excavated (Length: x Width: x Depth: m)	0	0	0	0	0	0	0	0	0	0	0
Total bulk sample pits remediated	0	0	0	0	0	0	0	0	0	0	0
Camp area/s cleared (ha)	0	0.8	0	0.2	0	1.6	0	0	1	0.5	0
Camp area/s remediated (ha)	0	0	0	0	0	0	0	0	1	0.5	0
Total area disturbed (ha)	130.1	195.71	0.67	54.35	48.55	87.75	59.0	35.45	23.44	48.53	2.3
Total area remediated (ha)	36.63	128.24	0.07	0.525	48.55	57.63	59.0	35.45	23.44	48.53	2.3

Mining Management Plan Exploration Activities

Section 6 – Environmental Management

By checking these boxes, you are agreeing to implement the following minimum environmental management standards on the project area. Where boxes have been left unchecked, justification is required.

6.1	<input checked="" type="checkbox"/>	Blade-up approach for clearing will be used (i.e. no windrows, leave root stock and topsoil)
6.2	<input checked="" type="checkbox"/>	Significant vegetation will be avoided during clearing (i.e. large trees, specimens providing habitat or food sources, riparian vegetation, and threatened species)
6.3	<input checked="" type="checkbox"/>	Vegetation clearing during, and immediately after rainfall events, will be avoided
6.4	<input checked="" type="checkbox"/>	Vegetation clearing will be kept to the minimum required to safely traverse vehicles and drill rigs along tracks and drill pads
6.5	<input checked="" type="checkbox"/>	Where blade-up techniques cannot be employed, topsoil and vegetation will be stockpiled appropriately for remediation purposes
6.6	<input checked="" type="checkbox"/>	All employees and contractors will be trained and inducted in relation to the management of environmental risks in the work area, including weeds, waterways, threatened species, soil erosion, sacred sites and heritage areas
6.7	<input type="checkbox"/>	Sumps will be lined or tanks of appropriate size to contain water, sediment and drilling fluids encountered during drilling, will be used
6.8	<input checked="" type="checkbox"/>	Sumps, drill holes, and fuel stores will be located away from environmentally significant areas and water courses
6.9	<input checked="" type="checkbox"/>	Excavations (sumps, costeans and pits) will be appropriately ramped to allow fauna egress
6.10	<input checked="" type="checkbox"/>	Drill holes will be securely capped immediately after drilling
6.11	<input checked="" type="checkbox"/>	Vehicle hygiene measures will be employed to prevent the introduction and spread of invasive species and pathogens when mobilising vehicles and equipment from one location to another
6.12	<input checked="" type="checkbox"/>	Hydrocarbon spills will be minimised using liners and drip trays under machinery, and appropriately sized spill-kits available in the event of a spill
6.13	<input checked="" type="checkbox"/>	Hazardous substances (including hydrocarbons) will be stored and handled in accordance with relevant Australian Standards
6.14	<input checked="" type="checkbox"/>	Hydrocarbons will be stored in lined and bunded areas
6.15	<input checked="" type="checkbox"/>	Waste will be stored securely while on-site to minimise windblown rubbish and access by feral animals
6.16	<input checked="" type="checkbox"/>	Waste will be removed off-site and disposed of at an appropriate waste management facility
6.17	<input checked="" type="checkbox"/>	All environmental incidents will be reported to the Department in accordance with Section 29 of the <i>Mining Management Act</i> .

Justification and alternative management measures:

6.7 for the RC drilling sumps will not be lined. As this is an air drilling technique no drilling fluids are added. The foam products that maybe utilised to assist with maintain the borehole integrity will be biodegradable.

Section 7 – Remediation and Closure

By checking these boxes, you are agreeing to implement the following minimum remediation standards on the project area. Where boxes have been left unchecked, justification is required.

7.1	<input checked="" type="checkbox"/>	Drill holes plugged below ground level at a minimum depth of 0.4 metres and soil mounded to prevent subsidence, within 6 months of completion of drilling
7.2	<input checked="" type="checkbox"/>	Drill samples/spoil returned down drill holes, buried in sumps, or removed from site
7.3	<input checked="" type="checkbox"/>	All drill hole and access markers including flagging tape, wooden markers and star pickets will be removed from site
7.4	<input checked="" type="checkbox"/>	Re-contouring of cut and fill drill pads will be consistent with the surrounding terrain
7.5	<input checked="" type="checkbox"/>	Ripping/scarifying of drill pads, and compacted areas along the contour (on sloping ground) and cross-ripping (zig-zag) along tracks
7.6	<input checked="" type="checkbox"/>	Tracks will be remediated, including pushing in all windrows
7.7	<input checked="" type="checkbox"/>	Appropriate erosion and sediment controls will be installed where erosion is evident or likely to occur
7.8	<input checked="" type="checkbox"/>	All tracks will be remediated unless otherwise agreed in writing by the land holder or appropriate third party
7.9	<input checked="" type="checkbox"/>	Access through watercourses will be removed and banks restored
7.10	<input checked="" type="checkbox"/>	No erosion is occurring in disturbed areas, on tracks and in remediated areas
7.11	<input checked="" type="checkbox"/>	All excavations backfilled within 6 months of completion of drilling
7.12	<input checked="" type="checkbox"/>	All water bores decommissioned unless otherwise agreed in writing by the land holder or appropriate third party. The bore must comply with the Minimum Construction Requirements for Water Bores in Australia and may require permits or licenses under the <i>Water Act</i>
7.13	<input checked="" type="checkbox"/>	All rubbish and infrastructure will be removed from site
7.14	<input checked="" type="checkbox"/>	Replacement of topsoil and vegetation
7.15	<input checked="" type="checkbox"/>	Contaminated soils (e.g. hydrocarbon or hazardous chemicals) will be remediated or removed from site
7.16	<input checked="" type="checkbox"/>	Monitoring will be undertaken following the wet season or a significant rainfall event




Justification and alternative management measures:

Section 8 – Required Attachments

8.1	Y	Security Calculation Spreadsheet
8.2	N	Nomination of Operator Form <i>As per existing Authorisation.</i>
8.3	Y	Spreadsheet with coordinates of proposed drill holes or polygons of target areas
8.4	Y	Google Earth KML/shape files/track logs of proposed tracks and camp sites
8.5	Y	A map of the work area(s) showing: <ul style="list-style-type: none"> 1. title boundaries and title numbers 2. current and proposed drill holes, or polygons of target areas 3. current and proposed tracks 4. remediated areas 5. camp sites 6. sacred/heritage sites 7. environmental constraints
8.6	Y	Remediation Register (for existing Authorisations)
8.7	N	Large data file. Can be provided on request. Also within the IGO Rehabilitation Lake Mackay Report 2022.
8.8	NA	Radiation Management Plan (if applicable)

Section 9 – Declaration

The Mining Management Plan must be endorsed by a senior representative of the company who has the appropriate level of authority to do so.

	Author	Reviewed by	Approved by
Date	01/02/2022	02/02/2022	02/02/2022
Name	Matthew McGloin	Andrew Fitzpatrick	Andrew Fitzpatrick
Signature			

I Andrew Fitzpatrick, Exploration Project Manager, declare that I have the authority to make the commitments contained in this mining management plan on behalf of the company. To the best of my knowledge the information contained in this plan is true and correct and commit to undertake the works in accordance with the agreed minimum standards and all relevant Northern Territory and Commonwealth Government legislation.

SIGNATURE: 

DATE: 02/02/2022