

## DIRECTION TO INCLUDE ADDITIONAL INFORMATION IN THE SUPPLEMENTARY ENVIRONMENTAL REPORT

This direction is given under regulations 119(2) and 121(2) of the Environment Protection Regulations 2020

<b>Name of proposed action</b>	Phase 2 Expansion Arnhem Space Centre
<b>Proponent</b>	Equatorial Launch Australia Pty Ltd
<b>NT EPA reference</b>	EP2023/031
<b>Nature of proposed action</b>	Industrial
<b>Description of proposed action</b>	<p>Expansion of launch pads and associated facilities at the multi-user commercial Arnhem Space Centre located on NT Portion 1646 in the East Arnhem local government area.</p> <p>The proposed expansion includes:</p> <ul style="list-style-type: none"> <li>• an increase to the lease area to encompass mineral lease (ML) 31025 to utilise areas disturbed by mining operations</li> <li>• an additional 14 launch pads including supporting infrastructure:             <ul style="list-style-type: none"> <li>○ mission support buildings</li> <li>○ fuel storage and pumping facilities</li> </ul> </li> <li>• 1500 megalitre capacity water dam</li> <li>• internal access roads</li> <li>• directly affected area of approximately 250 – 300 ha</li> <li>• where practicable, activities to recover any returning waste materials and space debris from launched rockets from within NT land and coastal waters.</li> </ul>
<b>Method of environmental impact assessment</b>	Assessment by supplementary environmental report (SER)
<b>Direction</b>	<p>The proponent is directed to:</p> <ul style="list-style-type: none"> <li>• prepare an SER to address the submissions received in relation to the referral information</li> <li>• include additional information in the SER as detailed in <b>Attachment 1</b>.</li> </ul>
<b>Submission period for SER</b>	The SER must be submitted to the NT EPA within 24 months after the date of this notice.
<b>Form</b>	<p>The SER must generally conform with the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA and material relevant to creating accessible documents on the <a href="#">NT Government website</a></p> <p>In particular, the SER must:</p> <ul style="list-style-type: none"> <li>• be provided as:</li> </ul>

# NOTICE OF DIRECTION

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- accessible PDF files that do not exceed 20 MB
  - a printed copy to be displayed at the locations listed below
  - be divided into two parts:
    - a main report (with summary available as separate document)
    - appendices to the main report
  - have a navigable table of contents
  - present information in a format that is easy to follow
  - use hyperlinks to assist with navigation through the document
  - include a summary presented in appropriate local language/s.
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**Manner**

The SER must be:

- provided electronically to the NT EPA for publishing on its public register
  - published electronically on the proponent's webpage and maintained for the duration of the proposal
  - provided in printed hard copy for display at the following locations during the public consultation submission period:
    - NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap
    - Northern Territory Library, Parliament House, Darwin
    - Environment Centre NT, Unit 3, 98 Woods Street, Darwin
    - Northern Land Council, 45 Mitchell Street, Darwin
    - Northern Land Council, Arnhem House, Shop 6 Level 1, 85 Chesterfield Circuit, Nhulunbuy
    - Central Land Council, 27 Stuart Highway, Alice Springs
    - Anindilyakwa Land Council, 30 Bougainvillea Dr, Alyangula.
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**Person authorised to give direction**

Dr Paul Vogel AM – Chairperson, Northern Territory Environment Protection Authority  
Delegate of the NT EPA under section 36 of the *Northern Territory Environment Protection Authority Act 2012*

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**Signature**



**Date of direction**

6 February 2024

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## Attachment 1 – Additional information requirements for the Supplementary Environmental Report Equatorial Launch Australia Pty Ltd – Phase 2 Expansion of the Arnhem Space Centre

Topic	Comment	Additional Information Required
<b>The proposed action</b>		
<b>Proposed action description</b>	<p>The referral describes site accommodation, however does not include workforce numbers or details about infrastructure and service requirements or capacity in the region to service the proposed action.</p> <p>It is unclear whether the proponent will temporarily close the Central Arnhem Road in the lead up to, or during, launches.</p>	<ol style="list-style-type: none"> <li>1. Provide further information about the proposed construction and operation workforce, including number of personnel, timeframes, source (e.g. local, fly in fly out of Darwin or interstate), composition (e.g. mix of skills needed), service and infrastructure needs from the region and NT (e.g. accommodation, car hire, food capacity), peak period/s for launches (individual and/or consecutive).</li> </ol>
<b>Consultation</b>	<p>The NT EPA and submissions on the referral express concern about the adequacy of consultation with potentially affected individuals and communities about the proposed action, and therefore uncertainty about consideration of matters in the environmental impact assessment.</p>	<ol style="list-style-type: none"> <li>2. Demonstrate that consultation with stakeholders (including the identification of relevant stakeholders within affected areas, including those within payload landing and hardware recovery zones within NT land and coastal waters) is appropriate and has been undertaken in accordance with the NT EPA's <i>EIA guidance for proponents: Stakeholder Engagement and Consultation</i><sup>1</sup> and the General duty of proponents under section 43 (a) to (d) of the <i>Environment Protection Act 2019</i> (EP Act).</li> <li>3. Describe how concerns and issues raised during community and stakeholder consultation and engagement processes have been considered and resolved.</li> </ol>
<b>LAND</b>		
<b>Terrestrial Ecosystems</b>	<p><u>Extent of clearing - undisturbed vs rehabilitated vegetation</u></p> <p>Approximately 250 – 300 ha of land (within the Gove Peninsula and north-east Arnhem coast Sites of Conservation Significance) will be cleared for the proposed action. The referral states that the majority of</p>	<ol style="list-style-type: none"> <li>4. Provide the area of previously disturbed (e.g. regrown) and undisturbed (e.g. intact) native vegetation that will be cleared.</li> </ol>

<sup>1</sup> [Stakeholder Engagement and Consultation](#), NT EPA

Topic	Comment	Additional Information Required
	<p>the area has been previously mined and partially rehabilitated, however the referral did not delineate the area of undisturbed vs rehabilitated.</p>	
	<p><u>Relevance of ecological surveys</u></p> <p>The referral relies on ecological studies prepared in 2017 for the Dhupuma Mine project, which do not address the full project area. The potential impacts of clearing on threatened fauna species (including but not limited to Black-footed Tree-rat, Common Brushtail Possum (north-western), Partridge Pigeon (eastern) and Northern Brush-tailed Phascogale) and their habitat, or significant or sensitive vegetation and landscape features (riparian vegetation, rainforest, sinkholes, springs, groundwater dependent ecosystems etc.) is unclear.</p>	<ol style="list-style-type: none"> <li>5. Provide an updated assessment of the terrestrial ecosystem values that would be potentially affected by the proposed action.</li> <li>6. Assess the potential impact of the proposed action on threatened species, their habitats, significant and sensitive vegetation, and landscape features. Identify measures that will be implemented to avoid, or mitigate these impacts.</li> <li>7. Demonstrate that clearing is consistent with the NT Land Clearing Guidelines, or justify any alternative.</li> <li>8. Describe ongoing monitoring, inspection and reporting of impacts on ecosystem values to ensure their protection.</li> </ol>
	<p><u>Procedures for managing (currently unknown) impacts to terrestrial ecosystems from payload and hardware recovery activities</u></p> <p>The proposed “Zone A” for payload landing and hardware recovery activities includes NT land and coastal waters. The potential significant impacts to terrestrial ecosystems within “Zone A”, and the proposed measures to manage impacts, have not been provided.</p> <p>It is not clear how:</p> <ul style="list-style-type: none"> <li>• payload and hardware recovery activities will identify and respond to environmental values</li> <li>• how payload and hardware recovery activities will address potential significant impacts (e.g. from fire, collision, clearing for access) and protection of terrestrial ecosystems.</li> </ul>	<ol style="list-style-type: none"> <li>9. Provide an updated payload landing and hardware recovery plan that outlines the procedures for identifying biodiversity values of recovery activity sites and assessing risks of significant impacts. Identify measures to avoid or mitigate significant impacts during payload landing and hardware recovery activity.</li> </ol>

Topic	Comment	Additional Information Required
AIR		
Air quality	<p><u>Sensitive receptors</u></p> <p>Sensitive receptors identified in the referral do not include permanently or temporarily occupied homelands, culturally significant sites (such as vegetation, water and/or rock features), and areas of high biodiversity and environmental value.</p> <p>The selection and location of sensitive receptors appears to be based on the extent of Phase 1, as the spatial data shows the boundary of the Gulkula ceremonial site is within approximately 620 m of the nearest Phase 2 launch pad.</p> <p>The sensitive receptors identified in Table 2 appear to be populated areas and the protocol does not take into account any culturally significant features, sacred sites or restricted works areas that may be affected by accumulation of emitted pollutants, particularly hydrogen chloride.</p>	<p>10. Describe all potentially affected sensitive receptors for impacts from reduced air quality, including Gulkula ceremonial site, any permanently or temporarily occupied homelands, culturally significant sites (including but not limited to hunting and fishing sites, vegetation and/or rock features), sacred sites/ restricted works areas (as identified by the Aboriginal Areas Protection Authority (AAPA)) and any areas of high biodiversity and environmental value.</p>
	<p><u>Rocket Emissions</u></p> <p>The referral identifies four potential pollutants that may negatively affect air quality in the vicinity of the space centre:</p> <ul style="list-style-type: none"> <li>• Carbon monoxide;</li> <li>• Hydrogen chloride;</li> <li>• Nitrogen dioxide; and,</li> <li>• Aluminium oxide (as PM<sub>10</sub>).</li> </ul> <p>Nitrous oxide (N<sub>2</sub>O) was not specifically mentioned.</p> <p>The referral also identifies that lead (Pb) may be present in stage 1 propellants.</p> <p>The referral includes an Air Emission Protocol that identifies the projects maximum allowable ground-level</p>	<p>11. Confirm, or advise otherwise, whether nitrous oxide (N<sub>2</sub>O) is a pollutant of concern.</p> <p>12. Define the area of potential air quality impacts resulting from rocket exhaust at each of the proposed launch pads, supported by an air pollutant emission inventory (ensuring all potential pollutants are considered, including nitrous oxide (N<sub>2</sub>O), if relevant) and air dispersion modelling, ensuring that modelling accounts for seasonal variations in prevailing wind conditions (this may further assist in identifying unfavourable launch / test conditions based on potential impacts to sensitive receptors).</p> <p>13. Provide the predicted volumes of emissions and impacts from emissions on local air quality and sensitive receptors (as described at item 7 above), including cumulative impacts, and incremental impacts on culturally significant sites and other</p>

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	<p>concentrations for those pollutants (Table 3 of the protocol) and the sensitive receptors (Table 2).</p> <p>The protocol does not appear to account for seasonal prevailing winds with south easterly winds blowing predominantly during the dry season.</p> <p>The air emission protocol does not provide a visual assessment of the dispersion plume of pollutants likely to be observed during and after launch.</p>	<p>areas of cultural value from accumulation (including bioaccumulation and bio-magnification, if relevant) over the life of the proposed action, including potential limitation on future land use.</p> <p>14. Outline proposed avoidance, mitigation and management measures to be implemented. Describe monitoring and reporting activities.</p> <p>15. Provide maps and figures to support descriptions.</p>
<b>PEOPLE</b>		
<b>Community and economy</b>	<p>The referral indicates the project will have a positive impact on the local community and economy, however, sufficient detail has not been provided to allow for the significance of any potential positive and/or negative social, cultural and economic impacts to be assessed. Stakeholder perspectives listed in the referral focus on operations rather than on potential social or economic impacts. Proponent processes to assess operational impacts and stakeholder processes to identify potential impacts, need to be concurrent and inform each other.</p>	<p>16. Provide further information that demonstrates affected communities and individuals have been consulted on:</p> <ol style="list-style-type: none"> <li>a. potential social and economic impacts on: <ul style="list-style-type: none"> <li>• local infrastructure such as the Central Arnhem Road and Gove Peninsula access, services such as medical, other logistical services to the region from increased demand / use</li> <li>• users of the Gulkula ceremonial site (which includes the Garma Institute and Garma Cultural Knowledge Centre)</li> <li>• individuals</li> <li>• other businesses particularly during peak visitor periods</li> <li>• community cohesion and</li> <li>• recreational and cultural activities.</li> </ul> </li> <li>b. the broader potential positive and negative impacts of the project, including details of the process used to identify these perspectives</li> <li>c. public health and safety.</li> </ol>

Topic	Comment	Additional Information Required
	<p>The Referral indicates the proponent will work with the Gumatj Corporation to provide training and education to support job creation and provide sustainable economic development opportunities in the region, no detail as to how this is intended to be achieved is included.</p>	<p>17. Provide further information regarding local training, employment and procurement opportunities in order to assess potential benefits of the proposed action.</p>
<p><b>Culture and heritage</b></p>	<p>The stakeholders engaged to identify culture and heritage values (Table 11) is limited and does not demonstrate consultation with all affected Aboriginal groups (including, but not limited to, those represented by relevant land councils for payload landing and hardware recovery areas within NT land and coastal waters).</p>	<p>18. Provide further information that demonstrates stakeholder engagement and consultation, consistent with the NT EPA Guidance<sup>2</sup>, and the general duty of proponents under section 43 (a) to (d) of the EP Act, with potentially affected Aboriginal communities and individuals (or their representatives, including the relevant land council) likely to be directly and indirectly affected by the proposed action (including but not limited to land clearing, rocket launches, static testing, hardware landing and recovery activities).</p>
	<p>A heritage assessment or search of the Heritage Register<sup>3</sup> was not provided.</p> <p>The proponent has applied for an AAPA Authority Certificate over the Space Centre but not any areas where recovery activities may occur.</p> <p>It is unclear whether sufficient time has been allocated in the planning and recovery process to ensure that cultural and heritage sites, stakeholder consultation and any potential access protocols can be fully considered.</p>	<p>19. Ensure that the payload landing and hardware recovery plan (see 9 above) includes procedures, developed in consultation with relevant stakeholders including native title holders, traditional Aboriginal owners whose lands are within the potentially affected area and their representative land councils, and statutory bodies (e.g. AAPA, Heritage Branch of the Department of Territory Families, Housing and Communities) to identify:</p> <ul style="list-style-type: none"> <li>a. the presence or likelihood of heritage places or objects</li> <li>b. the presence or likelihood of sacred sites</li> <li>c. the presence or likelihood of underwater cultural heritage</li> <li>d. custodian protocols to access sacred sites or restricted work areas</li> </ul>

<sup>2</sup> [Stakeholder Engagement and Consultation](#), NT EPA

<sup>3</sup> [Heritage Register Search \(nt.gov.au\)](#)

Topic	Comment	Additional Information Required
		<ul style="list-style-type: none"> <li>e. how payload and hardware recovery activities will avoid significant impacts on identified culture and heritage values</li> <li>f. timeframes for planning and execution of hardware recovery activities, ensuring that sufficient time is allocated for adequate consultation with affected Aboriginal communities/ individuals.</li> </ul>
	<p><u>Unexpected finds</u>  The proponent does not sufficiently describe appropriate measures to manage incidental cultural, heritage or archaeological discoveries.</p>	<p>20. Provide an unexpected finds protocol for cultural, heritage or archaeological materials.</p>