

DETSI Reference: P-EA-100178150

Application reference number: A-EA-AMD-100961118

18 June 2026

Camilla Scott

Principal Environmental Officer

Energy and Extractive Resources | Energy, Extractive and Southwest Compliance

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Dear Ms. Scott

REQUEST FOR FURTHER INFORMATION RESPONSE

P-EA-100178150: Santos QNT Pty Ltd – Mahalo major amendment application for P-EA-100178150.

Santos has prepared a response to the Request for Further Information notice (**RFI**) issued to Santos on 9 December 2025 under s140 of the *Environmental Protection Act 1994*, in response to Santos' Major amendment application for P-EA-100178150. Responses to the RFI are provided in Table 1 below.

Application details

Application to amend an Environmental Authority (EA)

Applicant	Santos QNT Pty Ltd; Comet Ridge Mahalo Pty Ltd
Project	Mahalo major amendment application EA P-EA-100178150
Description	Petroleum and gas (activities associated with gas production)

Site details

Real property description	PL1082 and PL1083
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Table 1: Information response

Item	DETSI requested information	Santos Response
Land – a – Spatial data	The following spatial data is requested to assist in the assessment of the proposed amendment application: Please provide spatial data, in shapefile format, with each layer as a separate zip file, clearly labelled, for: - the proposed disturbance and ancillary infrastructure footprint at the maximum extent of disturbance; - all existing disturbance already carried out; - all relevant environmentally sensitive area mapping layers; - all ground truthed prescribed environmental matters that would be impacted by the proposal, notwithstanding whether this impact triggers an SRI; - All ground truthed RE mapping identified during ecological surveys.	Please see the attached spatial data for all required shapefiles (Attachment A).
Land – b – Brine waste management	The application proposes to include ERA 55 – 2(b) to manage brine waste. The application proposes to investigate brine waste management options, including injecting brine and osmotic reverse particulate wastes underground into a natural, geologically isolated, structure. The application did not provide information to support the proposed activity. Provide the following information: - Confirm if the amendment is seeking to: - inject brine waste into existing underground structures; or - investigate (in a non-invasive way) brine waste management options. - If the amendment is seeking to inject brine waste, provide further	- The amendment is not proposing to inject brine waste and will continue to investigate (in a non-invasive way) brine waste management options. - The amendment is not proposing to inject brine waste into existing underground structures. The amendment is proposing flexibility to investigate the viability of re-injecting brine waste into hydrocarbon depleted formations/structures that are geologically isolated. This investigation will include undertaking technical studies to identify such structures, geological integrity, and compatibility for brine waste injection etc. - Within Section 4.1.2, item 4 of the EA Amendment SIR states the

	information on the activity, including but not limited to: a) the geological integrity of the natural underground structure; b) any potential locations (if more than one is proposed) where such structures exist that are being investigated under the proposed amendment; and c) a risk assessment on each injection location against geological integrity and leaching; d) the volume, quality, frequency of brine waste injection. e) include an assessment against section 41 (Activity involving direct release of waste to groundwater) of the Environmental Protection Regulation 2019. iii. If the amendment is seeking to investigate (in a non-invasive way) brine waste management options, provide further information on what investigation methodologies will be employed and any associated environmental risks.	following: Ancillary ERA 55: Other waste reprocessing or treatment The proposed amendment is seeking to add ERA 55 operating a facility for receiving and either reprocessing or treating, in a year of more than 10,000 of waste. This ERA is necessary for reprocessing brine either for reuse or disposal. Several potential options for managing and reprocessing brine have been investigated by the CSG industry including the following: • selective salt recovery (reuse) • ocean outfall (release) • salt encapsulation (disposal) • brine injection (disposal). Each of these options have been considered on their merits regarding environmental, economic, and social benefits. In 2020, an independent review¹ of an industry Report² on the management of brine in Queensland identified salt encapsulation i.e. crystallisation of brine into a solid and placement into a purpose-built disposal facility as the most feasible option for long-term CSG brine waste management at that time. In 2023, DETSI in consultation with industry, community groups and academia developed a long-term approach for the management of CSG brine waste 2023 – 2033³ (the action plan). Under the action plan, industry is expected to continue exploring opportunities to create a more circular economy to reduce, manage and reuse CSG brine. Accordingly, Santos is applying to authorise ERA 55 on the EA to facilitate ongoing research into other viable long-term options for managing CSG brine from the Project including: • Research/investigating the viability of waste re-use or recycling through chemically processing or treating brine or salt residues to create useable or saleable products.
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¹ https://environment.des.qld.gov.au/_data/assets/pdf_file/0018/240318/independent-review-brine-salt-management-report.pdf

² [Queensland Gas: end-to-end water use, supply and management - Report - 2018: the voice of Australia's oil and gas industry](#)

³ https://environment.des.qld.gov.au/_data/assets/pdf_file/0025/306466/csg-brine-management-action-plan-2023-33.pdf

		Research/investigating the viability of the injection of brine and CSG water into a natural underground structure that is geologically isolated. If the research/investigation finds these activities to be viable, Santos will apply to amend the EA for these activities to be authorised for the Project.
Land – c – Residual drilling material	The proposal includes residual drilling material (RDM) as a result of drilling operations in wells. The proposal seeks to reuse the RDM by applying it to land, subject to landholder considerations and if deemed suitable. Further information is required to quantify the risks of this disposal method to the receiving environment. Provide further information on: - the size of the irrigation areas, planned frequency of irrigation, quantity of RDM release and any modelling done relating to irrigation. - the RDM constituents and any demonstrative success of RDM biodegradability; - any EVs that may be affected from irrigation of RDM, such as groundwater, surface waters etc.	- The proposed amendment is not seeking approval to irrigate residual drilling material (RDM) to land. The proposed amendment seeks to adopt DETSI approved streamlined model conditions for petroleum activities which authorises disposal of RDM either through the mix–bury–cover method where the approved criteria are met, or by an alternative method where the material is certified by a suitably qualified third party (SQP) as acceptable quality for disposal to land. The location and size of the application areas, planned frequency, and quantity will be dependent on SQP recommendation and landholder agreements that have not yet been completed. These aspects will be determined prior to implementation, in compliance with the Santos RDM Land Application Procedure and Management Plans and collaboration with landholders, to ensure impacts are minimal and manageable. - Santos has not undertaken any studies to demonstrate the success of RDM biodegradability. RDM constituents include a mixture of clay, water and a variety of specialised additives as well as parent rock. Please refer to section 4.1.2 – for more information including published government literature on RDMs. - The location of RDM application will be determined by the SQP. The EVs that have potential to be impacted by RDM application include land, soils, surface and groundwater. Please refer to sections 5.3.2. <i>Risks and impacts</i>, 5.3.2.1. <i>Management</i>

		<i>strategies</i> and 5.4 Waste of the EA amendment supporting information report for additional details.
Land – d – cumulative PEMS assessment	It is stated in the supporting information report that there is existing disturbance of approximately 191 ha that is associated with previous exploration activities under ATP1191 (now PL1082 and PL1083). ATP1191 was previously authorised on EPPG00872113 which included a condition prohibiting significant residual impacts to prescribed environmental matters (unless the impact was authorised by an existing authority issued before the commencement of the <i>Environmental Offsets Act 2014</i> (EO Act)). ATP 1191 was lodged and approved after the commencement of the EO Act. Therefore, a significant residual impact (SRI) assessment of any prescribed environmental matters (PEM) proposed to be impacted as part of this major amendment must consider cumulative impacts to that PEM; i.e. proposed hectares of impact plus the existing impact to the PEM previously disturbed on ATP1191 insofar as it occurs on PL1082 and PL1083. It is unclear if cumulative impacts to PEMs have been assessed. Provide the following information: i. Complete a cumulative SRI assessment on the existing and proposed disturbance to each PEM.	Section 2.2.9 and 4.1.6 of the updated Ecological Impact Assessment (Attachment B) provides the methods utilised to identify previous exploration related impacts and the Cumulative SRI assessment. As requested, a cumulative SRI assessment of PEMS has been undertaken as part of the updated EIA with a resultant assessment of no SRI for any PEMS.
Land – e – Regulated Vegetation PEMS	Section 4.1.3 of the Ecological Impact Assessment states that there are no areas of clearing of state mapped remnant vegetation within the defined distance of a state mapped wetland or watercourse. It is unclear what mapping layers are being used to determine this. All regulated vegetation prescribed environmental matters should be on the category B area on the regulated vegetation management map to the extent the ecosystem contains remnant vegetation (as confirmed through ground-truthing). Reliance on remnant vegetation mapping layer alone will not provide accurate results. Ensure all assessment of impacts to regulated vegetation prescribed	Section 2.4.6 of the updated Ecological Impact Assessment (Attachment B) has been updated to include the methods used in determining the result provided, including the use of field verified mapping. The results of this planning exercise informed the assessment of potential significant impacts according to both the federal and state significant impact guidelines. An assessment of cumulative impacts and significant residual impacts (SRI) for all MNES and MSES has determined there will be no SRI for any PEMs.

	environmental matters utilises appropriate mapping layers to determine presence and outline methodology.	
Land – f – Access Tracks	The application states that there are existing access tracks that have been cleared through waterways, however it is not clear where these existing tracks are located, and where the proposed access tracks will be located if any. - Confirm which existing tracks have been built as part of the existing 191 ha disturbance undertaken on ATP1191, or are landholder-built tracks that are utilised as part of the activity; - Provide the location, using spatial data as per the department's Spatial Submissions Guideline (ESR/2018/4337) of the existing and proposed access tracks; and - If the proposed tracks will impact a PEM such as fish passage or defined distance to a watercourse, provide an SRI assessment, ensuring the assessment considers cumulative impacts (i.e. hectares of existing built tracks and proposed) to PEMs.	- See attached shapefiles indicating existing access tracks (Attachment A). - See attached shapefiles showing existing and proposed access tracks (Attachment A). - The proposed linear infrastructure (access tracks) will not impact PEM such as fish passage. Santos is proposing to use existing creek crossings. Petroleum activities in waters will be undertaken in accordance with the existing conditions of the EA including conditions: - G3 –<i>Petroleum activities must not occur in or 200m of a wetland of high ecological significance, great artesian basin spring or subterranean cave GDE,</i> - G4 – only construction or maintenance of linear infrastructure is permitted in or within any wetland or other environmental value or in a watercourse - G7 - The construction or maintenance of linear infrastructure activities in a watercourse must be conducted - in the following preferential order: (a) firstly, in times where there is no water present (b) secondly, in times of no flow (c) thirdly, in times of flow, providing a bankfull situation is not expected and that flow is maintained. An updated Ecological Impact Assessment (Attachment B) confirms that the project will not have an SRI on other PEMs.

Land – g – Disturbance outside of tenure	The proposed activity includes a location in (Figure 1) of a dam that has been mapped as part of the spatial information. This dam is located outside of both tenures that are authorised under PL1082 and PL1083. Provide further information: i. On the purpose of using this water storage and if this is intended to be part of the activity; ii. If any water will be extracted from this dam or if produced water will be stored in the dam; iii. That no additional disturbance (e.g. access tracks to the dam, additional infrastructure for water) are proposed as part of the amendment; and iv. On the approval processes being sought in order to include this dam as part of the activity.	This dam was added to shapefiles in error is not part of the proposed disturbance within the application, this dam will not be utilised as part of the proposed petroleum activities.
Land – h – Inconsistent PEM quantities	i. Provide information to explain the disturbance footprint discrepancies between Appendix A – Ecology report (from Terrestria Ecology) and the Supporting Information report, as presented in <i>Table 1 - PEM – MNES</i> impacts of this information notice. Alternatively, provide a revised Supporting Information report and Ecology report which contains consistent hectares of impact. Further, provide a revised PEM SRI assessment, using the revised hectares of impact. ii. Provide spatial data for each PEM matter and species' impacted area proposed under this amendment application along with the RE and habitat types. iii. Conduct another WildNet, Birdlife, ALA and any other relevant ecological search engine with a search radii of between 50 km and 100 km. iv. Consider the presence of all species from species list (WildNet and other sources) search by conducting an assessment on likelihood of occurrence and potential SRI assessment. Note: Search items must include all sightings including records that	i. Habitat maps have been revised, provided in Attachment A Spatial Data, to remove “overmapping” where linework includes areas of non-native vegetation (mainly buffel paddocks) within native vegetation communities. This increase in habitat/vegetation community mapping has led to a decrease in areas of “habitat” being impacted. A patch-by-patch and species-by-species assessment of vegetation communities that will be impacted has been undertaken (Section 4.1.5 of the Ecological Impact Assessment – Attachment B) to determine whether habitat factors essential to the presence of individual species are present and will be impacted. This assessment has been used to quantify the total area of actual wildlife habitat impacted by the construction disturbance footprint. These areas together with the size and location of the individual impacts have been used to assess whether or not a significant residual impact will occur in an updated Appendix G and H of the updated Ecological Impact Assessment (Attachment B). ii. See Attachment A

	have a year attribute of 0, 1900 or 1770 in search databases such as WildNet. Please note the attribute of 0, 1770 and 1900 are default settings assigned to some records in the database where dates are unverified. v. It is noted that a search on the Diamond firetail (<i>Stagonopleura guttata</i>) showed their presence around Rolleston. Despite these records being undated, it is still significant information for an assessment of the local areas. The proposed amendment appears to show habitat comprising of grasses/grasslands with scattered timber/shrubs/trees and water sources. Therefore, re-evaluate the species likelihood of occurrence for this species and provide this information back to the department along with a significant residual impact assessment.	iii. A WildNet database search for threatened species within 100 km of the survey area has been conducted. The results of the search are included within Appendix B of the updated Ecological Impact Assessment (Attachment B). A statement has been added in Section 3.1.7 that the potential presence of threatened flora > 20km < 100km from the survey has not been reviewed in detail in Appendix C, rather the list has been reviewed by an expert botanist for CR, E and V species thought to potentially occur. Missing species: Added <i>Solanum elaeagnifolium</i> in Appendix C and updated Section 3.1.7. Added Additional > 20 km species and EPBC migratory species to Appendix D of the updated Ecological Impact Assessment (Attachment B). iv. The possible presence of these additional species has been addressed in section 3.1.8 of the updated Ecological Impact assessment (Attachment B). A new Appendix H of the updated Ecological Impact Assessment (Attachment B) summarises all impacts to PEMS. v. The Diamond firetail is not included within these assessments because it is extremely unlikely to occur within the locality. BirdLife Australia provide a map that includes the entirety of the Survey area in an area mapped as “likely extinct”. The survey area is on the northernmost extremity of its historical range. The existence of historical and/or unverified records, without other confirmed or verified local records, is considered insufficient evidence to confirm the current presence of a species within the locality. In this instance the records from south of Rolleston and from Springsure are approximately 50 km away and have been transcribed from the first bird atlas (Records collected by Birds Australia between 1977 and 1981), or from the Historical Bird atlas (described as: The historical atlas is a collection of data from museum collections, personal notebooks, published and
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		unpublished literature collected by Birds Australia. Records range from 1629 to 1976. Each survey was ascribed to a grid with the coordinates given as the central point. Grids size varied, with most being 10-minute grids or 1-degree grids). This makes the last unconfirmed/unverified sighting of this species at least 35 years old and roughly 50 km away. As the likelihood of occurrence is unlikely (Appendix D of updated EIA), an SRI assessment of this species is not required.
Air – a - Boilers	The Executive Summary and section 2 of the Air Quality Assessment report list the inclusion of tri-ethylene glycol (TEG) regeneration boilers that are proposed to be included as part of the infrastructure development for this amendment application. No details are provided of the boiler(s) size and the estimated air emissions. Provide further information on: - The size of the boilers; - The quantity of the boilers; - The types of emissions that will be released; and - The estimated emissions to air in accordance with the GHG guideline.	(i and ii) Only one TEG boiler will be used for the project. The maximum processing capacity of the unit is 55 Terra Joules (TJ/day). This unit will be electrically driven. The air quality assessment (Attachment C) for the Project indicates that the TEG unit is not anticipated to have a significant impact on air quality at sensitive land uses near to the site. (iii and iv) Water vapour is removed from the natural gas using a TEG absorption process within a TEG dehydration unit, whereby the lean (low moisture) TEG solution is brought into contact with the wet natural gas to dehydrate the gas. The rich (high moisture) TEG solution is then fed to the TEG regeneration boilers to remove the water and regenerate the lean TEG solution for reuse in the dehydration unit. The regeneration boiler section of the TEG dehydration unit operates at high temperatures and low pressures to remove water from the rich TEG solution through evaporation. Waste gases from the stripping process are exhausted via a vent; however, no gas combustion occurs in these units and emitted species, including nitrogen, carbon dioxide, methane, ethane, water vapour, are very low. Emissions from these units are predominantly (approximately 81%) water vapor. Estimated GHG emissions from the TEG unit are further discussed in Table 9 of GHG assessment report (Appendix I) of the supporting information report and Table 3 of the revised GHG report (Attachment D).

Air – b – Air modelling	The modelling assumed that all emission sources (i.e. compressors, generators and flare) were modelled at the same location. Application material, however, demonstrates a different proposed development location to that undertaken in the Air Quality Assessment report. i. Provide justification that the air modelling undertaken remains appropriate despite the location change of the proposed development. Alternatively, provide a revised air modelling assessment that considers the different proposed development locations.	At the time of the air quality dispersion modelling being carried out, the final location and layout for the proposed gas compression facility (GCF) had not been determined. For modelling purposes, all emission sources at the GCF (generator, compressors, and flare) were located in the same location. It was concluded that this assumption would not impact the outcome of the assessment due to the distance from site to any sensitive receptors (nearest receptor is approximately 2.3 kilometers whilst all other receptors are more than 5.4 kilometers), the relatively flat terrain of the region, and the scale of the emissions relative to the air quality criteria. After the dispersion modelling had been completed, the proposed location of the GCF changed to be approximately 1 km to the south of the location used in the modelling. As detailed in the air quality assessment report (Appendix D), the change in location is not anticipated to change the outcome of the assessment for routine and non-routine operations. Maximum ground-level concentrations of key air pollutants at nearest sensitive receptors, including NO₂ and CO, are anticipated to remain well below the relevant assessment criteria with the inclusion of ambient background. Specifically, NO₂ is predicted to be less than 6% (1-hour) and 14% (annual) of the relevant criteria, while CO is predicted to be less than 3% (8-hour) of the criteria.
Air – c – Compressor engines	It is unclear if the proposed compressor engines will be equipped with an oxidative catalyst. These catalysts are proposed as a mitigation measure to minimised NO_x and CO emissions from exhaust gas, however the catalyst did not feature in the Air Quality Assessment report. i. Confirm that oxidative catalysts will be included for the compressor engines as part of the emissions reduction scheme of the activity. Otherwise, provide information on proposed alternative mitigation measures to reduce emissions from the compressor engines.	The compressor engines will not be equipped with oxidative catalysts. The proposed emission limits and monitoring will ensure that EVs are adequately protected. In absence of any legislation in Queensland that specifies emission concentration limits for plant and equipment, emission standards set in other jurisdictions have been utilised to demonstrate that emissions from the compressor engines are within acceptable limits, and that oxidative catalysts are not required. Emission limits of NO_x for the units are as follows: G3612 - 205 mg/Nm³ @ 7% O₂ G3512H - 440 mg/Nm³ @ 7% O₂ (G3512H replaces the G3512 assessed

		in the original air quality assessment.) Noting that the emission concentration reported in the original air quality assessment was incorrect due to calculation error in calculating the emission concentration to reference conditions. Value presented above is the corrected value. Results for NO_x concentration at receptors of the 1-hour average criterion, annual average and CO concentrations at 8-hour average (section 5.1.1 of the Supporting Information Report and section C4 of the Air assessment memorandum provided as Attachment C of the RFI) have not changed with the updated calculations. No alternative mitigation measures are required because the emission limits for the proposed units have been confirmed to satisfy the following emission standards of NO_x: • European Union (EU) Directive on the limitation of emissions of certain pollutants into the air from medium combustion plants (2015) (190 mg/Nm³ @ 15% O₂ (443 mg/Nm³ @ 7% O₂)). • New South Wales Protection of the Environment Operations (Clean Air) Regulation 2022 (Clean Air Regulation) (450 mg/ Nm³ 7% O₂). The results of the air dispersion modelling indicate that incremental contributions to pollutant concentrations at the nearest sensitive receptors are minimal, remaining well below relevant EPP Air objectives and National Environment Protection Measure (NEPM) standards. Please refer to Appendix D of this report, section 5.1.1 and Appendix D of the supporting information report for more details.
Air – d – Air quality assessment report discrepancies	Discrepancies were detected between Appendix D - Air Quality Assessment report and the Supporting Information report. Provide the following information: i Confirm the proposed minimum stack height for the proposed project activities. Should the proposed minimum stack height differ from the submitted Air Quality Assessment report, provide further justification to demonstrate the risk to receiving air environmental values from the	Since the original application, Santos had made changes to the power generation units where the three G3512E units were replaced with two slightly larger G3512H units. Despite this change, the conclusion drawn from the original air quality assessment report (Appendix D) of the supporting information report is still valid. The change in concentrations of NO₂ and CO at nearby sensitive receptors due to the Project are minimal and the maximum cumulative concentrations at a receptor due to the

	proposed activity's air emissions, including re-modelling of the air emissions using the 8m stack height input. ii Provide further justification for the proposed minimum efflux velocity of 17 m/sec for the generators and 6 m/sec for the compressors, explaining how these values were determined and why they differ from the recommendations outlined on page 14 of the Air Quality Assessment report. iii Provide further justification to support the removal of NO_x maximum concentrations (mg/Nm³ at 7% O₂) from the G3612 compressors and G3512 generators. Alternatively, provide maximum concentrations in mg/Nm³ at 7% O₂ for NO_x for G3612 compressors and G3512 generators. iv Provide justification to support the proposed NO_x maximum mass emission rates of 2 g/s for both the compressors and the generators under Schedule D, Table 1 – Authorised point sources, as opposed to the significantly lower 0.57 g/s for compression engines and 0.44 g/s for the generators. Alternatively, provide a maximum NO_x mass emission rates for G3612 compressors and G3512 generators. v Provide further justification to support the removal of CO maximum concentrations (mg/Nm³ at 7% O₂) and emission rates (g/sec) from the EA. Alternatively, provide maximum concentrations in mg/Nm³ at 7% O₂ for CO. vi Provide further justification that demonstrates the appropriateness of the monitoring frequency proposed under Schedule D, Table 1 – Authorised point sources for the compressors and engines.	Project plus ambient background comply with the relevant criteria at sensitive receptors under both routine and emergency upset conditions. Due to the changes Proposed EA License Conditions for the Project have been revised and are presented in Attachment C – Air Quality Information Request. The revised EA conditions have been informed by the air quality assessment and dispersion modelling, updated for the proposed change in type and number of power generation units at the compression facility. See Attachment C for full details of the response to this RFI. Specifically; i. The minimum stack height has been amended to reflect the revised air quality assessment as per Attachment C - Schedule D, Table 1 – Authorised releases of contaminants to Air from Point source ii. Minimum efflux velocity has been amended to reflect the revised air quality assessment as per Attachment C - Schedule D, Table 1 – Authorised releases of contaminants to Air from Point source iii. Maximum NO_x concentrations (mg/Nm³ at 7%O₂) have been included for the new generators and G3612 compressors as per Attachment C - Schedule D, Table 1 – Authorised releases of contaminants to Air from Point source iv. NO_x maximum emission rates (g/s) have been revised to 0.57 for the G3612 compressors and 0.56 for the new G3512E and G3512H generators as per Attachment C - Schedule D, Table 1 – Authorised releases of contaminants to Air from Point source v. Maximum concentration limits (mg/Nm³, 7%O₂) have been included in the EA as per Attachment C - Schedule D, Table 1 – Authorised releases of contaminants to Air from Point source vi. The proposed monitoring frequency is based on monitoring undertaken at existing Santos operated compressor facility operating with similar equipment. Results from the current annual monitoring program indicate that the proposed monitoring frequency is appropriate and sufficient for the proposed equipment.
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Greenhouse gas (GHG) emissions – e – scope 1 emissions	In Table 4 of <i>Appendix I – Mahalo Gas Project: GHG Assessment report</i> (Appendix I), the summary results of GHG emissions (in t CO₂-e) for the Project only accounts for three (3) G3512 gas generators and does not include the three (3) G3612 compressor engines where these compressors have a power rating of 3 MW. Additionally, the report does not include emissions from the construction phase for the years 2027 and 2028. The full extent of Scope 1 emissions appear to have not been calculated, as per the Greenhouse gas emissions guideline (ESR/2024/6819). i. A review of the Scope 1 emissions sources ensuring that all relevant Scope 1 emissions are accounted for, including construction emissions and the three (3) G3612 compressor engines. Justification must be provided for any emission sources that are excluded from the review. Provide further information on GHG mitigation and management measures.	Please see supporting GHG assessment report located in Attachment D for details and references tables. Emissions for the three (3) G3612 compressor engines are now accounted for, with annual emissions estimated at 42,034 t CO₂-e (Error! Reference source not found. and Error! Reference source not found.). Scope 1 construction emissions reported for the MGP (Table 9) and permitted in P-EA-100178150 include those for the ERAs sought in the amendment application. As per the Greenhouse gas emissions guideline (ESR/2024/6819), 3.5.2 Amendment Application Requirements, projected GHG emissions “need only to refer to GHG emissions that will be generated as a result of the proposed amendment, including the determination of the GHG emission category for the application”. The Project is classified as a medium – high emitter due to the inclusion of the three (3) G3612 compressor engines, and a GHG abatement plan is provided in Section Error! Reference source not found..
Greenhouse gas (GHG) emissions – f – fugitive emission unit measurement	It is unclear what the unit of measurement is against the fugitive emission sources presented in Table 2 of Appendix I. For example, for the produced water fugitive emission source, Table 2 depicts 7.99 t CO₂-e of methane is released; however the table does not specify the corresponding quantity or scale e.g. per ML produced water. i. Review and revise the data in Table 2 of Appendix I to and provide clarity on the scaled amount of t CO₂-e unit, e.g. per t fuel flared, per km of pipeline, etc.	Please see supporting GHG assessment report located in Attachment D for details and references tables. Table 2 (now Table 3) has been revised to include the scaling of CO₂-e units.

Greenhouse gas (GHG) emissions – g – Produced water	In Table 4 of Appendix I, the emissions data for produced water appears to be inaccurate, especially when comparing to the activity under Table A1 of Appendix I. Produced water is presented in ML/day in Table A1 of Appendix I with a recorded value of 1.2ML (per day) for the year 2027. This would extrapolate to an annual produced water total of 438 ML for the year 2027. Assuming that the unit for CH₄ emissions release from produced water in Table 2 of Appendix I is 7.99 t CO₂-e / ML, this would be calculated as 9.588 t CO₂-e / ML per day (i.e. 1.2 ML / day x 7.99 t CO₂-e) with a total of 3,499.62 t CO₂-e / ML / yr of CH₄ emissions from produced water for the year 2027 in accordance with Table A1 of Appendix I. In comparison, Table 4 of Appendix I, presents under produced water, an estimate of 11 t CO₂-e for the year 2027. i. Confirm that the correct calculations of GHG emission from produced water in Table 4 of Appendix I is 3,499.62 t CO₂-e for 2027. Revise all values in Table 4 as necessary. ii. Confirm that the ML/day unit against produced water in Table A1 is the correct unit. Alternatively, revise the units in Table A1 and Table 2 as necessary.	Please see supporting GHG assessment report located in Attachment D for details and references tables. i. Calculations of GHG emissions from produced water in Table 4 (now Table 9) have been amended and GHG emissions for 2027 are estimated at 4,101 t CO₂-e. ii. Unit for produced water and respective results have been amended to ML / year (Table A1).
Noise – h – Noise report signature	<i>Appendix E - Noise Impact Assessment</i> report (Appendix E) does not appear to be signed by the Acoustical engineers to guarantee the report's authenticity. i. Ensure that the report has been signed by the relevant engineers to verify its authenticity and suitability for the Project.	Refer to attached signed document - 006915-NIA-004 Mahalo Compressor Station NIA Report (Attachment E).
Noise – I - Flare	The conclusion in Appendix E states that when the flare is operating at maximum output, it will exceed the permissible sound level (PSL) of 28dBA for night-time noise between 10pm and 6 am, despite being short and infrequent, but will still manage to comply with the requirements under <i>Schedule C, Table 1 - Noise nuisance limits at a sensitive receptor</i> of the	Please note that the equipment selection and the facility location for the noise impact assessment were determined in accordance with the noise management hierarchy prescribed under Section 8 of the Environmental Protection (Noise) Policy 2019. The noise impact assessment considered both elevated and ground flares and the distance to sensitive receptors.

	EA. It is not clear what this statement implies. i Provide further justification on this statement and confirm whether the cumulative PSL meets the requirements in <i>Schedule C, Table 1 - Noise nuisance limits at a sensitive receptor</i> of the EA at the sensitive receptors.	Therefore, the conclusion in Appendix E of the supporting information report is a summary of all scenarios accessed and not the selected option. It is articulated clearly in section 5.1.2 and 5.2.2 of the supporting information report that: Following noise impact modelling, field surveys and landowner feedback, the proposed location (E665723, N7330716) was identified as a suitable area that meets the objectives of EPP Noise. Key design measures include: - Locating the facility away from sensitive receptors; and - Use of a ground flare instead of an elevated flare A ground flair will be used that meets the requirements in <i>Schedule C, Table 1 - Noise nuisance limits at a sensitive receptor</i> of the EA at the sensitive receptors.		
Regulated Structures – j – regulated structures	The application proposes 4 regulated structures on PL1083. Further information is required to understand the risk and proposed environmental value impacts which may result from these structures. i. Provide further information on the regulated structures, as per Appendix 1: Contents of a design plan in the department's guideline (ESR/2016/2357) 'Application requirements for petroleum activities': - hazard assessment reports - the maximum surface area (ha) - maximum depth of dam (m) - liner selection - risks, impacts of the dams and measures to mitigate these. ii. The application must describe the existing environmental values that must be protected from storing wastes in dams. Examples of environmental values of the land environment to be protected may include: - the life, health and wellbeing of people	i. a) Information relating to Appendix 1: contents of a design plan in the department's guideline (ESR/2016/2357) including site-specific hazard and consequence category assessment and certification by a suitably qualified and experienced person not available at this time. The proposed amendment seeks to align the amended EA with the model conditions contained in guideline ESR/2016/1934, with minor variations to provide a consistent operational framework across Santos' regulated structure portfolio. The proposed approach is consistent with the Queensland Government's framework for model conditions, which are intended to promote consistency and provide guidance for managing environmental risks associated with dams. Please note that since the original application, the design storage volume of the associated water dam has been revised to 22.5ML from the original 60ML. b) Maximum surface area of combined regulated structures – 22ha c) Maximum depth – <table><tr><td>Dam</td><td>Depth (Bottom to crest) m</td></tr></table>	Dam	Depth (Bottom to crest) m
Dam	Depth (Bottom to crest) m			

	b. air quality (e.g. protection of odour impacts) c. visual amenity values d. soil, surface and ground water quality e. land use capability, having regard to economic considerations f. protection of wildlife, including migratory birds g. the diversity of ecological processes and associated ecosystems. iii. Provide further information on the storage and use of the proposed produce water dam at MGA2020Zone 55 N7330639, E665224, which demonstrates the produced water dam is consistent with the Department's CSG water management policy and s126(2) of the EP Act. iv. Confirm whether the proposed dams would be considered an evaporation dam. If so, address Section 126 of the EP Act.	<table><tr><td>Produced Water</td><td>1.9m</td></tr><tr><td>Blended Water</td><td>3.7m</td></tr><tr><td>Brine Dam A and B</td><td>5.4m</td></tr></table> d) Liner selection - the dams will be lined with High-Density Polyethylene (HDPE) liner with a leak detection system. e) Response to i(e) and ii As per section 4.1.2, item 1 of the EA supporting information report - The locations of the proposed dams (see figure 2) have been selected to avoid impacts on local EVs and to meet landholder requirements. Management (control) strategies, risk sources, potential impacts and the level of risk associated with the proposed amendment are discussed in section 5 and summarised in Appendix J of the original application. The results of the risk assessment indicate that residual risks to EVs because of the proposed amendment are classified as 'Very Low'. Following cessation of activities, the proposed dams will be decommissioned in accordance with the conditions of the EA. iii. The proposed amendment does not involve the use of evaporation dam/s. Accordingly, section 126(2) of the EP Act does not apply to the proposed amendment. Information regarding how the storage and the use of the produced water dam is consistent with the CSG water management policy (ESR/2016/2381) is discussed in detail under section 5.4.1.4 of the supporting information request. This dam will be used to temporarily store the water for further processing at the reverse osmosis plant for onsite use and irrigation. CSG water produced from each gas producing well and reverse osmosis concentrate generated from the reverse osmosis treatment plant will be stored in storage dams that will be constructed and operated in compliance with:	Produced Water	1.9m	Blended Water	3.7m	Brine Dam A and B	5.4m
Produced Water	1.9m							
Blended Water	3.7m							
Brine Dam A and B	5.4m							

		• DETSI guideline structures which are dams or levees constructed as part of environmentally relevant activities (ESR/2016/1934 version 9.04) • DETSI manual for assessing consequence categories and hydraulic performance of structures (ESR/2026/1933 version 5.03) • The Queensland Dam Safety Management Guidelines and classification criteria under the Water Supply (Safety and Reliability) Act 2008 to ensure dam integrity and risk mitigation. As per section 5.4 of the EA amendment application - The proposed amendment includes a change to waste management practices during construction and operation, including the reuse of residual drilling material, CSG water irrigation and treated effluent disposal. A waste management plan for the Project will be developed in accordance with the EA, the EP Act, and the WRR Act. As per section 5.4.1.2 of the EA amendment application - CSG water will be reused on-site for dust suppression, ground compaction, drilling and completions, and other operational purposes. Section 5.4.1.4 outlines Santos's proposed CSG management actions. iv. The proposed dams are not considered evaporation dams because: • The proposed dams are not designed to be used to hold CSG water for evaporation • The proposed dams will not result in greater evaporative loss than the quantity of water being actively processed/treated by the project.
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Please contact Matthew Barrett, Senior Environmental Adviser, matthew.barrett@contractor.santos.com should you have any questions in relation to the application.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'William Inonda', with a stylized flourish at the end.

William Inonda

A/Team Leader Environment – Eastern Queensland and NSW

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Attachment A – Spatial files

Attachment B – Mahalo Gas Field Ecological Impact Assessment

Attachment C - Mahalo Compressor Station Air Quality Information Request

Attachment D – GHG assessment report

Attachment E - NIA-004 Mahalo Compressor Station NIA Report