ntepa Northern Territory Environment Protection Authority

Statement of Reasons

SANTOS QNT PTY LTD – ENVIRONMENT MANAGEMENT PLAN (EMP) FOR THE MCARTHUR BASIN CIVIL AND SEISMIC PROGRAM EP161

PROPOSAL

The Environment Management Plan (EMP) for the McArthur Basin Civil and Seismic Program Exploration Permit 161 (the Proposal)[1] was prepared by Santos QNT Pty Ltd (the Proponent)[2] and referred to the Northern Territory Environment Protection Authority (NT EPA) on 9 April 2019 for consideration under the *Environmental Assessment Act 1982* (EA Act).

The civil construction and seismic program covers two well locations, Inacumba-1/1H and Tanumbirini-1/2H wells, and comprises total land clearing of 59.2 hectares (ha) in addition to the 40.2 ha of existing cleared land in the project area. The Proposal involves the installation of 10 km of cleared seismic lines and undertaking a 2D Seismic Program at Tanumbirini-1/2H and the installation of a 1 km new access track and upgrading 20 km of existing access tracks, as well as construction of camp pads and lease pads at both well locations, including:

Inacumba-1/1H

- land clearing required for, and establishment of, a 1.8 ha exploration lease pad and a 0.7 ha camp pad
- upgrade and associated land clearing for new sections (1.2 ha) of two existing access tracks
- land clearing and establishment of a stockpile laydown area (1 ha)
- two new gravel pits - (8.2 ha total area) (total volume 28,000 m^3)
- land clearing to establish a fire protection area (19.7 ha)
- construction of tank pads (1.9 ha)
- rehabilitation of disturbed areas as soon as the areas are not needed for exploration work.

Tanumbirini-1/2H

- land clearing (4.5 ha) and establishment of 10 km of seismic lines
- minor upgrades on the existing access tracks and clearing (0.3 ha) for a new section of a lease loop road
- establishment of a laydown area (0.9 ha), campsite (0.6 ha), tank pads (1.9 ha) and lease pad (2.2 ha)
- two gravel pits - (5.5 ha total area) (total volume 11,430 m^3)
- 10.4 ha of land clearing associated with expanding the existing fire protection area to a total area of 15.5 ha
- rehabilitation of seismic lines commencing immediately on completion of the seismic work
- rehabilitation of disturbed areas as soon as the areas are not needed for exploration work.

This Proposal will use an estimated total of 45.5 megalitres (ML) of groundwater sourced from existing bores. The Proponent has estimated approximately 11 714 tonnes of carbon dioxide equivalent (CO_2) emissions from the Proposal.

Construction and seismic works are proposed for the 2019 Dry season.

1 'Proposal' has the same meaning as 'Regulated Activity' under the *Petroleum Act 2014.*
2 'Proponent' has the same meaning as 'Interest Holder' under the *Petroleum Act 2014*.

The Proposal does not include drilling, stimulation or testing of a petroleum exploration well.

CONSULTATION

The EMP has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies (see Attachment A) and the responsible Minister, in accordance with clause 8(1) of the Environmental Assessment Administrative Procedures.

The EMP did not require public consultation under the Petroleum (Environment) Regulations as it does not propose drilling or hydraulic fracturing activities.

JUSTIFICATION

The NT EPA assessed the potentially significant environmental impacts and risks associated with the Proposal in line with the NT EPA's environmental factors and objectives, and in accordance with the requirements under the EA Act. The NT EPA identified five environmental factors that could be significantly impacted by the Proposal (Table 1). The NT EPA considered the importance of other environmental factors during the course of its assessment, however those factors were not identified as potentially significantly impacted. As this Proposal is a civil works activity that does not include any production of gas or significant land clearing, the NT EPA considers greenhouse gas emissions are minimal and the potential impacts not significant.

Table 1: Key environmental factors considered for this assessment

Theme	Environmental factor	Objective
Land	1) Terrestrial flora and fauna	Protect the Northern Territory's flora and fauna so that biological diversity and ecological integrity are maintained.
	2) Terrestrial environmental quality	Maintain the quality of land and soils so that environmental values are protected.
Water	2) Inland water environmental quality	Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.
	3) Hydrological processes	Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.
People and Communities	1) Social, economic and cultural surroundings	Protect the rich social, economic, cultural and heritage values of the Northern Territory.

1. Terrestrial flora and fauna

Objective: Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.

Environmental values

The EMP is based on baseline surveys conducted in 2018 and 2019 over EP161 including at the two proposed well sites. At the Inacumba well site, the terrestrial vegetation is bloodwood (*Corymbia)* and mixed eucalypt mid to high open woodland, with a tussock grass understorey community. This community is regionally extensive and free of weeds at the Inacumba site. A total area of 35.3 ha of vegetation is proposed to be cleared around this well site, including the perimeter zone for fire protection and the gravel pits (8.2 ha).

The terrestrial environment at the Tanumbirini 1/2H well site consists of mid-high open woodland dominated by Kullingal (*Eucalyptus pruinosa)*, bloodwood (*Corymbia dichrompophloia),* and *Melaleuca spp.* with tussock grass and ribbon grass understorey. A pad has already been established at this well site with an expansion of 0.6 ha part for the proposal. Additional clearing of 23.9 ha is proposed at this location for other proposal components including campsite, gravel pits, water tank pads, seismic lines, a laydown area and fire protection perimeter.

The EMP identifies six birds, five mammals and one reptile that are listed threatened species and may occur within 10 km of the project. Of these, three birds and one reptile (Mertens' Water Monitor) were considered to have a 'medium' likelihood of occurrence (Table 1). A desktop review by the Department of Environment and Natural Resources (DENR), Flora and Fauna Division did not identify any additional species of potential concern.

Table 2: Listed threatened species assessed as potentially occurring in the vicinity of the Proposal

Common name	Scientific name	EPBC Act	TPWC Act
Gouldian Finch	*Erythrura gouldiae*	Endangered	Vulnerable
Grey Falcon	*Falco hypoleucos*		Vulnerable
Crested Shrike-tit	*Falcunculus frontatus*	Vulnerable	Near Threatened
Mertens' Water Monitor	*Varanus mertensi*	Vulnerable	

The Grey Falcon occurs sparsely across the NT and is highly mobile. The Crested Shrike-tit occurs patchily and sparsely in savanna woodland in the Top End of the NT. Clearing of the relatively small area of vegetation has been assessed by DENR as unlikely to result in significant impacts to regional populations of these species.

The Gouldian Finch has specific requirements including suitable roost trees (e.g. *Eucalyptus leucophloia*) and appropriate sources of grass seed and water. The DENR Flora and Fauna Division considers that it is unlikely that the proposal area provides suitable breeding habitat and that the clearing activities would not pose a significant impact or risk to this species.

Mertens' Water Monitor is associated with freshwater waterways and riparian vegetation. This species is widespread across the NT, occupying edges of freshwater courses and lagoons, but is seldom seen far from water. As works are occurring in the Dry season, with measures to be implemented to reduce the impact that seismic lines will have on riparian vegetation, the Proposal does not pose a significant risk to this species.

The area of disturbance for the Proposal has been assessed as non-critical habitat, based on regional extensiveness and lack of sensitive, significant or essential vegetation/habitat types.

Threatening processes

The Proposal area is subject to a low frequency of fires, with up to three fires occurring in the immediate area between 2000 and 2017.

The baseline weed survey recorded 48 occurrences of five declared weed species. The majority of weed species were found along the station access tracks, with no weed species observed in the survey around the Inacumba well. Four declared weed species were found in the 5 km buffer of the Tanumbirini-2 well as shown in Table 3.

Table 3: Declared weeds occurring in the vicinity of the Tanumbirini area

Common name	Scientific name	NT Declared Class	No. of records
Hyptis	*Hyptis suaveolens*	B/C	35
Rubber Bush	*Calotropis procera*	B/C	7
Spinyhead sida	*Sida acuta*	B/C	4
Sicklepod	*Senna obtusifolia*	B/C	1

Santos has committed to implement a weed management plan to control weeds during construction, operation and for three years after completion of works. Mitigation measure include inspection and cleaning of construction equipment prior to accessing the site, and onsite weed control. Santos has nominated a dedicated weed officer to implement the weed management plan.

The property falls with the Savanna Fire Management Zone. When a Fire Danger Period has been declared, no burning may take place except where a permit to burn has been obtained from a fire control officer or a fire warden. A fire management plan has been developed for the Proposal.

Fire control zones, established around each of the well sites, will be cleared of vegetation and maintained to limit the risk of fire encroachment during project activities.

NT EPA Assessment

The NT EPA considers that the potential impacts and risks to terrestrial flora and fauna can be mitigated through implementation of management measures presented in the EMP and that its objective for terrestrial flora and fauna is likely to be met.

2. Terrestrial environmental quality

Objective: Maintain the quality of land and soils so that environmental values are protected.

The EMP describes the two soil types that dominate the project area; Kandosols and Rudosols. Santos has prepared an Erosion and Sediment Control Plan (ESCP) specific to the seismic activities.

Santos has committed to preparing a second ESCP specific to the civil works. The NTEPA has made a recommendation to the Minister that the implementation of this ESCP become a condition of the EMP approval with the ESCP to be prepared in accordance with the International Erosion Control Association Best Practice standard by a suitably qualified and experienced person.

A Spill Management Plan has been prepared as a component of the EMP. Effective spill management requires the EMP mitigation measures related to handling, storage, bunding and transport of chemicals to be implemented.

Rehabilitation of disturbed areas is essential to minimise the risk of subsequent erosion and return the disturbed land to its original condition and uses. Rehabilitation will be undertaken progressively, commencing before the wet season, and include the gravel pits. The gravel pits will be rehabilitated to avoid depressions, make them self-draining and have topsoil for return of vegetation. A Rehabilitation Management Plan has been included as part of the EMP. The NT EPA has made a recommendation to the Minister that updating the rehabilitation plan with site specific timing and details once exploration outcomes are known become a condition of the EMP approval.

The NT EPA considers that the potential impacts and risks to terrestrial environmental quality can be mitigated through implementation of the ESCP consistent with the International Erosion Control Association Best Practice Erosion and Sediment Control standard, the draft NT Code of Practice (1 April 2019): Onshore Petroleum Activities and the NT Land Clearing Guidelines, and that its objective for terrestrial environmental quality is likely to be met.

3. Inland water environmental quality

Objective: Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

The project is located at the headwaters of the Limmen Bight River catchment. The closest major creek systems to the proposed Tanbumbirini-1/2H and Inacumba-1/1H well sites are the Tanumbirini and Inacumaba creeks respectively and they are third-order ephemeral waterways. The creeks are overland flow paths that only flow for a short period during the Wet season. During heavy Wet seasons, large areas of the internal drainage systems and adjacent areas are flooded.

Flood modelling indicates that the Inacumba-1/1H lease pad is outside of the 1% AEP flood zone but associated access tracks would be inundated. As works are restricted to the Top End Dry season, and the Proponent has committed to lining creek crossings and drainage line crossings with rock material, the NT EPA considers the potential impacts from this Proposal would be low.

Flood modelling undertaken as part of the EMP shows that the Tanumbirini-1/2H leasepad, cuttings pit and laydown area is within the flood zone associated with a second-order ephemeral stream for a 1% annual exceedance probability (AEP) flood event. The Tanumbirini-1/2H water tank pads and campsite are outside the flood zone. The Proponent has committed to preparation and implementation of an ESCP that will mitigate erosion and associated impacts from runoff from the site in the event of a flood. As works are occurring during the Dry season, with the Proponent committing to progressive rehabilitation, the NT EPA considers the potential impacts from this Proposal would be low.

All wastewater and sewage generated during construction will be disposed of in accordance with the Public and Environmental Health Regulation 2018, including using an onsite sewage treatment plant and an associated irrigation system to dispose of treated effluent. The Proponent intends to irrigate two areas within the adjacent gravel pit with the treated effluent with the intention to assist with rehabilitation of the pit and mitigate erosion. One of the two nominated locations for the effluent disposal at the Tanumbirini-1/2H location falls within a 1% AEP flood event zone. The disposal of sewage effluent would only occur during the Dry season and the impact resulting from this Proposal is considered to be low.

The EMP includes a Spill Management Plan that outlines estimated volumes of hazardous materials, required storage and containment practices and a spill response strategy. Pad surfaces will be compacted to minimise impacts of infiltration from spills.

Provided that the mitigation and management measures outlined in the EMP are implemented, the NT EPA considers that the Proposal is unlikely to have a significant impact on surface water and groundwater quality, and the NT EPA's objective for inland water environmental quality is likely to be met.

4. Hydrological processes

Objective: Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.

Groundwater

Groundwater from the Cambrian Limestone Aquifer (CLA) will be extracted from existing bores and the estimated groundwater volume required for the proposed activities is 45.5 ML. The nearest sensitive receptor is the Tanumbirini Homestead situated 22 km from the Inacumba location and 8.5 km from the Tanumbirini location.

Santos has submitted an application for a water extraction licence under the *Water Act*.

Groundwater extraction volumes will be recorded and submitted to the DENR Water Resources Division, in accordance with the requirements of a groundwater extraction licence.

Surface water

The lease pads associated with the Proposal will be built-up above natural surface level. Due to the minor nature of the drainage lines, and overland surface water flow being diverted around the pads, it is expected that the proposal activities at both locations will not have a significant impact on local hydrological conditions.

The access tracks to the two lease pads cross several drainage lines and ephemeral creeks. As part of the proposed civil works associated with the access tracks, the Proponent will line the crossings in the drainage and creek lines using rock to a level equal to the natural surface level. This will allow water flow to continue through these crossings and avoid a significant impact on local hydrological conditions.

The NT EPA considers that the potential impacts and risks on hydrological processes can be mitigated through implementation of the management measures presented in the EMP and that its objective for hydrological processes is likely to be met.

5. Social, economic and cultural surroundings

Objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.

Social considerations

Santos has undertaken stakeholder engagement with NT Government, landholders and land managers, traditional owners, the Northern Land Council (NLC) and the Aboriginal Areas Protection Authority (AAPA). The EMP sets out stakeholder engagement summarising the method of contact and matters raised during consultation with land owners in the proposal area.

The nearest sensitive receptor to the project area Tanumbirini Homestead, is approximately 8.5 km south-west from Tanumbirini-1/2H well. Social aspects such as traffic movements, noise and dust from the Proposal have been addressed and are considered minor issues. To reduce traffic and travel times for site personnel, the Proponent intends to provide on-site accommodation for the civil contractors. Impacts from dust generation will be managed through use of a water cart and implementation of vehicle speed restrictions.

Santos has committed to engaging with the road authority; the Department of Infrastructure, Planning and Logistics to determine traffic management requirements for the Carpentaria Highway.

Cultural and Heritage Values

The Aboriginal Areas Protection Authority (AAPA) has confirmed that Santos holds two Authority Certificates that cover the Proposal.

An Aboriginal and non-indigenous archaeological assessment was completed and provided in the EMP. The survey of the site identified no Aboriginal or non-Aboriginal sites or relics in the project area. Santos has committed to report any new sites of cultural importance discovered as part of the Proposal to the Heritage Branch as required under the *Heritage Act 2015*.

The NT EPA considers that the potential impacts and risks on social, economic and cultural surroundings can be mitigated through implementation of the management measures presented in the EMP and that its objective for social, economic and cultural surroundings is likely to be met.

CONCLUSION

The NT EPA considers that the potential environmental impacts and risks associated with the Proposal are not significant and that the Proposal does not require assessment under the EA Act.

Comments from NTG advisory bodies have been provided to the Proponent. The NT EPA has provided recommendations to the Minister for Environment and Natural Resources to ensure that potential impacts on the environment are minimised and responsibilities under the legislation can be met.

The Minister for Environment has asked the NT EPA to provide advice under the Petroleum (Environment) Regulations as to whether the EMP meets the requirements of the Regulations. As part of the assessment to provide that advice, the NT EPA may make recommendations to the Minister for Environment on conditions to further ensure environmental outcomes are achieved. The NT EPA's decision not to assess the EMP under the EA Act is not reliant on the Minister for Environment accepting the NT EPA's recommendations.

DECISION

The Proposal by Santos QNT Pty Ltd has been examined by the NT EPA and investigations and inquiries conducted. The NT EPA has decided that the potential environmental impacts and risks of the proposed action are not so significant as to warrant environmental impact assessment by the NT EPA under provisions of the EA Act. The Proposal will require assessment and approvals under the Petroleum (Environment) Regulations. Groundwater extraction will be subject to a licence under the *Water Act 1992*. Environmental management of the potential environmental impacts is the responsibility of the Proponent through preparation and implementation of the procedures and management plans presented in the EMP and any conditions imposed by the Minister for Environment under the Petroleum (Environment) Regulations.

This decision is made in accordance with clause 8(2) of Environmental Assessment Administrative Procedures, and subject to clause 14A the administrative procedures under the *Environmental Assessment Act 1982* are at an end with respect to the proposed action.

DR PAUL VOGEL AM MAICD

CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

10 MAY 2019

Attachment A: Northern Territory Government Advisory bodies consulted on the Environment Management Plan

Department	Division
Department of Environment and Natural Resources	Flora and Fauna Water Resources Weeds Environment Bushfires NT Rangelands
Department of Infrastructure, Planning and Logistics	Infrastructure Transport
Department of Primary Industry and Resources	Petroleum
Department of Tourism and Culture	Heritage Tourism NT
Department of Health	Environmental Health
Department of Trade, Business and Innovation	Strategic Policy and Research
Power and Water Corporation	
Aboriginal Areas Protection Authority	Technical
Department of the Attorney-General and Justice	Commercial Division NT Worksafe
Department of the Chief Minister	Economic and Environmental Policy