

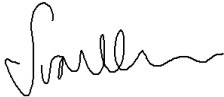

NARRABRI GAS PROJECT

ENVIRONMENTAL MANAGEMENT STRATEGY

0041-150-PLA-0003

Date	Revision	Reason for Issue	Author	STO checked	STO approved
10 November 2022	0A	Final	Onward Consulting	CH	TD


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Onward document number:
NGP-001A-0A PLN

Acronyms and abbreviations

Acronym	Description
AEMR	Annual Environmental Management Report
ACHAG	Aboriginal Cultural Heritage Advisory Group
ACHMP	Aboriginal Cultural Heritage Management Plan
BAG	Biodiversity Advisory Group
BMP	Biodiversity Management Plan
CCC	Community Consultative Committee
CEMP	Construction Environmental Management Plan
CoC	Conditions of consent for the NGP SSD 6456
CSG	coal seam gas
DPE	The NSW Department of Planning and Environment
DPIE	The former NSW Department of Planning, Industry and Environment
DSP	Dust Suppression Protocol
EES	Environment, Energy and Science
EIS	environmental impact statement
EMP	environmental management plan
EMS	Environmental Management Strategy
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EPL	environment protection licence under the POEO Act
ESCP	erosion and sediment control plan
FDP	Field Development Plan
GHGEAG	Greenhouse Gas Emissions Advisory Group
ha	hectare
HSE	health, safety and environment
IEA	Independent Environmental Audit
IMP	Irrigation Management Plan
kg	kilogram
L	litre
LALC	Local Aboriginal Land Council
m	metre
MDB	Murray Darling Basin
ML	megalitre
mm	millimetre
NMP	Noise Management Plan

Acronym	Description
NPI	National Pollutant Inventory
PAL	petroleum assessment lease under the PO Act
PEL	petroleum exploration licence under the PO Act
PIRMP	Pollution Incident Response Management Plan
PO Act	<i>Petroleum (Onshore) Act 1991</i> (NSW)
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
POEO Regulation	Protection of the Environment Operations (General) Regulation 2009
POP	Petroleum Operations Plan
PPL	petroleum production lease under the PO Act
PPLA	petroleum production lease application under the PO Act
PSMP	Public Safety Management Plan
PWMP	Produced Water Management Plan
RMP	Rehabilitation Management Plan
SMS	Santos Management System
SWB	Site Water Balance
TfNSW	Transport for NSW
WAL	water access licence
WM Act	<i>Water Management Act 2000</i> (NSW)
WMP	Water Management Plan
WSP	water sharing plan
WTAG	Water Technical Advisory Group

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1. Introduction

1.1 Narrabri Gas Project

1.1.1 Background

Resource exploration has been occurring in the north-western area of NSW since the 1960s; initially for oil, but more recently for coal and gas. Santos NSW Pty Ltd began exploring for natural gas from coal seams in north-western NSW in 2008 and is currently conducting coal seam gas (**CSG**) exploration and appraisal activities within Petroleum Exploration Licence (**PEL**) 238, Petroleum Assessment Lease (**PAL**) 2 and Petroleum Production Lease (**PPL**) 3, located in the Gunnedah Basin about 20 kilometres (**km**) south-west of the town of Narrabri. Activities in PAL 2 have focussed on the Bibblewindi and Bohena CSG pilots, whilst recent activities in PEL 238 have focussed on the Dewhurst and Tintfield CSG pilots.

The Narrabri Coal Seam Gas Utilisation Project (Wilga Park Power Station and associated infrastructure) operates under an existing Part 3A approval under the *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**). It was originally approved in 2008, with modifications approved between 2011 and 2019. It encompasses a gas gathering system, a compressor and associated flare, a gas flow line from Bibblewindi to Wilga Park within a 10 metre (**m**) corridor with a riser at Leewood and an expansion of the existing Wilga Park Power Station from 12 to 40 megawatts.

1.1.2 Current project

On 30 September 2020, Santos NSW (Eastern) Pty Ltd (**Santos**) obtained consent for State significant development (**SSD**) 6456 to develop the Narrabri Gas Project (**NGP**) (**the Project**). Approval EPBC 2014/7376 under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) was granted on 24 November 2020.

The Project includes the progressive installation of up to 850 new gas wells on up to 425 new well pads over approximately 20 years and the construction and operation of gas processing and water treatment facilities. The Project area covers about 950 square kilometres (95,000 hectares) in size and the Project footprint will only directly impact about 1% of that area. The general layout of the Project is shown in Appendix 2 of the CoC, reproduced in Figure 1.1.

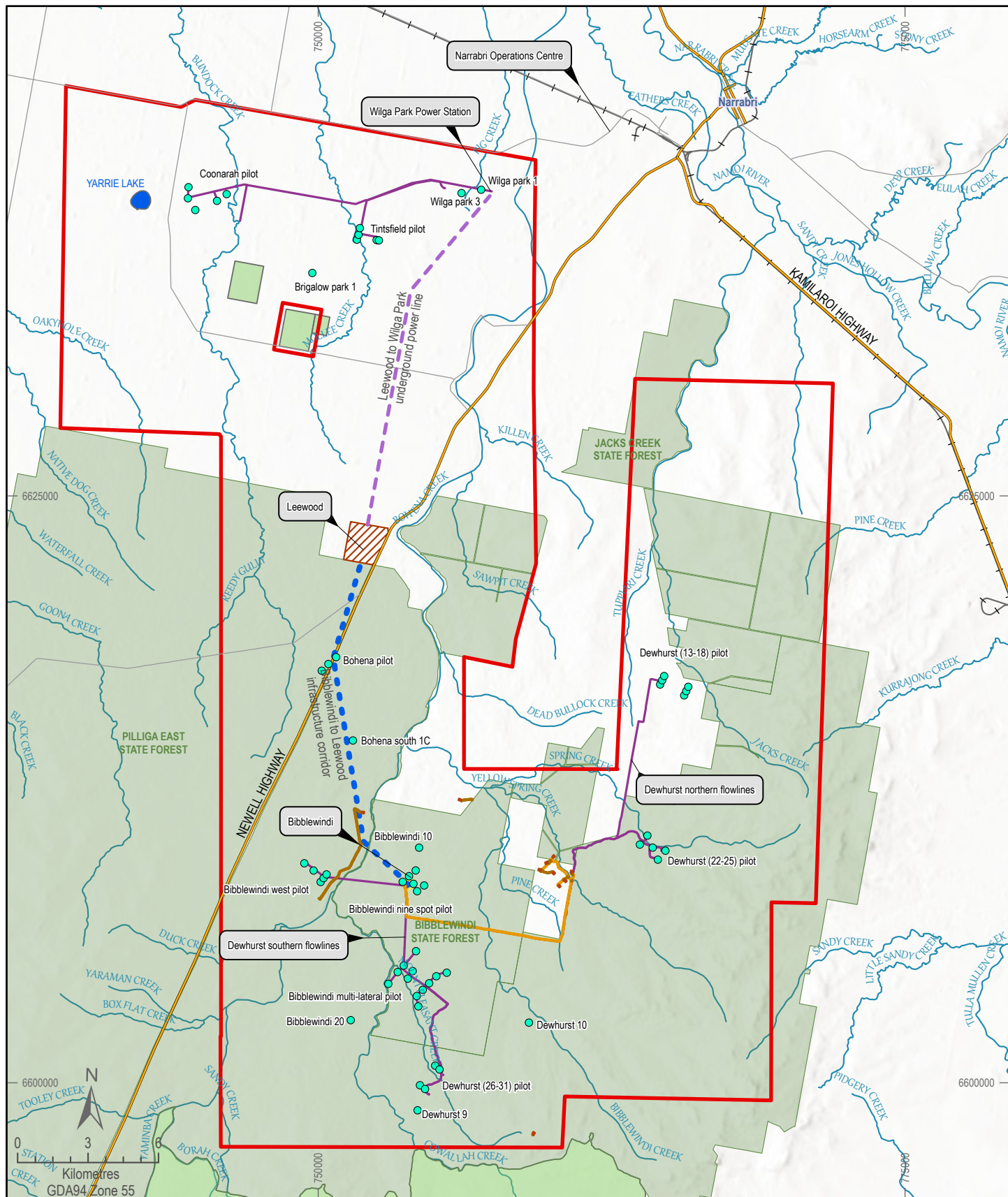
Santos acknowledges that, in accordance with consent condition A11, consent is not granted or refused in respect of:

- a) the Westport workers accommodations facility;
- b) the Leewood power generation facility; and
- c) flaring infrastructure at pilot wells or production wells.

In accordance with consent condition A5, Santos will only undertake the Project in the following stages:

- Phase 1 - exploration and appraisal;
- Phase 2 - construction activities for production wells and related infrastructure;
- Phase 3 - gas production operations; and
- Phase 4 - gas well and infrastructure decommissioning, rehabilitation and closure.

As stated in consent condition A6, consent condition A5 does not prevent Santos from carrying out the Project phases concurrently, subject to the other consent conditions.



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| NGP boundary | Leewood to Wilga Park infrastructure corridor | State Forest |
| Leewood | Bibblewindi to Leewood infrastructure corridor | Parks and reserves |
| Bibblewindi | ● Existing wells | Lakes and dams |
| ● Existing flowlines | Highway | |
| Phase 1 access roads | Major roads | |
| Phase 1 flowlines | Watercourse | |
| Phase 1 well pads | Railway | |

NARRABRI GAS PROJECT

Figure 1.1
Key Assets and Infrastructure
Phase 1

Phase 1 of the Project is defined in the consent as the phase of the development comprising ongoing exploration and appraisal activities in the Project area, including:

- seismic surveys;
- core and chip holes;
- construction and operation of pilot wells (up to 25 wells on up to 25 well pads across the Project area); and
- pilot well ancillary infrastructure, including access tracks, gas and water gathering lines, water balance tanks, safety flaring infrastructure, utilities and services, and environmental monitoring equipment including groundwater monitoring bores.

Santos plans to continue exploration and appraisal of the resource in the near term until a final investment decision can be made. The exploration and appraisal activities will include continued operation of Santos' existing wells, infrastructure and facilities in PEL 238 and PAL 2, and construction and operation of new core holes, pilot wells and supporting infrastructure permitted under Phase 1.

Santos' existing exploration and appraisal activities in PEL 238 and PAL 2 include:

- Tintsville Pilot;
- Bibblewindi East Pilot;
- Bibblewindi West Pilot;
- Dewhurst North Pilot;
- Dewhurst South Pilot;
- Dewhurst northern and southern flow lines;
- Leewood Water Management Facility including ponds, water treatment plant and irrigation area;
- Bibblewindi Facility, including gathering system, water balance tank, compressor and flare; and
- Bibblewindi to Leewood buried gas pipeline.

These exploration and appraisal activities will continue as part of the NGP. The initial, new-appraisal Phase 1 scope is a relatively minor extension to these existing exploration and appraisal activities.

The Phase 1 scope is planned to include the construction and operation of:

- 4 coreholes;
- 6 pilot wells;
- 2 deep reservoir monitoring bores (converted coreholes);
- new shallow water monitoring bores;
- associated linear infrastructure;
- seismic surveys (length and location to be determined); and
- continued operation of Santos' existing exploration and appraisal activities.

In accordance with consent condition A18, Santos will undertake approved petroleum mining operations 24 hours a day, 7 days a week, with construction and operational activities limited by the noise criteria in Part B of the consent.

As required by condition A9, Santos will not commence Phase 2 until a planning approval is granted for a transmission pipeline to deliver gas from the Project to the domestic gas network; and will not commence Phase 3 until a transmission pipeline to deliver gas from the Project to the domestic gas network is commissioned, to the satisfaction of the Planning Secretary. However, in accordance with consent condition A10, it should be noted that condition A9 does not prevent gas from the Project being sent to the Wilga Park Power Station or any local industry.

The full definitions of the approved activities for Phases 2, 3 and 4 of the Project are provided in the consent. Petroleum mining operations may be carried out in the Project area until 31 December 2045, in accordance with consent condition A12. Santos will not undertake any hydraulic fracturing of coal seams in the Project area at any time.

In accordance with condition A13, during Phase 2, Santos will develop a maximum of 850 gas production wells in the Project area, on a maximum of 425 well pads, including pilot wells developed as part of Phase 1 (but excluding any wells developed prior to this consent). In accordance with consent condition A14, Santos will produce a maximum of 200 terajoules of gas per day from the Project, including any gas produced from wells constructed prior to the date of the consent and wells developed as part of Phase 1. In compliance with consent condition A15, Santos will extract up to a maximum of 37.5 gigalitres of produced water from the Project area over the life of the Project.

Details regarding the staging of the works and the exact scope for each phase, or part thereof, are as per the approved Field Development Plan. As required by the CoC A7, Santos will notify the Department at least two weeks prior to commencement or completion of each Phase of the Project, via the Major Project Portal.

Santos will not undertake any hydraulic fracturing of coal seams in the Project area at any time, in accordance with CoC A17.

1.2 Purpose and scope

Santos has developed this NGP Environmental Management Strategy (**EMS** or **Strategy**) in accordance with condition D1 of SSD 6456 condition of consent (**CoC**) to provide the strategic framework for environmental management of the Project. It also outlines the environmental management obligations of approval conditions of PEL 238, PAL 2 and PPL 3, compliance conditions of Environment Protection Licence (**EPL**) 20350, SSD 6456 CoC and EIS commitments. This Strategy describes how reasonable and feasible measures will be implemented to prevent, mitigate or minimise any material harm to the environment. This Strategy applies to the ongoing exploration and appraisal activities of Phase 1 of the Project only and as such, requirements and obligations applicable to subsequent phases of the Project are not relevant to this document.

The Strategy provides a management framework to effectively identify and control potential environmental impacts in order to achieve compliance with environmental legislation and regulatory requirements applicable to the Project. It also provides the 'roadmap' to the specific documents that detail how Santos manages the environmental management component of the Project and details the processes for environmental monitoring, community and stakeholder engagement, complaints management, dispute resolution, management of non-compliances and incidents, and emergency response to ensure compliance with the CoC.

The Strategy applies to all employees and contractors associated with the Project. Service providers and suppliers may operate under their own environmental management strategy.

In accordance with consent condition A2, Santos will carry out the Project

- a) in accordance with the CoC of SSD 6456;
- b) in accordance with all written directions of the Planning Secretary, and
- c) generally, in accordance with the EIS¹.

In managing the Project and in accordance with CoC A3, Santos will comply with any written directions of the Planning Secretary on:

- a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and
- b) the implementation of any actions or measures contained in any such document.

Santos acknowledges that the consent conditions and directions of the Planning Secretary prevail to the extent of any inconsistency with the EIS. In the event of an inconsistency between the EIS, the most recent document prevails.

Santos will implement the EMS once approved by the Planning Secretary, in accordance with CoC D2.

1.3 Objectives

The main objectives of this Strategy are to:

- disseminate and fully comply with the Santos Environment Health & Safety Policy;
- provide the strategic framework for environmental management for the Project;
- provide a clear description of responsibilities and requirements pertaining to environmental management on the Project, to enhance the understanding of all employees and contractors;
- identify regulatory and legislative requirements which are applicable to the Project and to provide ways to continually monitor compliance with these;
- encourage continual improvement of performance regarding the environment and community;
- identify how to communicate environmental performance to the local community, stakeholders, government agencies and internal employees and contractors; and
- identify how to resolve any disputes, non-compliances and emergencies which may occur at the various Project locations.

1.4 Consultation

As required by CoC D1, this EMS has been prepared in consultation with the NSW Environment Protection Authority (EPA). The EPA's feedback was positive, with no significant issues identified. The consultation correspondence is presented in Appendix A.

In accordance with PEL 238 condition 8, Santos will engage with the community in relation to the planning for and conduct of prospecting operations authorised under this exploration licence. The consultation will be undertaken in accordance with the current *Guideline for community consultation requirements for exploration* under the PO Act. An annual report on community consultation will be submitted to the NSW Department of Planning and Environment (DPE) within 28 days of the anniversary

¹ Refer to the Glossary for the definition of the EIS, and a description of the associated documents.

of PEL 238, together with evidence that community consultation has been undertaken in accordance with the Guideline.

1.5 Distribution

A copy of the latest approved Strategy is available to all Santos personnel via the Santos intranet. In accordance with consent condition D13, the latest copy can also be found on the Project website.

In accordance with specific licence, approval or code of practice conditions, a latest copy of this Strategy will be available at the Santos Operations Centre located at 300 Yarrie Lake Road in Narrabri. This is where operational and field staff commence and finish each workday.

A copy of EPL 20350 legible will also be kept at the Operations Centre and will be available for inspection by any Santos employee or contractor, and be available to any EPA authorised offices who asks to see it.

Note that any printed copies of this Strategy are uncontrolled.

2. Roles and responsibilities

All Santos employees and contractors involved in the Project are responsible for the environmental performance of their activities and for complying with all legal requirements and obligations. All project personnel will be required to comply with approval requirements of the activities they undertake, and any potential environmental impacts from all activities will be managed in accordance with the Project's relevant management plans and protocols.

2.1 Key personnel

In accordance with CoC D1 (d) Table 2.1 sets out the role and responsibilities of all key personnel involved in the environmental management of the Project. Key authorities and accountabilities relevant to each of the positions are assigned in accordance with Santos Management System *SMS-MS_14 People Management Standard* and are included in the position descriptions for each role. These are maintained on secure file in the HR management system.

Table 2.1 - Roles and responsibilities

Position	Responsibility
Area Manager, Arcadia, Scotia and Narrabri Operations	<ul style="list-style-type: none"> Responsible for the operation of all gas transmission and electricity generation infrastructure. Ensure the environmental performance of the Project is consistent with the conditions of approval and the Santos SMS. Responsible for legislative compliance, observation of contractual obligations and the maintenance of resources to achieve the main objectives of the NGP EMS.
HSER Manager - Onshore	<ul style="list-style-type: none"> Reports to the Executive Vice President Onshore Oil and Gas. Accountable to ensure awareness of the compliance requirements of the NGP EMS. Ensures adequate resources are available to advise on the implementation of the EMS and to undertake assurance of compliance in its implementation.
D&C Project Lead or D&C Manager	<ul style="list-style-type: none"> Reports to the Area Manager, Responsible for the drilling and development of the well to operational handover. Ensures the environmental performance of the project is consistent with the conditions of approval and Santos SMS during drilling & completions activities. Responsible for legislative compliance, observation of contractual obligations and monitoring contractor risk controls and assurance activities to achieve the main objectives of the NGP EMS.
Team Leader Narrabri Operations	<ul style="list-style-type: none"> Reports to the Area Manager, Arcadia, Scotia and Narrabri Operations. Maintains accountability, either directly or by delegation, for the overall management of the Project site and the operation of Project components. Retains responsibility for the conveyance of the NGP Environmental Management Strategy and its objectives to all employees and contractors entering site.
Team Leader Onshore Environment	<ul style="list-style-type: none"> Reports to the HSER Manager - Onshore. Maintains responsibility for the implementation, maintenance and monitoring of compliance with the NGP Environmental Management Strategy.

Position	Responsibility
	<ul style="list-style-type: none"> • Advises operations, development and drilling & completions management on environmental issues. • Reviews contractor HSE and EMP documentation (where applicable). • Oversees the implementation of all management plans, protocols and strategies required under the CoC. • Consults with regulatory authorities as required. • Ensures required monitoring is undertaken, in cooperation with the Environmental Advisor • Ensures required maintenance is undertaken, in cooperation with the Area Manager. • Provides measures for continual improvement to the plans and procedures. • Ensures all personnel undertaking works associated with the EMS are trained and competent. • Coordinates training for relevant employees and contractors of the requirements of the EMS • Prepares the annual reports, reviews and returns. • Coordinates the development of the site rehabilitation objectives and closure criteria in consultation with key stakeholders; and coordinates the completion of rehabilitation activities. • Coordinates the development of annual rehabilitation planning to guide rehabilitation activities. • Coordinates the rehabilitation monitoring program and an annual review of monitoring results to provide a continual improvement process for rehabilitation. • Liaises with regulatory authorities regarding environment management and community relations. • Reviews and updates the environment management documents referred to in this EMS; • Responds to community complaints.
Agricultural Supervisor	<ul style="list-style-type: none"> • Reviews soil moisture conditions and arranges irrigation to be undertaken on basis of those reviews. • Reviews weather conditions and arranges irrigation to be undertaken on basis of those reviews.
Environmental Advisor	<ul style="list-style-type: none"> • Reports to the Team Leader – Onshore Environment. • Maintains accountability for the monitoring of compliance with the EMS. • Advises operations field staff on environmental issues. • Responsible for assessing, developing and validating the implementation of erosion and sediment plans. • Raises environment awareness among Project personnel and contractors via environmental induction presentations, environmental training packages and toolbox talks. • Provides environmental training to relevant personnel as required. • Coordinates investigations of environmental incidents or complaints. • Manages environmental complaints in accordance with the complaints management procedure.

Position	Responsibility
	<ul style="list-style-type: none"> Coordinates the management of records and reporting of environmental monitoring and management data. Responsible for site inspections, monitoring and surveys, including but not limited to the following environmental aspects: <ul style="list-style-type: none"> water; noise; biodiversity; rehabilitation; heritage; and waste.
Construction Field Supervisor	<ul style="list-style-type: none"> Reports to the Construction Manager, Development. Responsible for ensuring implementation of the EMS, including all approved plans and protocols, during the construction phase. Communicates the EMS compliance during the construction phase.
Drilling and Completions Operating Company Representative	<ul style="list-style-type: none"> Reports to the D&C Project Lead or the D&C Manager. Responsible for implementation of the suite of environmental management plans during drilling & completions phase. Communicates environmental compliance during the drilling & completions phase.
Operator Maintainer, Operations	<ul style="list-style-type: none"> Reports to the Team Leader Narrabri Operations. Maintains accountability for the monitoring of compliance with the environmental obligations during the life of the operation. Undertakes site inspections.
Santos personnel and contractors	<ul style="list-style-type: none"> Perform tasks in an environmental responsible manner. Notify the Environmental Advisor of any environmental incidents and exceedances Undertake all activities in accordance with the EMS. Participate in site inspections of own work areas as part of a continuous improvement process Undertake all activities in accordance with the Construction Environmental Management Plan (CEMP).

The role of Technical Manager, as required by PEL 238 condition 41, is fulfilled by the Field Development Planning Manager. As per PEL 238 condition 42, Santos will advise the Minister [for Resources and Energy] of the name and contact details of the Technical Manager(s) prior to the commencement of any prospecting operations and within the ten working days of any changes to the nominated Technical Manager of their contact details.

2.2 Project advisory groups

In accordance with CoC B19 Santos has established a Greenhouse Gas Emissions Advisory Group (**GHGEAG**) for the Project which was approved Planning Secretary on 17 February 2021. The group was established in consultation with the EPA and the Environment, Energy and Science Group (**EES**) within the DPE and comprises representatives from the EES and two independent experts from the

scientific community. The EPA advised that, as the lead regulator for onshore coal seam gas activities in NSW, it would not join the advisory group due to a potential conflict of interest.

The GHGEAG meets at least twice a year and will provide advice on Project-related greenhouse gas management issues, including preparation and implementation of the Air Quality and Greenhouse Gas Management Plan required for Phase 2. The GHGEAG will also review and monitor cumulative total emissions and advise on the appropriate means to measure fugitive emissions.

The Water Technical Advisory Group (**WTAG**) has been established for the Project in accordance with condition B38, in consultation with the Water Group within DPE (generally referred to as **DPE Water**) and the EPA. The WTAG membership was approved by the Planning Secretary on 3 May 2021 and includes:

- a representative from Narrabri Shire Council;
- two representatives of the scientific community; and
- three representatives from the Narrabri Local Aboriginal Land Council (**LALC**);

The EPA advised that, as the lead regulator for onshore coal seam gas activities in NSW, it would not join the advisory group due to a potential conflict of interest. DPE Water did not nominate a representative to attend the advisory group meetings.

The WTAG meets at least twice annually to advise on Project-related water management issues, including preparation and implementation of the Groundwater model, the Water Management Plan and sub-plans, and the Field Development Plan (**FDP**).

The Biodiversity Advisory Group (**BAG**) has been established for the Project in accordance with condition B50. The BAG's membership was approved by the Planning Secretary on 31 March 2021 and includes:

- a representative from Biodiversity, Conservation and Science (**BCS**);
- three representatives of the scientific community; and
- three relevant community representatives.

The BAG meets at least twice annually to advise on Project-related biodiversity matters and was integral to development of the Biodiversity Management Plan (**BMP**).

As required by CoC B58, an Aboriginal Cultural Heritage Advisory Group (**ACHAG**) has been established for the Project, approved by the Planning Secretary on 9 February 2021. The ACHAG was established in consultation with Heritage NSW, Registered Aboriginal Parties and other local knowledge holder groups and includes:

- a representative from Heritage NSW;
- a representative from the scientific community;
- a representative from the Narrabri LALC;
- a representative from the Wee Waa LALC; and
- a representative from the Gomeroi Native Title Applicant.

The ACHAG meets at least twice a year and provides advice on Project-related cultural heritage management issues, including preparation and implementation of the Aboriginal Cultural Heritage Management Plan (**ACHMP**); and the FDP, including micro-siting investigations.

Santos acknowledges that the various advisory groups are advisory committees only and have no compliance or enforcement functions.

The function and responsibilities of the Community Consultative Committee (**CCC**) is addressed in section 5.1.

3. Regulatory requirements and approvals

Santos conducts all its activities associated with the NGP in accordance with applicable Commonwealth and NSW State environmental, planning and natural resource legislation and all requirements of relevant statutory authorities. Legislative and regulatory obligations are generally recognised through the imposition of conditions on the development consent, permits, licences, leases or approvals (collectively referred to as 'approvals'). Santos maintains a register of relevant environmental legislative and regulatory requirements which is regularly reviewed and maintained.

3.1 Relevant legislation

This section provides a summary of the respective Commonwealth and NSW State legislation directly relevant to the development of the NGP. Where applicable, the various management plans, associated sub-plans and the management protocols provide further details of specific legislative requirements and approvals.

3.1.1 Commonwealth legislation

Environment Protection and Biodiversity Conservation Act

The *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) requires the assessment of an 'action' as a whole. As such, where an action referred to the department includes both extraction activities which have a significant impact on a water resource (with relation to coal seam gas or mining projects) and other activities (such as associated infrastructure) then the significance of the whole of the referred action on water resources is considered.

The Project was declared to be a controlled action under the EPBC Act on 5 December 2014 and was assessed under the bilateral agreement between the Commonwealth and NSW Governments as it triggered the following controlling provisions:

- listed threatened species and ecological communities;
- a water resource (specifically for coal seam gas developments); and
- Commonwealth land.

Water Act 2007

The Murray Darling Basin Authority is an independent statutory body that operates under the Commonwealth *Water Act 2007* to manage the water resources of the Murray Darling Basin (**MDB**), in which the Project is located, in an integrated and sustainable manner. The Murray Darling Basin Plan came into effect in 2012 and provides a coordinated approach to water use within the MDB. The plan aims to achieve a balance between environmental, economic and social considerations and limits water use to environmentally sustainable levels for both surface water and groundwater resources.

3.1.2 NSW State legislation

Environmental Planning and Assessment Act 1979

The EP&A Act provides the statutory basis and framework for planning and environmental assessment in NSW. The EP&A Act includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision-making process.

The Project is permissible with development consent under the *State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007*, and is identified as 'State significant development' under section 4.38 of the EP&A Act and clause 8 and Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011*. The Project is subject to the assessment and approval provisions of Division 4.1 of Part 4 of the EP&A Act. The Minister for Planning, as the consent authority for State significant development, referred the Project to the Independent Planning Commission (formerly the Planning Assessment Commission) on 12 June 2020.

Water Act 1912

The *Water Act 1912* (NSW) (**Water Act**) has historically been the primary legislation managing water resources in NSW. The Water Act governs access, trading and allocation of licences associated with both surface water and groundwater sources and is currently being progressively phased out and replaced by water sharing plans (**WSPs**) under the *Water Management Act 2000* (**WM Act**). Existing licences under the Water Act are converted to water access licences (**WALs**) and to water supply works and use approvals under the WM Act. The elements to which the Water Act applies include extraction of water from a river, extraction of water from groundwater sources, aquifer interference (less than 3 megalitres (**ML**) per year) and diversion works of surface water runoff for capture (of a capacity less than basic landholder rights).

The surface water and groundwater systems associated with the Project are currently regulated by WSPs under the WM Act.

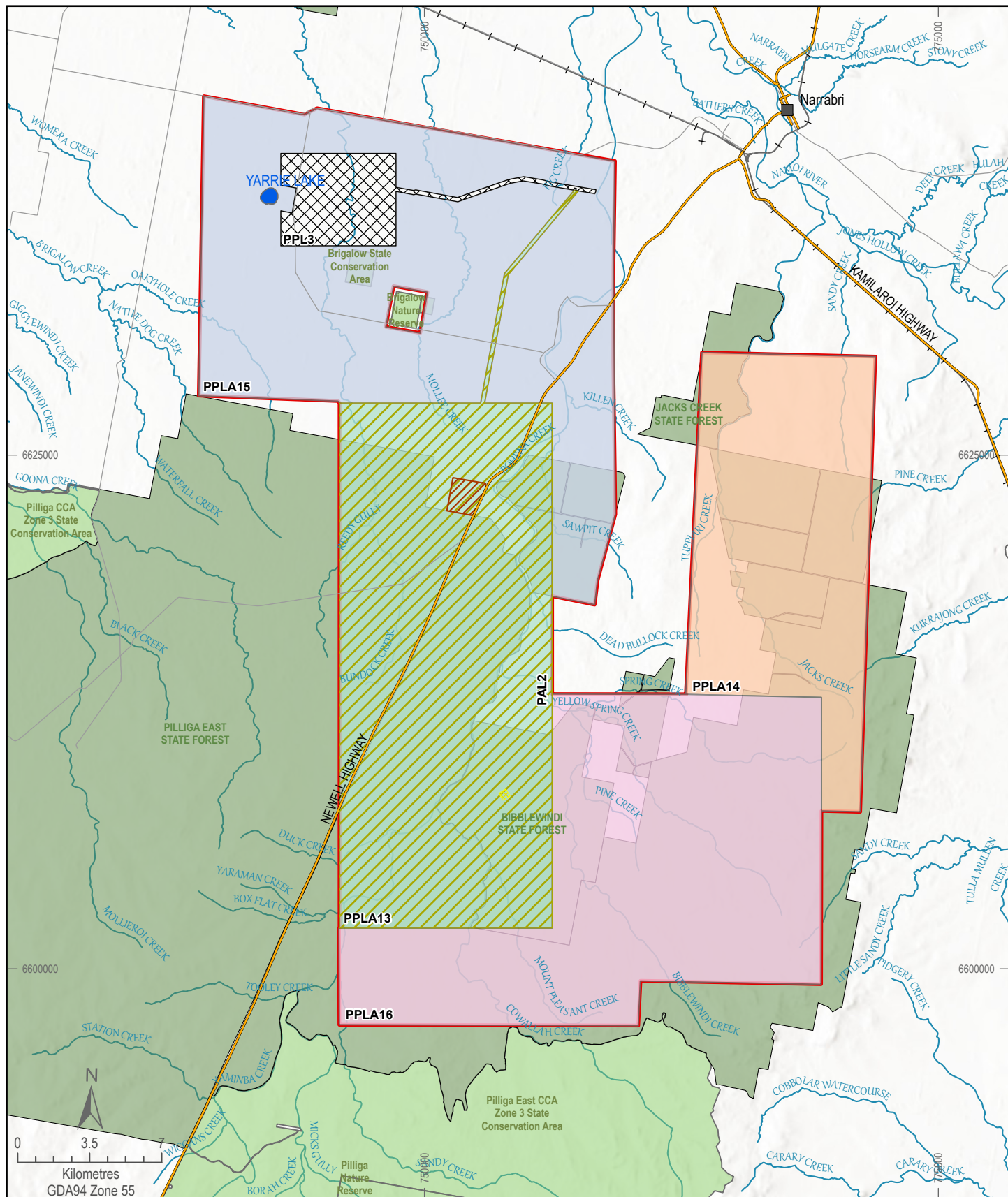
Water Management Act 2000

The WM Act is progressively being implemented throughout NSW to manage water resources, superseding the *Water Act 1912*. The aim of the WM Act is to ensure that water resources are conserved and properly managed for sustainable use benefiting both present and future generations. It is also intended to provide formal means for the protection and enhancement of the environmental qualities of watercourses and their in-stream uses as well as to provide for protection of catchment conditions. Fresh water sources throughout NSW are managed by WSPs under the WM Act. Key rules within WSPs specify when licence holders can access water and how water can be traded.

Petroleum (Onshore Act) 1991

The *Petroleum (Onshore) Act 1991* (NSW) (**PO Act**) regulates onshore petroleum exploration and production in NSW through a system of petroleum titles (licences and leases). A proponent would generally apply for a PEL over an area and subsequently apply for a PAL and / or PPL to further develop the resource.

Under Section 23 of the PO Act, a petroleum title is subject to conditions prescribed under regulations and additional conditions prescribed by the Minister. The *Code of Practice for Coal Seam Gas: Well Integrity* is enforced in this manner. Santos is the holder of PEL 238 over the Project area, which will require a PPL following Project approval. Santos lodged four petroleum production lease applications (**PPLAs**) under the PO Act in May 2014 for the Project area, being PPLAs 13, 14, 15 and 16. These areas are shown in Figure 3.1.



Santos

ONWARD
CONSULTING

NARRABRI GAS PROJECT

Figure 3.1
Petroleum Titles

Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (NSW) (**POEO Act**) regulates pollution through the control of environment protection licences (EPLs). Activities requiring an EPL are listed in Schedule 1 of the Act and include petroleum exploration, appraisal and production.

Santos is the holder of EPL 20350 for its current petroleum activities in the Narrabri area. The EPL will be varied to reflect all Project-related gas development and production activities,. The variation application will include a request for an authorised release point at Bohena Creek during appropriate flow conditions with the implementation of toxicity-based assessment criteria to manage and monitor the release. It is to be noted that it is not proposed to release to Bohena Creek during Phase 1 of the Project.

The EPL will be amended to include a licence condition that prescribes the allowable chemistry of Project-related treated water release to the receiving environment. This approach will be consistent with the 2013 *Environment Protection Authority Licensing Fact Sheet: Using Environment Protection Licensing to Control Water Pollution*.

Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (NSW) and amendments to the *Local Land Services Act 2013* commenced on 25 August 2017 for the identification and protection of threatened species, populations and ecological communities in NSW and to enable biodiversity conservation, sustainable development and productive farming. The legislation is administered by EES, Local Land Services and the NSW Biodiversity Conservation Trust.

Under this Act, Santos cannot harm, damage or destroy any threatened species, or animal that is part of a threatened ecological community, or a protected animal, without prior approval from the Biodiversity, Conservation & Science Directorate within EES.

National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NSW) is administered by the NSW National Parks and Wildlife Service for the conservation of nature, including habitat, ecosystems and ecosystem processes; biological diversity; landforms of significance including geological features and processes; landscapes and natural features of significance including wilderness and wild rivers; and the conservation of objects, places or features of cultural value within the landscape, including places, objects and features of significance to Aboriginal people; and places of social value to the people of NSW. Under this Act it is illegal to damage, deface or destroy an Aboriginal relic without the written permission of the Director.

Dams Safety Act 2015

The *Dams Safety Act 2015* (NSW) (**Dams Safety Act**), administered by Dams Safety NSW, commenced on 1 November 2019 and regulates the safety of certain dams. The Dams Safety Regulation 2019 sets out operational details and safety standards that declared dam owners must comply with to satisfy the provisions of the Dams Safety Act. The existing Leewood Ponds are declared dams under the Dams Safety Act.

The Project is not located within a 'notification area' declared by Dams Safety NSW.

Heritage Act 1977

The *Heritage Act 1977* (NSW) (**Heritage Act**) is used to regulate development impacts on the State's historical heritage assets. The Heritage Act defines a heritage item as:

“a place, building, work, relic, moveable object or precinct”

To assist with the management of the State's heritage assets, the Heritage Act distinguishes between items of local and State heritage significance. Items that are assessed as having State heritage significance can be listed on the NSW State Heritage Register.

Archaeological features and deposits are afforded statutory protection by the 'relics provisions' of the Heritage Act. A relic is defined as:

“any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or local heritage significance”

Land disturbance or excavation that will, or is likely to, result in a relic being discovered, exposed, moved, damaged or destroyed is prohibited under the provisions of the Heritage Act, unless carried out in accordance with an Excavation Permit pursuant to section 140, or an Archaeological Exception under section 139 of the Heritage Act.

Narrabri Local Environmental Plan 2012

Each local government area (**LGA**) is required to create and maintain a local environmental plan (**LEP**) that identifies and conserves historical heritage item. These items are protected under the EP&A Act. Heritage items within the Narrabri LGA are listed in Schedule 5 of the Narrabri LEP 2012. These items are subject to the planning controls and provisions set out in Clause 5.10 (Heritage Conservation) of the Narrabri LEP 2012. An examination of Schedule 5 indicated that no listed items are located in or within a two-kilometre buffer of the Project area.

3.2 Project approval

The Project was subject to the State significant development assessment and approval provisions of Division 4.7 of Part 4 of the EP&A Act and was granted approval as a State significant development under the EP&A Act and the EPBC Act. The Project will be carried out in accordance with the:

- relevant existing development consents and activity approvals;
- the conditions of relevant tenements including PEL 238, PAL 2, PPL 3, the provisions of the PO Act and relevant codes of practice;
- EPL 20350 issued by the EPA under the provisions of the POEO Act;
- conditions of consent for the NGP SSD 6456; and the conditions of approval of EPBC 2014/7376.

Section 4.41 of the EP&A Act outlines the authorisations that are not required for an SSD that is authorised by a development consent granted under Division 4.7 of Part 4. These include:

- a water use approval under Section 89; a water management work approval under Section 90; or an activity approval (other than an aquifer interference approval) under Section 91 of the WM Act;
- a dredging and reclamation work permit under Section 201; or a permit to obstruct fish passage temporarily or permanently under Section 219 of the *Fisheries Management Act*

1994 (NSW).

- an approval under Part 4, or an excavation permit under Section 139 of the Heritage Act.
- Division 8 of Part 6 of the Heritage Act, which relates to controlling and restricting harm to buildings, works, relics and places not subject to interim heritage orders or SHR listing.

Further, Section 4.42 of the EP&A Act prescribes the authorisations that cannot be refused if they are necessary for carrying out an approved SSD under Division 4.7 of Part 4 and are to be substantially consistent with the development consent. These authorities are:

- a production lease under the PO Act;
- an EPL under Chapter 3 of the POEO Act (for any of the purposes referred to in section 43 of the POEO Act);
- a consent under section 138 of the *Roads Act 1993* (NSW); and
- a licence under the *Pipelines Act 1967* (NSW).

Although the authorisations are not required under section 4.41 and 4.42 of the EP&A Act, any associated code, standard, policy or guideline will generally still be considered in the execution of the Project. These are listed in section 3.4.

In accordance with CoC A19, within 6 months of commencement of Phase 1, unless the Planning Secretary agrees otherwise, Santos will surrender the development consents for the Bibblewindi Gas Exploration Pilot Expansion (SSD-5934) and Dewhurst Gas Exploration Pilot Expansion (SSD-6038) in accordance with the EP&A Regulation. This requirement does not include the surrender of construction and occupation certificates for existing and proposed building works under the former Part 4A of the EP&A Act or Part 6 of the EP&A Act as applies from 1 September 2018. Works legally constructed under a valid consent or approval will be legally maintained or used.

In accordance with CoC A20, upon the commencement of the Project, and before the surrender of the development consents required under condition A19 (see above), the CoC prevail to the extent of any inconsistency with the conditions of SSD-5934 or SSD-6038.

3.2.1 Existing approvals

A number of approvals are in place for existing gas field infrastructure and the associated infrastructure. These include the following

- Project Approval 07_0023 Narrabri Coal Seam Gas Utilisation Project, as modified (see below)
- Narrabri Coal Seam Gas Utilisation Project (MP 07_0023) Modification 3 Supporting Information (November 2013)
- Narrabri Coal Seam Gas Utilisation Project (MP 07_0023) Modification 4 Supporting Information (August 2016 – Withdrawn)
- Narrabri Coal Seam Gas Utilisation Project (MP 07_0023) Modification 5 Supporting Information (May 2017)
- Narrabri Coal Seam Gas Utilisation Project (MP 07_0023) Modification 6 Supporting Information (June 2018)
- PEL238: 2009 Narrabri Coal Seam Gas Program, Approval to conduct Tintfield Production Pilot (approval issued by I&I NSW dated 22/12/2009)
- Review of Environmental Factors: Tintfield CSG Pilot, Narrabri Coal Seam Gas Project,

prepared by Eastern Star Gas, November 2009

- PEL238 Approval to undertake Dewhurst 26-29 Pilot Wells exploration program (approval issued by Office of Coal Seam Gas dated 16/8/2013)
- Review of Environmental Factors, Dewhurst 26-29 petroleum wells PEL238, Gunnedah Basin, prepared by RPS Australia East Pty Ltd for Santos NSW (Eastern) Pty Ltd, dated March 2013
- Development Consent SSD-6038, Dewhurst Gas Exploration Pilot Expansion (consolidated approval issued by Planning Assessment Commission)
- Dewhurst Gas Exploration Pilot Expansion – Environmental Impact Statement (EIS), prepared by RPS Australia East Pty Ltd for Santos NSW (Eastern) Pty Ltd, dated 30 October 2013
- Dewhurst Gas Exploration Pilot Expansion (SSD-6038) Modification 2 supporting information (June 2018)
- PAL2: Approval to conduct the Narrabri Coal Seam Gas Lateral Program, Lateral Production Pilot A, involving coal seam methane exploration wells Bibblewindi 18H, 12, 13, 14, 19H, 15, 16, 17 (approval issued by Department of Primary Industries 12/8/2008)
- Review of Environmental Factors, 2008 Narrabri Coal Seam Gas Lateral Program, Lateral Production Pilot A, prepared by Eastern Star Gas 25/7/2008)
- PAL2: Approval to conduct Narrabri Coal Seam Gas Project Bibblewindi Lateral Pilot – Shield Laterals Supplementary (approval issued by Department of Primary Industries 20/7/2009)
- Review of Environmental Factors – Narrabri Coal Seam Gas Project – Bibblewindi Lateral Pilot – Shield Laterals Supplementary, prepared by Eastern Star Gas, June 2009
- PAL2: Approval to conduct Narrabri Coal Seam Gas Project Bibblewindi West Lateral Production Pilot (approval issued by Department of Primary Industries, 30/4/2009)
- Review of Environmental Factors Narrabri Coal Seam Gas Project, Bibblewindi West Lateral Production Pilot, prepared by Eastern Star Gas, January 2009
- Development Consent SSD-5934, Bibblewindi Gas Exploration Pilot Expansion (approval issued by Planning Assessment Commission 18/7/2014)
- Bibblewindi Gas Exploration Pilot Expansion, Environmental Impact Statement, prepared by RPS Australia East Pty Ltd for Santos NSW (Eastern) Pty Ltd, dated September 2013.

3.3 Compliance conditions

Compliance conditions associated with the following licence(s), lease(s) and consent(s) are relevant to this EMS:

- PEL 238, granted on 1 September 1980 and most recently renewed on 12 April 2022;
- PAL 2, granted on 30 October 2007;
- PPL 3, granted on 15 December 2003;
- PPLs 13, 14, 15 and 16 once issued;
- EPL 20350, as varied;
- SSD 6456; and
- EPBC 2014/7376.

It is noted that a renewal application has been made for PAL 2 which is currently under consideration. Under the provisions of Section 20 of the PO Act, if an application for renewal of a title has not been

withdrawn or determined before the date on which the title would, but for this section, expire, the title continues in force until the date on which the application is withdrawn or determined. Therefore, PAL 2 continues in force until such time as a determination is made on the renewal applications. Note that the definition for Phase 1 as provided in the CoC states that when or if operations move to a PPL, activities allowed under the beneficial use of gas provisions are no longer permissible. Santos and its joint venture partner, who hold these tenures, lodged four PPLAs in May 2014 covering the Project area, being PPLAs 13, 14, 15 and 16. The Project area and the petroleum titles are presented above in Figure 3.1.

3.3.1 PEL 238

Several PEL 238 licence conditions are directly relevant to general environmental management associated with the exploration, including condition 2 (community consultation); condition 3 (environmental harm); and condition 6 (annual activity reporting);. These and a number of other conditions have been presented in full in Table B1 in Appendix B, together with a cross-reference where the requirements are addressed within this EMS or other management plans.

3.3.2 PAL 2 and PPL 3

The lease conditions of PAL 2 and PPL 3 that are directly relevant to general environmental management of the NGP assessment and production activities are very similar and have been grouped together. These include condition 1 (environmental harm); condition 2 (Petroleum Operations Plan); condition 3 (annual environmental management reporting); and condition 4 (incident reporting). These conditions have been presented in full in Table B2 in Appendix B, together with a cross-reference where the requirements are addressed within this EMS.

3.3.3 EPL 20350

'Petroleum exploration, assessment and production' is a scheduled activity listed in Schedule 1 of the POEO Act. Under Section 48 of this Act, all scheduled activities are required to hold an environment protection licence. EPL 20350 is held for CSG activities in PEL 238, PAL 2 and PPL 3. There are several specific conditions in EPL 20350 that govern the overall environmental management framework for the Project. These have been presented in Table B3 in Appendix B, together with a cross-reference where the requirements are addressed within this EMS.

All other EPL conditions have been addressed in the various management plans and sub-plans required under the CoC.

3.3.4 Development consent SSD 6456

There are a number of SSD 6456 consent conditions that are directly relevant to the EMS. Consent conditions D1 and D2 are outlined below, together with the relevant conditions from Schedule 2 Part A. The remainder of the relevant conditions from Schedule 2 Part B are provided in full in Table B4 in Appendix B. This table also specifies where each of the requirements of each condition is addressed in this EMS.

Consent condition D1 states that prior to the commencement of Phase 1, Santos must prepare an EMS for the Project to the satisfaction of the Planning Secretary. This EMS must:

- a) be prepared in consultation with the EPA;
- b) provide the strategic framework for environmental management of the Project;
- c) identify the statutory approvals that apply to the Project;
- d) set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Project; and

- e) set out the procedures to be implemented to:
 - (i) keep the local community and relevant agencies informed about the progress and performance of the Project;
 - (ii) receive, handle, respond to and record complaints;
 - (iii) resolve any disputes that may arise during the Project;
 - (iv) respond to incidents and non-compliance; and
 - (v) respond to any emergency.

Consent condition D2 states that Santos must implement the approved EMS.

In accordance with consent condition A14, Santos will design, construct, operate, maintain and decommission all gas wells in accordance with the *Code of Practice for the Coal Seam Gas Well Integrity* (2012, as may be updated or amended), and gas and water gathering lines in accordance with the relevant standard including the *Code of Practice for Upstream Polyethylene Gathering Networks – CSG Industry (2019) and AS/NZS 4130:2018 Polyethylene (PE) Pipes for Pressure Application*. This is further addressed in the Produced Water Management Plan (**PWMP**).

In accordance with CoC A21, Santos will, within 6 months of commencement of the Project, enter into a Planning Agreement with Narrabri Shire Council in accordance with Division 7.1 of Part 7 of the EP&A Act; and the terms of the offer in Appendix 8 of the CoC.

In accordance with CoC A25, unless Santos and the applicable authority agree otherwise, Santos will:

- a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the Project; and
- b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Project.

In compliance with CoC A26, Santos will carry out all demolition of applicable structures in accordance with the *Australian Standard AS 2601-2001 The Demolition of Structures* (Standards Australia, 2001).

Santos will construct all new buildings and structures, and any alterations or additions to existing buildings and structures that are part of the Project in accordance with the relevant requirements of the Building Code of Australia, as required by CoC A27. Note that there are no new building works in the Phase 1 scope.

In accordance with CoC A28, Santos will maintain and operate all plant and equipment used in the Project area, or to monitor the performance of the Project, in a proper and efficient condition and manner. Additionally, in accordance with CoC B15, Santos will ensure that no offensive odours, as defined under the POEO Act, are emitted from the Project.

Santos acknowledges that, as stated in CoC D12, noise, blast and air quality monitoring under the CoC is not required at all privately-owned residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria. This will be further detailed in the relevant management plans. It is to be noted that there will be no blasting as part of Phase 1.

In accordance with CoC B16, Santos will ensure that all reasonable and feasible avoidance and mitigation measures are employed so that air emissions generated by the Project do not cause exceedances of the criteria listed in Table 5 [of the CoC] at any residence on privately-owned land, unless Santos has an agreement with the landowner under CoC B18,

In accordance with CoC B17, air emissions generated by the Project will be measured in accordance with the relevant requirements and exemptions of the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2007). This will be fully described in the Air Quality and Greenhouse Gas Management Plan for the Project required under CoC B23, when this has been prepared prior to the commencement of Phase 2.

Santos acknowledges that, in accordance with CoC B18, the air quality criteria in Table 5 [of the CoC] do not apply if Santos has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and Santos has advised the DPE in writing of the terms of this agreement.

Santos will ensure that all reasonable and feasible avoidance and mitigation measures are employed so that greenhouse gas emissions generated by the Project do not cause exceedances of the total Project GHG emissions listed in Table 6 [of the CoC]. Santos will comply fully with CoC B20 at all times during Phase 1, since only a fraction of the approved 850 wells are proposed to be constructed as part of the Phase 1 scope.

In accordance with CoC B21, Santos will, during the preparation of the Air Quality and Greenhouse Gas Management Plan:

- a) develop cumulative maximum forecasts (the total of which may not exceed the criteria in Table 6 [of the CoC]) for the greenhouse gas emissions of the Project during the following periods:
 - (i) between the commencement of the Project and the end of Year 3;
 - (ii) between the commencement of the Project and the end of Year 6;
 - (iii) between the commencement of the Project and the end of Year 9;
 - (iv) between the commencement of the Project and the end of Year 12;
 - (v) between the commencement of the Project and the end of Year 15;
 - (vi) between the commencement of the Project and the end of Year 18;
 - (vii) between the commencement of the Project and the end of Year 21;
 - (viii) between the commencement of the Project and the end of Year 23; and
 - (ix) between the commencement of the Project and the end of Year 25;
- b) monitor and publicly report in the Air Quality and Greenhouse Gas Management Plan the Project's actual greenhouse gas emissions against the cumulative forecasts;
- c) ensure that the actual greenhouse gas emissions generated by the Project at the end of the periods referred to in condition B21(a) which exceed the forecasts for those periods are 100% offset within one year after those periods.
- d) ensure that the offsets required under condition B21(c) are:
 - (i) compliant with the requirements of the offsets integrity principles set out in the Commonwealth Government's *Carbon Neutral Organisations: Climate Active Carbon Neutral Standard for Organisations* (July 2020) as may be updated by the Commonwealth; and
 - (ii) not made twice in respect of the same emissions – once an exceedance is fully offset under condition B21(c), that exceedance is not counted towards the measurement of actual greenhouse gas emissions for the next period under condition B21(a).

The cumulative maximum GHG emissions between the commencement of Phase 1 and the end of Year 3 has been estimated at approximately 0.05 Mt CO₂-e, well below the total of 15.5 Mt CO₂-e projected in the EIS. The estimate is based on 25 wells (rather than 850) operating continuously for 3 years (rather than 25).

Santos acknowledges that the offsetting requirement under condition B21 operates independently of condition B20. The offsetting of an exceedance of forecast greenhouse gas emissions under condition B21 does not satisfy Santos's obligations under condition B20.

In accordance with CoC B22, Santos will

- a) implement all reasonable and feasible measures to:
 - (i) minimise odour, fume and particulate matter (including PM₁₀ and crustal and combustion PM_{2.5}) emissions of the Project;
 - (ii) minimise point source and fugitive emissions of methane, carbon dioxide and other pollutants from all Project related infrastructure;
 - (iii) minimise any visible off-site air pollution generated by the Project;
 - (iv) minimise the extent of potential dust generating surfaces exposed in the project area at any given point in time;
 - (v) ensure negligible contribution to baseline methane, carbon dioxide and other pollutant levels at any residence or other sensitive receiver location;
 - (vi) maximise energy efficiency and minimise greenhouse gas emissions of the Project;
 - (vii) minimise the air quality impacts of the Project during adverse meteorological conditions and extraordinary events (see Note c to Table 5 [of the CoC]);
- b) operate a detailed air quality management system that uses a combination of unattended and attended air quality monitoring to ensure compliance with the relevant conditions of this consent; and
- c) regularly assess meteorological and air quality monitoring data and modify operations in the project area to ensure compliance with the relevant conditions of this consent.

This will be fully described in the Air Quality and Greenhouse Gas Management Plan for the Project required under CoC B23, when this has been prepared prior to the commencement of Phase 2.

In accordance with CoC B63, prior to the commencement of Phase 2, Santos will upgrade the following intersections to the satisfaction of TfNSW:

- a) Old Mill Road and the Newell Highway, to provide a Channelised Right (CHR) turn treatment on the highway, including sealing of Old Mill Road for at least 30 metres from the edge of the highway; and
- b) X-Line Road and the Newell Highway, to provide Auxiliary Left Short [AUL(S)] and Basic Right (BAR) turn treatments on the highway, including sealing of X-Line Road for at least 30 metres from the edge of the highway.

Santos will enter into an agreement with TfNSW for the ongoing maintenance of the intersection upgrades required under CoC B63, prior to the commencement of Phase 2, as required by CoC B64. Santos acknowledges that all works within the road reserve, including the pipeline crossing of the Newell Highway, require separate approval from the roads authority under the *Roads Act 1993* (NSW).

As required by CoC B65 Santos will:

- a) implement all reasonable and feasible measures to minimise the visual and lighting impacts of the Project;
- b) minimise the lighting and skyglow impacts of the Project on Siding Springs Observatory, including:
 - (i) monitoring lighting levels in consultation with AAO, if requested by AAO; and
 - (ii) undertaking scheduled maintenance-related flaring activities when the moon is at least 50% illuminated (ie. gibbous moon), unless otherwise agreed with AAO and/or for emergency purposes;

- c) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure;
- d) ensure that all external lighting associated with the Project complies with relevant guidelines and Australian Standards, including the latest version of:
 - AS 4282-1997 – *Control of obtrusive effects of outdoor lighting*;
 - AS 1158-2010 – *Lighting for roads and public spaces for roadways and plant*; and
 - *Dark Sky Planning Guideline (2016) – Protecting the observing conditions at Siding Spring*;
- e) ensure that the visual appearance of all new buildings, structures, facilities or works is aimed at blending as far as reasonable and feasible with the surrounding landscape; and
- f) implement all reasonable and feasible measures to shield views of petroleum mining operations and associated equipment from users of public roads and privately-owned residences.

To screen views to the Project from residences and road users, Santos will implement tree screening along the Newell Highway in the vicinity of the Project (including the Leewood facility), prior to the commencement of Phase 2, as required by CoC B66. The screening will be undertaken in accordance with a tree screening plan that has been prepared in consultation with Council and TfNSW and to the satisfaction of the Planning Secretary.

In accordance with CoC B77, Santos will ensure that the storage, handling, and transport of:

- a) dangerous goods is done in accordance with the relevant Australian Standards and guidelines, particularly AS1940 and AS1596, the *Dangerous Goods Code*, and the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual*; and
- b) any explosives are managed in accordance with the requirements of the Resources Regulator.

These are further addressed in the PIRMP and the PSMP.

3.4 Relevant codes, standards, policies and guidelines

Santos will design, construct, operate, maintain and decommission all works in accordance with the requirements and obligations in all codes, standards, policies and guidelines that are relevant to the NGP activities and which are addressed in each of the specific environmental management plans and protocols. The predominant relevant codes, standards, policies and guidelines are reproduced below. References are provided in the applicable management plan or protocol.

3.4.1 Approved Methods

The *Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016) (hereafter referred to as the Approved Methods (Modelling and Assessment)) lists the statutory methods for modelling and assessing emissions of air pollutants from stationary sources in NSW and defines the relevant air quality criteria. It is referred to in Part 5: Air Impurities Emitted from Activities and Plant in the Protection of the Environment Operations (Clean Air) Regulation 2010.

The *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2007) (hereafter referred to as the Approved Methods (Sampling and Analysis)) lists the statutory methods to be used for the sampling and analysis of air pollutants in NSW for statutory purposes. It is referred to in Part 5: Air Impurities Emitted from Activities and Plant in the Protection of the Environment Operations (Clean Air) Regulation 2010.

3.4.2 National Environment Protection Measure

Most of the EPA criteria are drawn from national standards for air quality set by the National Environmental Protection Council of Australia (NEPC) as part of the National Environment Protection Measures (NEPMs). To measure compliance with ambient air quality criteria, the NSW Government has established a network of monitoring stations across NSW and up-to-date records are published on the DPIE air quality monitoring network website.

Air quality impacts from the Project have been assessed against the air quality criteria set by the EPA as part of its Approved Methods (Modelling and Assessment). These criteria are outlined in Table 5 [of the CoC] and apply to existing and potentially sensitive receptors, where the Approved Methods (Modelling and Assessment) defines a sensitive receptor as “a location where people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area”. This has also been interpreted as places of near-continuous occupation.

3.4.3 National Pollutant Inventory

The National Pollutant Inventory (NPI) provides the community, industry and government with free information about substance emissions in Australia. It has emission estimates for 93 toxic substances and the source and location of these emissions. The NPI is tracking pollution across Australia and ensuring that the community has access to information about the emission and transfer of toxic substances which may affect them locally.

Australian, state and territory governments have agreed to the NEPMs, which help protect or manage particular aspects of the environment. Australian industries are required to monitor, measure and report their emissions under this legislation. Santos is likely to be required to report its emissions to the NPI.

3.4.4 Climate Active Carbon Neutral Standard for Organisations

The Climate Active Carbon Neutral Standard for Organisations is a voluntary standard to manage greenhouse gas emissions and achieve carbon neutrality. It provides best-practice guidance on how to measure, reduce, offset, validate and report emissions that occur as a result of the operations of an organisation. Santos is required by CoC 21(d) to ensure that offsets required by CoC 21(c) are compliant with the requirements of the offsets integrity principles set out in the Commonwealth Government's *Carbon Neutral Organisations: Climate Active Carbon Neutral Standard for Organisations* (July 2020).

3.4.5 VLAMP

The *NSW Voluntary Land Acquisition and Mitigation Policy* (2018) (VLAMP) includes the NSW Government's policy for voluntary mitigation and land acquisition to address dust (particulate matter) impacts from state significant mining, petroleum and extractive industry Projects. The VLAMP brings the air quality criteria in line with the NEPM standards and EPA criteria. From the VLAMP, voluntary mitigation rights may apply where, even with best practice management, the Project contributes to exceedances of the criteria in Table 5 [of the CoC] at any residence or workplace.

Voluntary acquisition rights may apply where, even with best practice management, the Project contributes to exceedances of the criteria in Table 5 [of the CoC] at any residence or workplace on privately owned land, or on more than 25% of any privately owned land where there is an existing dwelling or where a dwelling could be built under existing planning controls.

3.4.6 NSW Industrial Noise Policy and Noise Policy for Industry

The EIS was submitted in January 2017 and assessed against the Secretary's Environmental Assessment Requirements (SEARs) which referenced the Industrial Noise Policy (INP) (EPA, 2000). The INP has since been superseded by the Noise Policy for Industry (**NPfl**) (EPA, October 2017). Under the NPfl transitional arrangements published by the EPA, the SEARs requirements referencing the INP were carried through the planning approval process. The CoC for SSD 6456 refer to the NPfl in Condition B10 stating the Project will be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NPfl. Appendix 4 of the CoC contradicts condition B10 requiring attended compliance monitoring be undertaken in accordance with the relevant requirements of the INP. Since the NPfl is referenced in the main body of the CoC and provides the most relevant up to date guideline on compliance monitoring, this NMP will adopt the NPfl where relevant.

3.4.7 Interim Construction Noise Guideline

The *Interim Construction Noise Guideline* (DECC, 2009) (**Interim Construction Noise Guideline**) was developed to focus on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels. While some noise from construction sites is inevitable, the aim of the Interim Construction Noise Guideline is to protect the majority of residences and other sensitive land users from noise pollution most of the time.

The Interim Construction Noise Guideline is specifically aimed at managing noise from construction works regulated by the EPA and is used to assist the EPA in setting statutory conditions in licences or other regulatory instruments.

3.4.8 Road Noise Policy

The *Road Noise Policy* (DECCW, 2011) (**Road Noise Policy**) outlines the range of measures needed to minimise road traffic noise and its impacts. It is intended for use by:

- road project proponents;
- determining authorities and regulators involved in the approval and construction of road;
- projects and land use developments that generate additional traffic on existing roads;
- city and transport planners and policymakers dealing with issues such as route corridors, heavy vehicle transport and building codes; and
- acoustic specialists.

The Road Noise Policy will help the above individuals and agencies to assess and mitigate the impacts of traffic noise from new and redeveloped road projects, and traffic-generating developments on residential and other sensitive lands. It links with other NSW Government policies and plans to ensure that where road traffic exists, its noise impacts are appropriately identified and addressed.

3.4.9 Produced Water Code

Produced water infrastructure will be designed, installed and maintained in accordance with the *Exploration Code of Practice: Produced Water Management, Storage and Transfer* (DPE, 2017) (**the Produced Water Code**).

The Produced Water Code sets out mandatory requirements and provides title holders with related guidance about the expected performance for the management, storage and transfer of produced water.

It serves three purposes. It:

- provides upfront information to industry and the community;
- facilitates the assessment of exploration activities consistent with Part 5 of the EP&A Act; and
- sets out enforceable mandatory requirements related to produced water management, storage and transfer.

Further, it enables industry to:

- adopt a risk-based approach to ensure compliance with mandatory requirements related to produced water;
- commit to measurable performance;
- monitor performance and take corrective action if outcomes are not being achieved; and
- keep and maintain relevant records of activities and/or actions.

3.4.10 Well Integrity Code

The *Code of Practice for Coal Seam Gas: Well Integrity* (DTIRIS 2012) (**Well Integrity Code**) is an industry guideline administered by the NSW Government and enforced under the PO Act. The Well Integrity Code and practice defines the standards for well design and construction to prevent environmental harm, particularly to groundwater resources. Wells constructed as part of the Project will comply with the code. With regard to produced water, the Well Integrity Code states that wells will be designed 'to ensure all fluids produced from the well travel directly from the production zone to the surface without contaminating groundwater'.

It is to be noted that these requirements exceed the 'Minimum Construction Requirements for Water Bores in Australia, as per the footnote on page iv of the Well Integrity Code.

3.4.11 NSW Aquifer Interference Policy

The WM Act defines an aquifer interference activity as that which involves any of the following:

- the penetration of an aquifer;
- the interference with water in an aquifer;
- the obstruction of the flow of water in an aquifer;
- the taking of water from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations; and
- the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.

The *NSW Aquifer Interference Policy* defines the regime for protecting and managing the impacts of aquifer interference activities on NSW's water resources. There are three key parts to the Policy:

- all water taken will be properly accounted for;
- the activity will address minimal impact considerations for impacts on water table, water pressure and water quality; and

- planning for measures in the event that the actual impacts are greater than predicted, including making sure that there is sufficient monitoring in place.

3.4.12 NSW Groundwater Policy Framework

The main role of the *NSW Groundwater Policy Framework Document* (DLWC, 1997) is to ensure that the groundwater resources of the state are appropriately maintained and the sustainability of groundwater resources and their support functions to ecosystems are given explicit consideration in resource management decision making. The Groundwater Policy Framework has been constructed with the aid of two NSW policies:

- the *Groundwater Quality Protection Policy* (DLWC, 1998), which provides guidance on how to manage and protect groundwater quality against pollution; and
- the *State Groundwater Dependent Ecosystems Policy* (DLWC, 2002), which provides guidance on how to protect ecosystems that rely on groundwater, including their ecological processes and biodiversity.

3.4.13 NSW Policy for Managing Access to Buried Groundwater Sources

The *Policy for Managing Access to Buried Groundwater Sources* sets out a framework for how access to water will be managed in groundwater sources that are partly or completely buried. It outlines the limits to access water from storage in porous rock groundwater sources and also the licensing and approval requirements for the take of water from all contributing water sources.

Although not stated, this Policy provides a general and strategic approach for access to groundwater, whilst specific water sharing details are contained within the NSW water sharing plans.

3.4.14 NSW Flood Prone Land Policy

A key guideline relevant to the assessment is the *NSW Floodplain Development Manual* published in 2005. It concerns the management of flood-prone land within NSW. It provides guidelines in relation to the management of flood liable lands, including any development that has the potential to influence flooding, particularly in relation to increasing the flood risk to people and infrastructure.

3.4.15 Guidelines for Groundwater Documentation for SSD/SSI Projects

DPE Water has prepared updated guidelines specifically focused on the requirements of the NSW Government for the assessment of groundwater related matters and consideration of potential impacts of State significant development and State significant infrastructure projects in NSW. When used by proponents, the Guidelines will ensure consistency between proposals and ongoing compliance with their approvals

3.4.16 Policy and Guidelines for Fish Habitat Conservation and Management

The Fisheries NSW *Policy and Guidelines for Fish Habitat Conservation and Management* published in 2013 outlines policies and guidelines aimed at maintaining and enhancing fish habitat for the benefit of native fish species, including threatened species, in marine, estuarine and freshwater environments. It aims to help developers, their consultants and government and non-government organisations to ensure

compliance with legislation, policies, and guidelines as they relate to fish habitat conservation and management. It can be used to inform land use and natural resource management planning, development planning and assessment processes. It is also a valuable tool to improve awareness and understanding of the importance of fish habitats and how impacts can be mitigated, managed, or offset. Note that as stated in section 3.3, any permits under sections 201, 205 and 219 of the NSW *Fisheries Management Act 1994* are not required for this Project.

3.4.17 Fish Passage Requirements for Waterway Crossings

The *Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings* published by NSW Fisheries in 2003 aims to minimise impacts on fish passage and general aquatic wildlife by providing practical guidelines to those involved in the planning, design, construction and maintenance of waterway crossings. Considerable effort has been taken to make these guidelines applicable across Australia; however, local knowledge, data and experience should always be used to enhance, modify or even replace the information presented within these guidelines.

3.4.18 ANZECC Guidelines

The Australian and New Zealand Environment Conservation Council (**ANZECC**) and Agriculture and Resource Management Council of Australia and New Zealand (**ARMCANZ**) published the revised *Australian and New Zealand guidelines for fresh and marine water quality* in 2000 (the ANZECC Guidelines). The ANZECC Guidelines provide a risk-based framework under which water quality data may be statistically interrogated, trends analysed, and site-specific trigger values may be derived. Potential impacts of the Project on surface water quality were assessed in accordance with methodology from the ANZECC Guidelines.

Although the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (the **National Water Quality Guidelines**) were published in 2018 after a scientific review of the ANZECC Guidelines, both consent condition B37 (water management performance measures) and the treated water quality criteria in Appendix 6 [of the CoC] refer to the 2000 version of the ANZECC guidelines. As such, the 2000 version of the guidelines apply to the Project.

3.4.19 Water Quality Objectives

The NSW Government have published online the NSW Water Quality and River Flow Objectives (**the Objectives**). The Objectives are the agreed environmental values and long-term goals for NSW's surface waters. They set out:

- the community's values and uses for rivers, creeks, estuaries and lakes (i.e. healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water); and
- a range of water quality indicators to help assess whether the current condition of our waterways supports those values and uses.

The Objectives are consistent with the agreed national framework for assessing water quality set out in the ANZECC Guidelines. The ANZECC Guidelines provide an agreed framework to assess water quality in terms of whether the water is suitable for a range of environmental values (including human uses). The Objectives provide environmental values for NSW waters and the ANZECC Guidelines provide the technical guidance to assess the water quality needed to protect those values. Refer to the note in section 3.5.9 of the Surface Water Management Plan that the ANZECC Guidelines have been superseded by the national Water Quality Guidelines.

3.4.20 Managing Urban Stormwater: Soils and Construction

Managing Urban Stormwater: Soils and Construction - Volume 1 (Landcom 2004), more commonly known as the 'Blue Book', provides support for developments to reduce the impacts of land disturbance activities on waterways by better management of soil erosion and sediment control. It provides guidance for the design, construction and implementation of measures to improve stormwater management during the construction phase of land development.

Volume 1 is specifically for urban works. It has been complemented by a series of publications in 2007 and 2008 combined as *Managing Urban Stormwater: Soils and Construction - Volume 2* which cover installation of services, waste disposal sites, quarries and other mining sites, major road and highway construction, and construction of unsealed roads access tracks in bushland and rural area. The purpose of the publications in Volume 2 is to provide guidelines, principles and recommended design standards for good management practice in erosion and sediment control during the construction and repair of unsealed roads, services and

The ESCP is based on the requirements of the Blue Book, and the following sections of Volume 2:

- 2A - Installation of Services
- 2C - Unsealed Roads
- 2E - Mines and Quarries

Volume 1 and 2 are complemented by *Erosion and Sediment Control of Unsealed Roads - A Field Guide for Erosion and Sediment Control Maintenance Practices* (OEH 2012) which is largely based on Volume 2C.

3.4.21 Effluent Irrigation Guidelines

The *Environmental Guidelines: Use of Effluent by Irrigation* (DEC 2004) provides information for planners, designers, installers and operators of irrigation systems that use effluent from a wide range of rural and industrial sources, including treated sewage effluent. The aims of the guideline are to:

- encourage the beneficial use of effluent and show how this might be accomplished in an ecologically sustainable manner;
- provide guidelines for planning, designing, installing, operating and monitoring effluent irrigation systems to diminish risks to public health, the environment and agricultural resources; and
- outline the statutory requirements that may be needed for an effluent irrigation system in NSW.

3.4.22 Controlled activities on waterfront land

Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary. The *Controlled Activities on Waterfront Land – Guidelines for instream works on waterfront land* (DPI Water, 2012) relate to the design and construction of works within a watercourse or on waterfront land. Instream works include modifications or enhancements to the watercourse, channel realignment, bed control structures, pipe laying and cable trenching etc.

The guidelines state that the design and construction of works or activities within a watercourse or adjoining waterfront land should protect and enhance water flow, water quality, stream ecology and existing riparian vegetation. Impacts on the hydrologic, hydraulic and geomorphic functions of a watercourse should also be minimised. The design and construction footprint and the extent of disturbances within waterfront land should also be minimised.

3.4.23 Translocation guidelines

The first edition of the *Guidelines for the Translocation of Threatened Plants in Australia* (**Translocation Guidelines**) was published in 1997, developed by the Australian Network for Plant Conservation for the translocation of threatened plants for conservation purposes as a result of resolutions from the Australian Network of Plant Conservation conference in Hobart in 1993. The second edition was published in 2004.

Although a third edition was published in 2018, the second (2004) edition is applicable to the Project, as referenced in CoC B51.

3.4.24 Biodiversity Offsets Policy

The *NSW Biodiversity Offsets Policy for Major Projects* (**Offsets Policy**) clarifies and standardises biodiversity impact assessment and offsetting for major project approvals in NSW. It was published in 2014 by the then NSW Office of Environment and Heritage (**OEH**) to provide a standard method for assessing impacts of major projects on biodiversity and determining offsetting requirements.

The Offsets Policy reduces the need for case-by-case negotiations, including debates around the adequacy of assessments. It also provides increased certainty to proponents, allowing offsetting requirements to be known and factored in during the planning phase of a project.

The *Framework for Biodiversity Assessment* (OEH, 2014) underpins the Offsets Policy. It contains the assessment methodology that is adopted by the policy to quantify and describe the impact assessment requirements and offset guidance that apply to Major Projects.

3.4.25 Framework for Biodiversity Assessment to Biodiversity Assessment Method transition

Since the EIS (and accompanying Ecological Impact Assessment and Biodiversity Assessment Report) was submitted, the Framework for Biodiversity Assessment has been replaced with the Biodiversity Assessment Method under the NSW Biodiversity Offset Scheme. The Biodiversity Offset Scheme provides a new approach for determining the quantum of credits required to offset a development and generated from the establishment of a Biodiversity Stewardship Site. The Project was assessed under the Framework for Biodiversity Assessment and the credit requirement in the development consent is calculated in this framework. Where a project has an existing obligation to obtain and retire BioBanking credits under a consent and the credits required do not exist, an application for an ‘assessment of reasonable equivalence’ of biodiversity credits (henceforth referred to as ‘reasonable equivalence’) must be made to DPE. The conversion provides an equivalent quantum of Biodiversity Offset Scheme credits that allows the Project to meet its offset obligation within the new framework. Refer to the project Biodiversity Offset Strategy for more detailed information regarding the assessment of reasonable equivalence.

3.4.26 Waste Classification Guidelines

The *Waste Classification Guidelines* (NSW EPA, 2014) (**Waste Classification Guidelines**) have been developed to help waste generators classify the wastes they produce. The guidelines are a step-by-step process for classifying waste into one of special waste, liquid waste, hazardous waste, restricted solid waste, general solid waste (putrescible), or general solid waste (non-putrescible).

Generators and waste facilities must ensure they classify their waste carefully in accordance with the procedures in the guidelines.

3.4.27 National Waste Policy - less waste, more resources

The 2018 National Waste Policy provides a framework for collective action by businesses, governments, communities and individuals until 2030. The National Waste Policy provides five circular economy principles which underpin waste management, recycling and resource recovery:

- avoid waste;
- improve resource recovery;
- increase use of recycled material and build demand and markets for recycled products;
- better manage material flows to benefit human health, the environment and the economy; and
- improve information to support innovation, guide investment and enable informed consumer decisions.

The National Waste Policy guides continuing collaboration between all Australian governments, business and industry. It does not remove the need for governments, businesses and industries to implement tailored solutions in response to local and regional circumstances, but it complements and supports the implementation of these.

The National Action Plan creates targets and actions to implement the 2018 National Waste Policy. Of the listed targets and actions, the one most relevant to the salt and brine produced by the NGP is the target to achieve an 80 % average recovery rate from all waste streams by 2030.

3.4.28 Controlled Waste NEPM

The National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (the **Controlled Waste NEPM**) provides a national framework for developing and integrating state and territory systems for managing the movement of trackable (controlled) wastes between states and territories. It aims to minimise the potential for adverse impacts associated with the interstate movement of such waste on the environment and human health.

The salt and brine from the produced water treatment are not listed as controlled wastes in Parts 1 and 2 of Schedule 1 of the Waste Regulation, and as such the Controlled Waste NEPM does not apply.

3.4.29 NSW Circular Economy Policy 2019

NSW's circular economy principles capture the intent of the National Waste Policy principles and go beyond waste management. The NSW Government has developed the Circular Economy Policy to deliver positive economic, social and environmental outcomes. The circular economy is about changing the way products are produced, assembled, sold and used to minimise waste and to reduce the environmental impact. The circular economy can also be great for business; by maximising the use of valuable resources, and by contributing to innovation, growth and job creation.

3.4.30 NSW Waste and Sustainable Materials Strategy 2041

The WARR Act commits the NSW Government to refreshing and updating its waste strategy every five years - to review and continually improve the state's policies and targets for waste reduction and landfill diversion. The *NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027*, which updates the previous *Waste Avoidance and Resource Recovery Strategy 2014-2021*, focuses on the environmental benefits and economic opportunities in how we manage our waste, as well as waste reduction and recycling. The updated strategy sets out the actions that will be taken in the first stage of the strategy to 2027 and the targets that have been adopted as part of the National Waste Policy Action Plan (refer to section 2.4.1).

3.4.31 NSW Waste Levy Guidelines

The EPA's *Waste Levy Guidelines* (2018) contain specific legal requirements which occupiers of scheduled waste facilities must meet in addition to their obligations under the POEO Act and the Waste Regulation. The *Waste Levy Guidelines* include how waste is measured to calculate levy liability, when certain levy deductions can be claimed, and how records, surveys and reports are required to be made, kept and provided to the EPA in order for the occupier to fulfil their obligations.

3.4.32 Planning for Bush Fire Protection

The *Planning for Bush Fire Protection: A guide for councils, planners, fire authorities and developers* (RFS, 2019) (**PBP**) was implemented on 1 March 2020. It is referenced by the EP&A Act and provides development standards for designing and building on bush fire prone land in NSW. It replaces the Planning for Bushfire Protection 2006.

With the implementation of the PBP 2019, AS 3959:2018 *Construction of buildings in bushfire-prone areas* is now in force in NSW also.

PBP provides standards and guidance for:

- strategic land use planning to ensure that new development is not exposed to high bush fire risk;
- creating new residential and rural residential subdivision allotments;
- special fire protection purpose development taking account of occupant vulnerability;
- bush fire protection measures for new buildings; and
- upgrading and maintaining existing development.

PBP is applicable to all development on bush fire prone land in NSW. The general principles underlying this document are that:

- a suite of bush fire protection measures are required to reduce the impact of a bush fire;
- protection measures are governed by the degree of threat posed to a development and the vulnerability of occupants;
- minimising the interface of a development to the hazard reduces the bush fire risk to the development; and
- good practice in planning, building and management reduces the risk to developments and their occupants, and increases their resilience.

The PBP will be implemented by Santos for the Bibblewindi, Leewood and Wilga Park buildings, including certification.

3.4.33 Construction of buildings in bushfire-prone areas

Australian Standard (AS) 3959:2018 *Construction of buildings in bushfire-prone areas* specifies requirements for the construction of buildings in order to improve their resistance to bushfire attack from burning embers, radiant heat, flame contact and combinations of the three attack forms. It is referenced in the *National Construction Code 2019*.

3.4.34 Exploration Code of Practice: Rehabilitation

Condition B83(c) requires the RMP to be prepared in accordance with any relevant MEG code of practice and/or guideline. The relevant MEG guideline(s) or code(s) of practice relevant to Phase 1 activities available at the time of preparing this RMP is the *Exploration Code of Practice: Rehabilitation* (NSW Resources Regulator, 2022)² (the **Rehabilitation Code**).

Part B of the Rehabilitation Code sets out mandatory requirements and provides title holders with related guidance regarding the expected performance to ensure that exploration is undertaken in a manner that manages and minimises risk and achieves sustainable rehabilitation outcomes. It enables industry to adopt a risk-based approach to ensure compliance with mandatory requirements related to rehabilitation, commit to measurable performance outcomes, monitor performance and take corrective action if these outcomes are not being achieved, keep and maintain relevant records of activities and/or actions.

The Rehabilitation Code provides guidance on final land use, rehabilitation objectives and completion criteria. It also describes recommended activities that should be undertaken prior to disturbance, during and after rehabilitation.

3.4.35 Dangerous Goods Code

The *Australian Code for the Transport of Dangerous Goods by Road & Rail* (NTC, 2020) (the **Dangerous Goods Code**) sets out the requirements for transporting dangerous goods by road and rail.

The Dangerous Goods Code only sets out requirements and guidelines relating to the transport of explosives and radioactive materials where these goods are transported together with other dangerous goods, or where the dangerous goods have a subsidiary hazard of another class. For completeness and international uniformity, the Dangerous Goods Code includes the full Dangerous Goods List and the classification criteria for all classes and divisions of dangerous goods.

Note that the Dangerous Goods Code does not contain any provisions relating to usage, storage or security of these goods.

² The Exploration Code of Practice: Rehabilitation was originally published by the NSW Department of Planning and Environment, Division of Resources and Geoscience (DRG) in 2015. DRG was renamed as Regional NSW - Mining, Exploration and Geoscience (MEG). The latest version (version 5.0) of the Code of Practice: Rehabilitation has been published by the Resources Regulator.

3.5 EIS commitments

In the EIS Chapter 31, and as updated in Appendix B of the Response to Submissions, Santos has committed to implement a number of measures pending Project approval and a final investment decision. The EIS commitments relevant to the management of water associated with the Project have been listed Table 3.1.

Table 3.1 - EIS commitments relevant to general environmental management

Number	EIS commitment relevant to general environmental management
1.2	<p>A Project-wide environmental management strategy, comprising a number of sub-plans to be used throughout the planning and design, construction, operation and decommissioning and rehabilitation stages of the Project are described in Chapter 30 [of the EIS]. The sub-plans are:</p> <ul style="list-style-type: none"> • Erosion and Sediment Control Plan (ESCP); • Soil Management Plan [part of the ESCP, Irrigation and Rehabilitation Management Plan]; • Air Quality Management Plan [note that this plan is only required for Phase 2 onward]; • Noise and Vibration Management Plan [Noise Management Plan]; • Cultural Heritage Management Plan [Aboriginal Cultural Heritage Management Plan]; • Biodiversity Management Plan; • Pest, Plant and Animal Control Plan [part of the Biodiversity Management Plan]; • Historic Heritage Management Plan; • Traffic Management Plan [part of Public Safety Management plan]; • Waste Management Plan; • Bushfire Management Plan; • Produced Water Management Plan; • Water Monitoring Plan; • Decommissioning Management Plan [part of the Rehabilitation Management Plan]; • Rehabilitation Strategy and Plans [Rehabilitation Management Plan];
1.3	<p>A complaints management procedure will be implemented. This procedure will include investigation, reporting and reducing impacts as required.</p>

Note that in some instances a commitment may no longer be relevant due to the management plan structure required by the SSD 6456 consent conditions being different to the environmental management plan structure originally proposed in the EIS (and thus reflected in the actual commitment). These have been denoted in the table by [square brackets]. Section 4.4 lists the actual management plans and protocols developed to support this EMS.

As described in section 8.4, this Plan will be subject to evaluation and review. This will include the EIS commitments to ensure they remain current, applicable, and generally improve the environmental performance of the Project.

4. Implementation of the EMS

The environmental management and monitoring for the Project is based on the findings of the impact assessment process; itself informed by the extensive baseline data collection across several key environmental and social disciplines that were undertaken across the Project site. The key messages with regard to environmental management and monitoring are:

- the environmental management and monitoring framework is based on learnings from over nine years of study within the Project area to date;
- the management and monitoring framework utilises the principles of adaptive management to ensure continual and timely review of monitoring data, with a continuous improvement or learning feedback loop implemented;
- the environmental management and monitoring process will be subject to regular independent audit; and
- there is public access to key monitoring data via the Santos website.

Santos is committed to conducting activities associated with the Project in an environmentally responsible manner; and will implement environmental management in accordance with:

- Santos' corporate approach to environmental management;
- all relevant approval conditions;
- all relevant statutory obligations;
- landholder agreements; and
- the findings of the EIS.

Santos acknowledges that any CoC that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.

4.1 Environment, health and safety management system

The Santos Management System (**SMS**) provides a structured framework for environmental and safety practices across Santos' operations. Among other standards, the framework has been developed to be consistent with AS/NZS ISO 14001:2015 Environmental Management Systems. The implementation of the management plans for the Narrabri Gas Project will be integrated into the SMS.

The implementation of the SMS will assist in compliance with the Protocol, the Field Development Plan and all other management plans and protocols to minimise environmental impacts. The SMS documents are maintained in electronic form on the Santos intranet that is accessible to all employees. Management standards have been developed as part of the SMS and define the requirements necessary to systematically manage environmental, cultural heritage, health and safety risks. Contractors engaged by Santos are required to undergo a pre-qualification process and Santos has a Contractor Management Standard that outlines requirements for contractors to include their own management systems - health, safety and environment.

4.2 Santos Environment, Health and Safety Policy

Santos' corporate environmental commitment is to 'a workplace where we all go home without illness or injury and manage the impact of our operations on the environment'. These corporate values are the basis of Santos' commitment to operate, with a view to its long-term sustainability. Santos has developed a range of policies to support its vision and values.

The Santos Environment, Health & Safety Policy (**EHS Policy**) identifies objectives and targets that enable the implementation of actions which support the principles within the policy and result in positive outcomes. The EHS Policy seeks to find new ways to minimise environmental impact across the lifecycle of activities, and conduct business in a manner that prevents injury or illness to workers and the public. A copy of the EHS Policy is presented in Appendix D.

4.3 NGP Safety Management Plan

The NGP Safety Management Plan has been developed in accordance with NSW legislation for use in its NSW assets. It uses key elements of the Santos corporate systems and the SMS to assist with complying with relevant legislation. The Safety Management Plan is the primary safety document for Santos operations in NSW and its purpose is to:

- detail clear health and safety objectives, expectations and provide guidance;
- list responsibilities (or reference associated documents in which these are detailed);
- document methods for health and safety issues communication and management;
- outline processes for the identification and management of health and safety risks;
- list the systems, processes, tools, risk controls and mitigation measures to be used in achieving the health and safety objectives;
- provide auditable criteria to demonstrate conformance with the standards from Santos' SMS; and
- provide processes by which NSW operations can continuously improve EHS performance.

The Safety Management Plan applies to all activities associated with the NGP.

4.4 Environmental management plans and protocols

The management of environmental impacts during construction follow a risk-based approach to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks also taking into consideration the concerns of community and other stakeholders.

Risks assessment - conducted in accordance with the Santos Management System *SMS-MS_1 Risk Management Standard*, are undertaken at various stages of the Project and documented in management plans, work method statements and other Project documents. The objectives of these risk assessments are to:

- identify activities, events or outcomes that have the potential to adversely affect human health and safety; the environment or property;
- qualitatively evaluate and categorise each risk item;
- assess whether and how risks can be effectively managed by environmental protection measures; and
- qualitatively evaluate residual risks after the effective implementation of the control measures.

A full suite of environmental management plans and protocols have been prepared for the NGP in consultation with various agencies, in accordance with SSD 6456 conditions. In accordance with CoC A23(a), Santos obtained Planning Secretary approval on 14 April 2021 for the staging of the majority of the management plans. A copy of the approval, and which plans are approved to be staged, is provided in Appendix C.

Note that the scope at the time of the approval included the conversion of one corehole to a deep reservoir monitoring bore. This scope has since been amended to include two deep monitoring bores, at Dewhurst 35 and Dewhurst 43. This minor amendment does not change the intent of the staging of the management plans.

Considering the staging approval, the plans and protocols that are relevant to the ongoing exploration and appraisal in the Project area under Phase 1 have been listed below, in order of consent condition of SSD 6456, with copies of the latest versions available on the Project website, once approved:

- CoC B2 Field Development Protocol;
- CoC B4 Field Development Plan (**FDP**), incorporating the:
 - Public Safety Management Plan (**PSMP**); and
 - Property Management Plans;
- CoC B13 Noise Management Plan (**NMP**);
- CoC B41 Water Management Plan (**WMP**), incorporating the:
 - Erosion and Sediment Control Plan (**ESCP**);
 - Site Water Balance (**SWB**);
 - Surface Water Management Plan (**SWMP**);
 - Groundwater Management Plan (**GMP**);
 - Produced Water Management Plan (**PWMP**);
 - Irrigation Management Plan (**IMP**);
 - Dust Suppression Protocol (**DSP**);
 - Managed Release Protocol (section 6 of the Produced Water Management Plan for Phase 1);
 - Salt Management Plan (section 7 of the Produced Water Management Plan for Phase 1);
 - Pollution Incident Response Management Plan (**PIRMP**), incorporating the:
 - Dam Safety Emergency Plan (**DSEP**);
- CoC B51 Biodiversity Management Plan (**BMP**);
- CoC B59 Aboriginal Cultural Heritage Management Plan (**ACHMP**);
- CoC B61 Historic Heritage Management Plan;
- CoC B70 Waste Management Plan;
- CoC B79 Fire Management Plan; and
- CoC B83 Rehabilitation Management Plan (**RMP**).

In accordance with CoC D3, Santos will ensure that (where relevant) the management plans required under SSD 6456 include:

- a) a summary of relevant background or baseline data;
- b) details of:
 - (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);

- (ii) any relevant limits or performance measures and criteria; and
- (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Project or any management measures;
- c) any relevant commitments or recommendations identified in the EIS;
- d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;
- e) a program to monitor and report on the:
 - (i) impacts and environmental performance of the Project; and
 - (ii) effectiveness of the management measures set out pursuant to paragraph d);
- f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;
- g) a program to investigate and implement ways to improve the environmental performance of the Project over time;
- h) a protocol for managing and reporting any:
 - (i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion;
 - (ii) complaint; or
 - (iii) failure to comply with other statutory requirements; and
- i) a protocol for periodic review of the plan.

The remainder of the management plans are required to be prepared prior to the commencement of Phase 2. For instance, in accordance with CoC B23, Santos will prepare an Air Quality and Greenhouse Gas Management Plan for the Project prior to the commencement of Phase 2, to the satisfaction of the Planning Secretary. This plan will:

- a) be prepared by a suitably qualified and experienced person/s;
- b) be prepared in consultation with the EPA, NSW Health, the Greenhouse Gas Emissions Advisory Group and the CCC;
- c) describe the measures to be implemented to ensure:
 - (i) compliance with the air quality criteria, greenhouse gas emissions criteria and operating conditions in this consent;
 - (ii) reasonable and feasible air quality and greenhouse gas mitigation measures are being employed;
 - (iii) leaks are promptly detected and repaired; and
 - (iv) the air quality impacts of the Project are minimised during adverse meteorological conditions and extraordinary events; and
- d) describe the air quality management system, and leak detection and repair system, in detail;
- e) detail baseline levels of methane, carbon dioxide and other pollutants in the project area, at representative sensitive receiver locations, and adjacent the Leewood facility;
- f) include predicted air quality concentrations for all potential pollutants at representative sensitive receiver locations, and adjacent the Leewood facility, based on additional air quality assessment and modelling; and
- g) include an air quality monitoring program that:
 - (v) evaluates and reports on:
 - the effectiveness of the air quality management system;
 - compliance against the air quality criteria in this consent;

- compliance with air quality impact assessment criteria in the *Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016), for other relevant pollutants (including air toxics);
 - composition of the coal seam gas extracted by the Project;
 - changes to baseline methane, carbon dioxide and other pollutant levels in the project area;
 - compliance against the air quality operating conditions;
 - leakage and detection from Project related infrastructure; and
- (vi) defines what constitutes an air quality exceedance, incident or non-compliance, and includes a protocol for identifying and notifying the Department and relevant stakeholders of these events.

Santos will implement the Air Quality and Greenhouse Gas Management Plan for Phase 2, once it has been approved by the Planning Secretary, as required by CoC B24.

In accordance with CoC B72, prior to the commencement of Phase 2, Santos will prepare the following management plans to the satisfaction of the Planning Secretary:

- a) a Fire Safety Study for the Project covering all relevant aspects of the Department's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* and the NSW Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. The Fire Safety Study will be developed in consultation with Fire and Rescue NSW and will include:
 - (i) consequence analysis (including appropriate consequence diagrams) for all potential fire and explosion scenarios in the project area throughout the Project;
 - (ii) details of all fire engineering controls and measures; and
 - (iii) details of the roles and duties of various parties if a fire, explosion or spillage occur;
- b) a Hazard and Operability Study (HAZOP) for all potentially hazardous facilities associated with the Project (including conversion or upgrade of existing wells using appropriate risk management). The study will:
 - (i) be prepared by a suitably qualified and experienced person/s who is independent of the Project and has been approved by the Planning Secretary;
 - (ii) be consistent with the Department's *Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'*;
 - (iii) be accompanied by a program for the implementation of all recommendations made in the report;
 - (iv) include safety related recommendations for the final design of the Project. If Santos intends to defer the implementation of a recommendation, reasons will be documented and justified; and
 - (v) where the detailed design of certain components of the Project is not available, a Package Unit HAZOP will be conducted. This will also consider the tie-in and the flow-on effect for the remainder of the Project;
- c) a Final Hazard Analysis of the Project based on its final design, consistent with the Department's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'*. The Final Hazard Analysis will be prepared in consultation with SafeWork NSW and will:
 - (i) re-evaluate and confirm all relevant data and assumptions of the Preliminary Hazard Analysis, and provide details on any differences between the Preliminary Hazard Analysis and Final Hazard Analysis;
 - (ii) address all materials that may present a hazard to people, property or the biophysical environment at all potentially hazardous facilities associated with the final design;

- (iii) re-evaluate and confirm all control measures proposed for the prevention and mitigation of incidents;
- (iv) include Safety Integrity Level (SIL) allocation and verification studies;
- (v) demonstrate the adequacy of the safety systems included in the final design;
- (vi) re-evaluate the risk from the Project based on the outcomes of the SIL allocation and verification report for the Project;
- (vii) include off-site impacts from wellhead scenarios and hazards and risks associated with the conversion and/or upgrade of existing wells;
- (viii) include the outcome of well pad design verification assessments to minimise off-site impact;
- (ix) demonstrate that the cumulative risk complies with all the Department's risk criteria for the protection of people, property and the biophysical environment, including:
 - bushfire risk from wells and associated gathering lines;
 - major facilities; and
 - transport between potentially hazardous facilities;
- (x) provide details of measures that would be implemented to minimise the risk to the surrounding land, including negotiated arrangements with other stakeholders to implement appropriate risk reduction measures;
- d) a Construction Safety Study, consistent with the Department's *Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'* and the most recent Australian Standard AS 2885.1, *Pipelines – Gas and liquid petroleum (Part 1: Design and construction)*. The plan will specifically address all safety measures related to construction, testing and commissioning; and
- e) a Pipeline Safety Management Study, prepared in accordance with the Australian Standard AS 2885 - 2007, *Pipelines – Gas and liquid petroleum*. The study will be prepared in consultation with all relevant stakeholders including, but not limited to, the pipeline operator.

As required by CoC B73, Santos will design and operate the Project in accordance with the approved Final Hazard Analysis, to be prepared prior to the commencement of Phase 2.

Also prior to the commencement of Phase 2 and as required by CoC B74, Santos will prepare the following safety plans to the satisfaction of the Planning Secretary:

- a) an Emergency Plan and detailed emergency procedures for the Project, prepared in consultation with Safework NSW and Fire and Rescue NSW. This plan will:
 - (i) be consistent with the Department's *Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'* and the *Code of Practice for Coal Seam Gas Well Integrity* (2012, as may be updated or amended);
 - (ii) include consideration of the safety of all people outside of the site that may be at risk from the Project; and
 - (iii) include details of the roles and responsibilities of key personnel and relevant agencies if an incident occurs; and
- b) a Safety Management System that will be prepared in consultation with SafeWork NSW and will:
 - (i) be prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'*;
 - (ii) cover all Project operations and potentially hazardous facilities, and will clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures;
 - (iii) include an inspection, testing and preventive maintenance program that would be implemented and maintained to ensure the reliability and availability of the key safety

critical equipment is, at a minimum, consistent with the data estimated in the Final Hazard Analysis; and

- (iv) include arrangements for transport of hazardous materials including details of routes to be used for hazardous materials transport which have been selected in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 11, 'Route Selection'*.

Santos will implement the approved Emergency Plan and Safety Management System once they have been approved by the Planning Secretary, as required by CoC B75.

In accordance with Coc B85, prior to the commencement of Phase 2, Santos will prepare a Social Impact Management Plan for the Project to the satisfaction of the Planning Secretary. This plan will:

- a) be prepared by a suitably qualified and experienced person/s;
- b) be prepared in consultation with Council, the CCC, and the local community in the Narrabri LGA;
- c) identify potential negative social impacts resulting from the Project both locally and regionally, including how vulnerable groups and individuals may be negatively impacted;
- d) specify adaptive management and mitigation measures to avoid, minimise, and/or mitigate any potential negative social impacts and the source of funding to implement these measures;
- e) identify opportunities to secure and enhance positive social impacts of the Project, including opportunities to:
 - (i) assist in maintaining community services and facilities; and
 - (ii) improve the way of life, wellbeing, and social cohesion within the local community;
- f) include a program to monitor, review, and report on the effectiveness of these measures, including:
 - (i) identifying representative parameters or indicators to be monitored, how and when data is to be collected, and who is responsible for collecting it;
 - (ii) ongoing analysis of social risks; and
 - (iii) undertaking additional research, if necessary, to reduce uncertainties; and
- g) include a Stakeholder Engagement Plan to guide the evaluation and implementation of social impact management and mitigation measures.

Santos will implement the Social Impact Management Plan for Phase 2, once approved by the Planning Secretary, as required by Coc B86,

In accordance with CoC A24, if the Planning Secretary may approve Santos to stage or update a strategy, plan or program without consultation being undertaken with all parties required to be consulted in the relevant CoC.

In accordance with lease condition 2 of PAL 2 and PPL 3, Santos will only carry out the activities in accordance with a Petroleum Operations Plan (**POP**) which has been approved by the Director-General of the Department of Primary Industries. Further, the POP will (i) identify how operations will be carried out on site in order to prevent and or minimise harm to the environment; and (ii) reflect conditions of approval under the EP&A Act, the POEO Act, and any other approvals relevant to PAL2 and PPL 3.

The POP for PAL 2 for the period 1 October 2022 to 30 September 2023 is included in the strategic framework for the environmental management of the Project, presented in Figure 4.1. Note that the Santos Safety Management System consists of a range of principal hazard management plans and principal control plans, as shown. Where relevant, these plans provide operational system requirements and guidance for the suite of management documents required under SSD 6456.

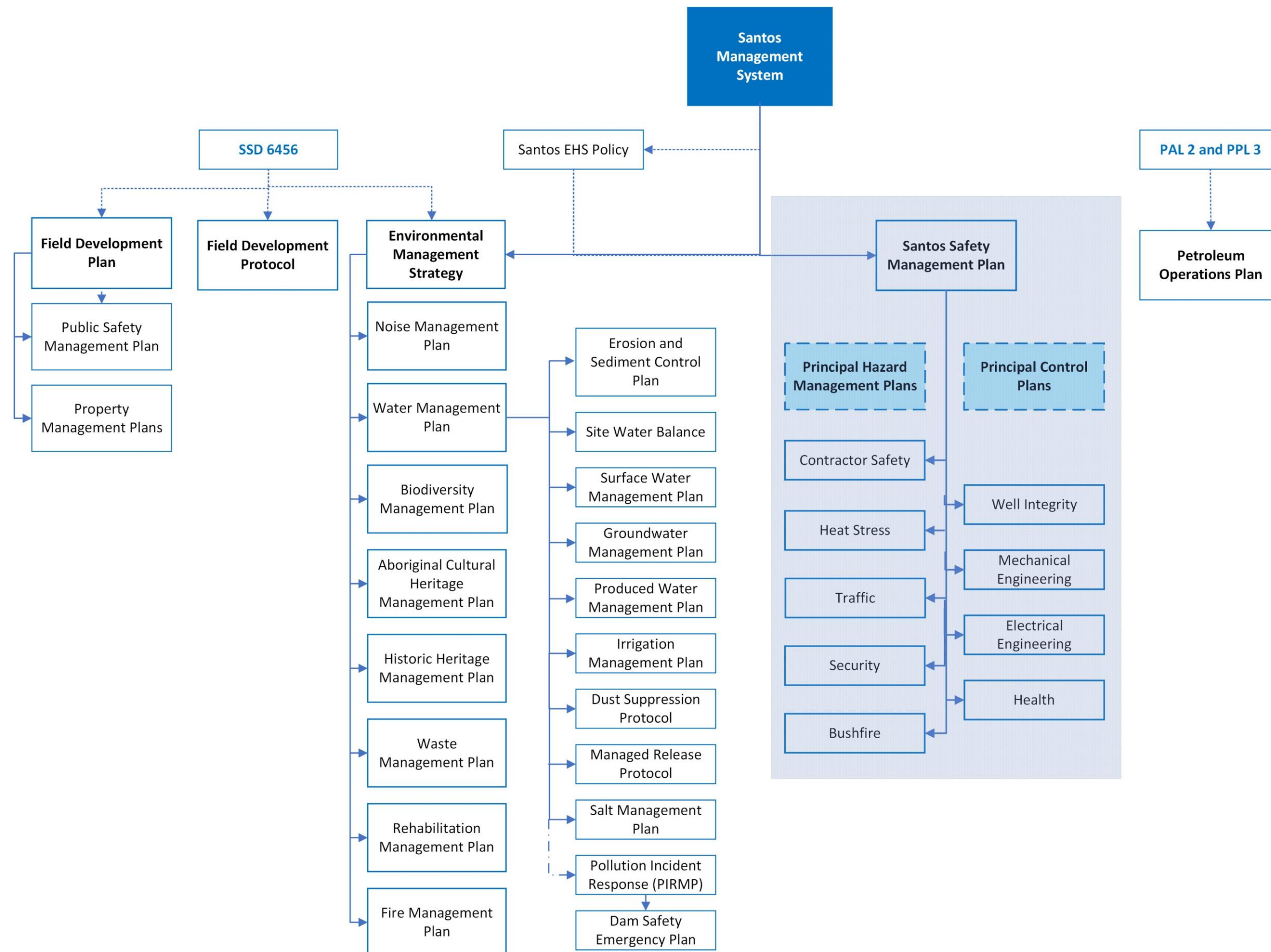


Figure 4.1 - EMS strategic framework

4.5 Environmental monitoring requirements

Each of the environmental management plans and protocols are supported by a comprehensive environmental monitoring program. Monitoring results for all environmental monitoring aspects such as water quality associated with managed releases, irrigation and air quality monitoring are reported on the Project website and on an annual basis in the EPL Annual Return and the Annual Review. The Annual Review is publicly available on the website. The full suite of monitoring is provided in each of the individual management plans and protocols, for example the rehabilitation monitoring program is detailed in the RMP. A brief summary of the Phase 1 monitoring programs is presented in Table 4.1. The various monitoring programs will be reviewed for Phase 2 as part of continuous improvement and the table updated as appropriate.

Table 4.1 - Summary of Phase 1 monitoring programs

Environmental Management Plan	Monitoring parameter
Biodiversity Management Plan	<ul style="list-style-type: none"> Biodiversity monitoring, including <ul style="list-style-type: none"> vegetation surveys soundscape surveys remote camera surveys diurnal bird surveys pest plant and animal surveys microbat surveys Koala research
Dust Deposition Protocol	<ul style="list-style-type: none"> Application of bore water
Erosion and Sediment Control Plan	<ul style="list-style-type: none"> Meteorological ESC functionality Active erosion and sedimentation Water management structures (if applicable)
Field Development Plan	<ul style="list-style-type: none"> Micro-siting
Fire Management Plan	<ul style="list-style-type: none"> Meteorological Work activities Fire weather Fire occurrence
Groundwater Management Plan	<ul style="list-style-type: none"> Groundwater flow, Groundwater quality Groundwater levels Groundwater pressure, and Groundwater yield/extraction Ground deformation and subsidence
Irrigation Management Plan	<ul style="list-style-type: none"> Meteorological Soil moisture and vadose zone Soil quality

Environmental Management Plan	Monitoring parameter
	<ul style="list-style-type: none"> • Electromagnetic induction surveys • Runoff, erosion and waterlogging • Native vegetation • Crop health
Noise Management Plan	<ul style="list-style-type: none"> • Meteorological • Attended noise monitoring • Unattended noise monitoring
Pollution Incident Response Management Plan / Dam Safety Emergency Plan	<ul style="list-style-type: none"> • Hazardous chemicals inventory • Water storage levels • Structural integrity
Produced Water Management Plan	<ul style="list-style-type: none"> • Water storage levels • Flowline and pipeline integrity • Treated water • Leakage rates
Public Safety Management Plan	<ul style="list-style-type: none"> • Site security • Asset protection • Work activities
Rehabilitation Management Plan	<ul style="list-style-type: none"> • Active erosion and sedimentation • Landform stability • Water management structures (if applicable) • Ground cover and ground protection • Vegetation health and growth rates • Weed incursion and vertebrate pests • Waste, damage to infrastructure
Surface Water Management Plan	<ul style="list-style-type: none"> • Surface water quality • Surface water flow (DPE) • Watercourse stability
Waste Management Plan	<ul style="list-style-type: none"> • Waste storages and effectiveness • Waste classification and disposal

5. Communication

Clear and open lines of communication through and with all levels and functions of the Project including management, staff, contractors and the community is key to minimise environmental impacts and achieving continual improvements in environmental performance. Up to date key Project documents will be made available on the Project website in accordance with CoC D13, including but not limited to:

- the EIS and associated documents that support the SSD 6456 development application;
- current statutory approvals for the Project;
- approved strategies, plans and programs;
- detailed plans for the Phases of the Project;
- minutes of CCC and advisory group meetings;
- regular reporting on the environmental performance of the Project in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;
- a comprehensive summary of the monitoring results of the Project, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
- a summary of the current phase/s and progress of the Project;
- contact details to enquire about the Project or to make a complaint;
- a complaint register, updated monthly;
- a record of all incidents and non-compliances;
- the Annual Reviews of the Project;
- audit reports prepared as part of any Independent Environmental Audit of the Project and Santos's response to the recommendations in any audit report; and
- any other matter required by the Planning Secretary.

5.1 Community Consultative Committee

In accordance with the requirements of CoC A22, the Narrabri Gas Project Community Consultative Committee (**CCC**) has been established to identify issues of community concern and to help facilitate the distribution of information about Santos' work and plans back to the community. The CCC has been operational prior to the commencement of Phase 1 in accordance with the *Community Consultative Committee Guideline: State Significant Projects* (DPE, 2016) or its latest version and to the satisfaction of the Planning Secretary. The CCC was formally approved by DPE on 25 January 2021.

Further details can be found at <https://narrabrigasproject.com.au/community/consultative-committee/>.

6. Incident, non-compliance and emergency response

6.1 Incident and non-compliance

Incident reporting and non-compliance notification will be in accordance with CoC D6 and D7 respectively. Santos will notify the DPE and any other relevant agency via the Major Projects Portal immediately after becoming aware of an incident.

In the event of actual or potential material harm, the EPA will be notified via the environment line on 131555.

Within 7 days of becoming aware of a non-compliance with the CoC, Santos will notify the Department of the non-compliance via the Major Projects Portal. This notice will set out the non-compliance, the reasons for the non-compliance (if known) and what actions have been taken, or will be taken, to address the non-compliance. A non-compliance which has been notified as an incident will not be notified as a non-compliance.

Santos will, at the earliest opportunity:

- take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;
- consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DPE and other required agencies describing those options and any preferred remediation measures or other course of action; and
- implement remediation measures as directed by the Planning Secretary, to the satisfaction of the Planning Secretary.

Incident investigations will be communicated to relevant management through documented briefings and to personnel through toolbox talks, pre-start meetings and similar forums. If required, strategies, plans or programs will be reviewed and amended in consultation with the relevant agencies, in accordance with CoC D4.

If petroleum mining operations are suspended during Phase 1 to Phase 3, DPE will be notified via the Major Projects Portal of the suspension, and then again prior to the recommencement of operations.

6.2 Emergency response

In the case of an environmental incident or emergency that causes or has potential to cause environmental harm (as per the POEO Act) the Pollution Incident Response Management Plan (**PIRMP**) will be implemented. The critical steps involved in this plan are:

- safety of all personnel and immediately affected neighbours;
- the protection of the environment; and
- the notification of emergency incident to internal stakeholders (staff and contractors) and external stakeholders (relevant authorities, immediate neighbours and the local community).

7. Complaint management and dispute resolution

Santos has a documented *Complaint Management Procedure* that is communicated to all relevant staff members. Complaints can be directed to Santos via phone or email 24 hours a day, 7 days a week. Contact details are presented in Appendix E and are publicly available on the [Project website](#).

All complaints are logged on a complaint form which includes the following details:

- date and time of the complaint;
- complainant details;
- details of the issue or complaint;
- actions taken to remediate the issue, if any;
- follow up actions required, if any;
- details of further liaison with complainant, if any; and
- closure date and time of the issue.

As per CoC D13, Santos maintains a complaint register which is updated as required and available on the Project website.

7.1 Additional procedures under the consent

7.1.1 Mitigation requests

Note that CoC C1 to C4 do not apply during Phase 1 as there will be no flare and thus no flaring at the Leewood facility during Phase 1.

In the event that a written request is received from the owner of any residence on the privately-owned land listed in Table 12 [of the CoC], in accordance with CoC C1, Santos will implement additional noise mitigation measures in consultation with the landowner, to mitigate noise impacts on the residence associated with non-routine safety flaring operations at the Leewood facility.

These measures may include provision of alternative accommodation during non-routine safety flaring operations, or provision of acoustic treatments to the residence, and must be consistent with the measures outlined in the *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments* (NSW Government, 2018). They must also be reasonable and feasible, proportionate to the level of predicted impact and directed towards reducing the relevant noise impacts of the Project during non-routine safety flaring operations.

As required by CoC C2, if within 3 months of receiving this request from the owner, Santos and the owner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.

As required by CoC C3, at least 3 months prior to the commencement of Phase 3, Santos will notify in writing the owners of the residences on the land listed in Table 12 [of the CoC] that they are entitled to ask Santos to undertake additional mitigation measures upon request.

7.1.2 Notification of exceedances

Where Santos does not have agreement with the owner/s of the relevant owner/s of the relevant residence or land to exceed the relevant criteria under CoC B11 or B18, in accordance with CoC C4, Santos will provide the details of the exceedance to any affected landowners and tenants as soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, air quality, water or blasting criterion or performance measure in this consent, or in any management plan required under this consent.

7.1.3 Independent review at landowner request

In accordance with CoC C5, if a landowner considers the Project to be exceeding any relevant noise, air quality, water or blasting criterion or performance measure in the CoC or in any management plan required under the CoC, on their residence or land, they may ask the Planning Secretary in writing for an independent review of the impacts of the Project on their residence or land.

In this instance, it must be noted that, as stated in CoC D12, noise, blast and air quality monitoring under the CoC is not required at all privately-owned residences and the use of representative monitoring locations can be used to demonstrate compliance with criteria. If this method of monitoring is applied, it will be further detailed in the relevant management plans, Note that there will be no blasting as part of Phase 1.

As required by CoC C6, if the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.

However, in accordance with CoC C7, if the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or other timeframe agreed by the Planning Secretary and the landowner, of the Planning Secretary's decision, Santos must:

- a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to:
 - (i) consult with the landowner to determine their concerns;
 - (ii) conduct monitoring to determine whether the Project is complying with the relevant criterion or performance measure on their residence or land; and
 - (iii) if the Project is not complying with the relevant criterion or performance measure, identify measures that could be implemented to ensure compliance with the relevant criterion or performance measure;
- a) give the Planning Secretary and landowner a copy of the independent review; and
- b) comply with any written requests made by the Planning Secretary to implement any findings of the review.

8. Reporting, evaluation and review

8.1 Annual reviews and annual returns

Santos will provide a summary of the environmental performance of the Project for the previous calendar year and report results within the Annual Review to the satisfaction of the Planning Secretary. The Annual Review required under CoC D8 will be submitted to the DPE via the Major Projects Portal by the end of March each year and will be made publicly available on the Project website. It will at a minimum provide the following:

- describe the Project (including any rehabilitation) that was carried out in the previous year, and the Project that is proposed to be carried out over the current year;
- report on the progress of biodiversity credits retirements and the associated actual versus proposed surface disturbance for each Project phase;
- include a comprehensive review of the monitoring results and complaints records of the Project over the previous calendar year, including a comparison of these results against the:
 - relevant statutory requirements, limits or performance measures/criteria;
 - requirements of any Project plan or program required under SSD 6456;
 - monitoring results of previous years; and
 - relevant predictions in the EIS and associated documents;
- identify any non-compliance or incident and describe what actions were or are being taken to rectify the non-compliance and avoid reoccurrence;
- evaluate and report on compliance with the performance measures, criteria and operating conditions;
- identify any trends in the monitoring data over the life of the Project;
- identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- describe what measures will be implemented over the next calendar year to improve the environmental performance of the Project.

In accordance with EPL 20350 condition R1, a summary of compliance, monitoring and complaints against the EPL 20350 criteria will also be provided to the EPA as part of the EPL Annual Return. The annual return is to be submitted within 60 days after the end of the reporting period (anniversary date), using the form provided by the EPA. The Annual Return will include all items as required by EPL 20350.

As required by EPL 20350 condition R4 and sub-conditions, Santos will provide the EPA with updated information when there are changes to the Project infrastructure.

8.2 Annual environmental management reporting

Under Condition 3 of PAL2 Santos will lodge an Annual Environmental Management Report (**AEMR**) with the Director-General or at dates otherwise specified by the Director-General. The AEMR will report against compliance with the POP; report on progress in respect of rehabilitation completion criteria; report on the extent of compliance with regulatory requirements; and have regard to any relevant guidelines adopted by the Director-General.

Where tenure conditions require it, Santos will prepare an AEMR for each calendar year for the Project in accordance with the relevant reporting guidelines.

8.3 Independent environmental audits

Within one year of commencement of Phase 1 and every three years thereafter, Santos will commission an Independent Environmental Audit (IEA) of the operation, to be conducted in accordance with CoC D9. The audit team will be led by a suitably qualified auditor and include experts in groundwater, well integrity, hazards, and any other fields specified by the Planning Secretary. The audit will:

- be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary;
- be carried out in consultation with the relevant agencies and the CCC and Advisory Groups;
- assess the environmental performance of the Project and whether it is complying with the relevant requirements in this consent, water licences and petroleum mining leases for the Project (including any assessment, strategy, plan or program required under these approvals);
- include a hazard audit undertaken in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines'*, including verification of implementation of engineering or non-engineering control measures in the hazards studies/plans required under this consent;
- review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent;
- recommend appropriate measures or actions to improve the environmental performance of the Project and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and
- be conducted and reported to the satisfaction of the Planning Secretary.

Within three months from the commencement of the IEA, Santos will submit a copy of the audit report to the DPE (and any other NSW agency that requests it) via the Major Projects Portal together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. This audit report will be made publicly available on the Project website.

8.4 Review and evaluation

As required by CoC D4, Santos will review the suitability of existing strategies, plans and programs required under this consent, within two months of:

- a) the submission of an incident report;
- b) the submission of an Annual Review;
- c) the submission of an Independent Environmental Audit;
- d) the submission of a Field Development Plan;
- e) the submission of a Groundwater Model Update; or
- f) the approval of any modification of the conditions of SSD 6456.

This is to ensure the EMS is updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the Project.

In view of the various conditions requiring annual reviews, suitability assessments and performance evaluations, it is recommended that this EMS be reviewed and, if necessary, updated in at least the following circumstances:

- in accordance with any direction from the NSW EPA or the Minister administering the PO Act;

- due to any significant change in the environmental management processes and procedures as described herein. If there is ambiguity in relation to whether there is a significant change, Santos will consult with the Planning Secretary to determine whether the EMS will be reviewed; and
- otherwise at intervals of no longer than one year.

The review history table in the front of this Strategy provides the details of each review, conducted in accordance with condition D4.

Consent condition D5 in turn states that if the review under condition D4 determines that the strategies, plans and programs required under this consent require revision - to either improve the environmental performance of the Project, cater for a modification or comply with a direction - then Santos will submit the revised document to the Planning Secretary for approval within 6 weeks of the review.

8.5 Improvement measures

Santos will conduct a program to investigate and implement ways to improve the environmental performance of the Project overtime, and implement a protocol for the periodic review, in accordance with CoC D3(g) and (i) respectively.

Measures to improve the environmental performance of the Project that will be implemented include but are not limited to the following:

- preparation of an execution-focussed environmental management plan that details all site-specific obligations for both construction and operations;
- completion of a construction environmental management plan (CEMP) by the principal contractor that mirrors the environmental obligations and requirements from the suite of management plans and protocols approved under the CoC;
- audit of the design and micro siting processes;
- reviewing the implementation of the management controls;
- assess ongoing consistency with the underlying and supporting management plans (including Aboriginal cultural heritage and historical heritage; biodiversity management; water; rehabilitation, fire; noise and vibration; and air quality); and
- review of monitoring and inspections data, and any assessment of trends; and
- assessment of Phase 1 performance against the corporate standards, and procedures, including assurance, risk management, incident reporting investigation and learning.

The results of the review of the individual management plans will be used to report back to the EMS for periodic fine-tuning to ensure that leading practice environmental management is maintained for the Project. This will be combined with the review of the individual management plans, the Field Development Protocol and the FDP.

The protocol for review is set out by consent conditions D8, D4 and D5, which have been addressed in sections 8.1 and 8.4 above.

8.6 Access to information

In accordance with CoC D13, from the commencement of Phase 1 until the completion of all rehabilitation required under the CoC, Santos will make copies of the following information publicly available on the Project website:

- (i) the EIS (refer to the Glossary for details);
- (ii) current statutory approvals for the Project;
- (iii) approved strategies, plans and programs;
- (iv) detailed plans for the Phases of the Project;
- (v) minutes of CCC and Advisory Group meetings;
- (vi) regular reporting on the environmental performance of the Project in accordance with the reporting requirements in any plans or programs approved under the CoC;
- (vii) a comprehensive summary of the monitoring results of the Project, reported in accordance with the specifications in any conditions of the CoC, or any approved plans and programs;
- (viii) a summary of the current phase/s and progress of the Project;
- (ix) contact details to enquire about the Project or to make a complaint;
- (x) a complaint register, updated monthly;
- (xi) a record of all incidents and non-compliances;
- (xii) the Annual Reviews of the Project;
- (xiii) audit reports prepared as part of any Independent Environmental Audit of the Project and the Applicant's response to the recommendations in any audit report; and
- (xiv) any other matter required by the Planning Secretary;

As required under CoC D13(b) this information will be kept up to date.

8.6.1 Records

In accordance with the conditions of EPL 20350, all records will be legible, readily retrievable, and protected against damage and will be retained for a minimum of four years. The records will be available to any authorised officer of the EPA who asks to see them.

For any of the sampling required under the EPL, as detailed in the various management plans and protocols, the following records will be kept for any samples required to be collected:

- the date(s) on which the sample was taken;
- the time(s) at which the sample was collected;
- the point at which the sample was taken; and
- the name of the person who collected the sample.

9. Training, awareness and competence

To ensure that this EMS is effectively implemented for the duration of the Project, each level of management is responsible for ensuring that all personnel reporting to them are aware of the requirements of this Strategy. The Team Leader Narrabri Operations (or delegate) will coordinate the environmental training, potentially in conjunction with other training and development activities.

9.1 Environmental induction

Prior to working at any of the Project locations, all personnel and contractors will undertake a site-specific induction covering all environmental, health and safety aspects. This is done to ensure all personnel involved in the Project are aware of the requirements of the EMS, and to ensure the implementation of environmental management measures. Short-term service providers to site for purposes such as deliveries or equipment servicing will be accompanied by inducted personnel at all times.

The Environmental Advisor, Construction Field Supervisor or their delegate will generally conduct the environmental component of the site inductions for construction and drilling & completions activities. The environmental induction will address a range of issues including, but not limited to:

- purpose, scope and objectives of EMS;
- requirements of due diligence and duty of care;
- roles, responsibilities, accountabilities and expectations;
- typical project environmental hazards and risks, including:
- no-go and exclusion zones;
- locations of sensitive environmental areas; and
- community sensitivities and landholder access restrictions;
- environmental emergency and incident procedures and locations of emergency spill kits; and
- management and reporting process for environmental incidents.

The Team Leader – Onshore Environment will review and approve the environmental induction program and monitor implementation and a record of all environmental inductions will be maintained. The requirements of this Strategy may be reinforced by formal training or other means such as toolbox meetings, pre-shift communications and awareness posters.

9.1.1 Visitors induction

Visitors to the Project will undergo a visitor's induction, which will outline the overarching environmental, health and safety requirements. The nominated Santos contact will be responsible for the actions and conduct of their visitors and will reinforce the Project's environmental requirements.

At all times, visitors will be under the supervision of a fully inducted Santos employee.

9.2 Pre-start meetings and toolbox talks

Toolbox talks will be one method used to raise awareness and educate all personnel on issues related to environmental risks. Discussion of environmental issues will be a standard agenda item on all toolbox

talks. From time to time, specific topics will be selected for more detailed and in-depth discussion. For the construction period, toolbox talks will generally be prepared and delivered by the Construction Field Supervisor or delegate, with assistance from other field personnel, and will cover a range of topics including but not limited to:

- vegetation clearing and protection;
- erosion, sedimentation and soil management;
- noise and air quality management;
- management of identified cultural heritage items; and
- emergency procedures.

9.3 Environmental awareness training

In addition to the environmental induction and toolbox talks, specific employees and contractors may be provided with additional environmental awareness and management training related to field activities such as the design and the implementation of erosion and sedimentation controls which will be in accordance with the relevant aspects of *Managing Urban Stormwater: Soils and Construction - Volume 1* (Landcom 2004), more commonly known as the 'Blue Book'. Targeted environmental awareness training may also be provided to individuals or groups with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact.

Daily pre-start meetings with the site workforce will occur during all phases of the Project and will generally take place before the commencement of work each day (or shift) or where changes occur during a shift. The pre-start meeting is a tool for informing the workforce of the day's activities. Safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination with other activities, hazards and risks and other information that may be relevant to the day's activities are discussed. During the construction period the Construction Field Supervisor or their delegate will generally conduct the pre-start meetings which take approximately 10-15 minutes.

The environmental component of pre-starts will be determined by the relevant environmental personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities. A record will be made of all present in toolbox meeting, and the items discussed.

10. References

DPIE (2020) *Environmental Management Plan Guideline - Guideline for Infrastructure Projects*. NSW Department of Planning, Industry and Environment. DOC20/277703

GHD (2017). *Narrabri Gas Project Environmental Impact Statement*. Prepared for Santos Ltd.

Standards Australia (2016). *Australian Standard/New Zealand Standard International Standards Organisation 1940:2017 - The storage and handling of flammable and combustible liquids*.

Standards Australia (2016). *Australian Standard/New Zealand Standard International Standards Organisation 14001:2016 – Environmental management systems – Requirements with guidance for use*.

11. Glossary

Term	Definition ³
Alignment	The line or lines that describe a linear-infrastructure route; it defines how linear infrastructure (such as a road, access track or pipeline) will be located in relation to the features encountered along the route
Amended treated water	Produced water that has undergone treatment and amendment, as generally described in the EIS, to enable it to be used for beneficial reuse purposes including irrigation, stock watering, drilling, construction and dust suppression
Approved disturbance area	The disturbance areas shown in the EIS as modified by any approved Field Development Plan
Baseline	A starting point used for future comparisons. Water baselines in context of the Narrabri Gas Project have been derived from long term water level and quality data presented in the Narrabri Gas Project Water Baseline Report.
Council	Narrabri Shire Council
Department	The NSW Department of Planning and Environment (DPE)
Depressurisation	The extraction of coal seam water to facilitate gas production causes depressurisation of the target coal seams, which has the potential to propagate into surrounding formations.
EIS	The Environmental Impact Statement titled Narrabri Gas Project Environmental Impact Statement, dated 31 January 2017, submitted with the development application, including Santos' response, the Project Commitments at Appendix B to the response to submissions and supplementary response to submissions, and the additional information provided by Santos to DPE in support of the application
Exploration well	A petroleum well that is drilled to: a) Explore for the presence of petroleum or natural underground reservoirs suitable for storing petroleum, or b) obtain stratigraphic information for the purpose of exploring for petroleum. For clarity, an exploration well is not a production well
Feasible	Means what is possible and practical in the circumstances
Gas compression facility	A facility that houses multiple compressor units, either nodal or hub compressors or a mixture of both used to increase the pressure of gas for the purpose of transmission; may be collocated with a gas treatment facility and/or water management facility
Gas field infrastructure	All Project-related infrastructure, excluding the Leewood facility, Bibblewindi facility and the road upgrades required under SSD 6456
Gas well	Pilot wells and production wells
Gathering lines	Pipelines used to transfer gas and produced water from wells
Groundwater	Water contained in the interconnected pore spaces and voids of the saturated zone of sediments and rocks.
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Irrigation scheme	The use of water for agricultural production. In the case of the Narrabri Gas Project, treated water is proposed to be used for irrigation as part of the overall Produced Water Management Plan
Linear infrastructure	Project related infrastructure of a linear nature including gas and water gathering lines, gas and water pipelines, access tracks, power lines, communication lines and other service lines

³ The majority of the definitions are as provided in the Development Consent for SSD 6456.

Term	Definition ³
Major facilities	Leewood facility and Bibblewindi facility
Managed release scheme	The managed release of treated water into Bohena Creek as one of the beneficial uses of produced water ⁴
Material harm	Material harm to the environment is defined in section 147 of the POEO Act
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the Project
Mitigation	Activities associated with reducing the impacts of the Project
Petroleum Assessment Lease 2 (PAL 2)	A PAL is required to hold the exclusive right to prospect for petroleum and to assess any petroleum deposit over a specified area of land in NSW. A lease allows the holder to maintain a title over a potential area, without having to commit to further exploration. The holder can, however, continue prospecting operations and to recover petroleum in the course of assessing the viability of commercial mining. PAL 2 is held by Santos NSW Pty Ltd.
Petroleum Exploration Licence 238 (PEL 238)	Before exploring for minerals or petroleum in NSW, an explorer must first obtain a Petroleum Exploration Licence (PEL) under the <i>Petroleum (Onshore) Act 1991</i> . An exploration licence gives the licence holder exclusive rights to explore for petroleum or specific minerals within a designated area but it does not permit mining, nor does it guarantee a mining or production lease will be granted. PEL 238 is held by Santos NSW Pty Ltd.
Petroleum Production Lease 3 (PPL 3)	A petroleum production lease gives the holder the exclusive right to extract petroleum within the production lease area during the term of the lease. PPL 3 is held by the following titleholders: <ul style="list-style-type: none"> • Santos QNT Pty Ltd; • Santos NSW (Hillgrove) Pty Ltd; and • Santos NSW (Eastern) Pty Ltd.
Petroleum production lease application (PPLA)	A petroleum production lease gives the holder the exclusive right to extract petroleum within the production lease area during the term of the lease. Development consent under the <i>Environmental Planning and Assessment Act 1979</i> must be in place before a petroleum production lease can be granted. Santos, on behalf of its joint venture partner lodged four petroleum production lease applications under the PO Act in May 2014 for the Project area, being PPLAs 13, 14, 15 and 16. The ownership of the application is now held by Santos NSW Pty Ltd.
Pilot well	A well for gas and water extraction, for the purpose of exploration, appraisal and assessment of the gas field potential
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
Pollution incident	Has the same meaning as in the POEO Act
Project area	The area of approximately 95,000 hectares that encompasses the Project
Project footprint	The area of surface expression being about 1,000 hectares occupied by the infrastructure components of the Narrabri Gas Project
Project-related infrastructure	All infrastructure and other structures associated with the Project. This includes linear infrastructure and non-linear infrastructure, surface infrastructure and subsurface infrastructure, major facilities, wells and well pads and other gas field infrastructure

⁴ Note that there will be no discharge to Bohena Creek for Phase 1.

Term	Definition ³
Public infrastructure	Linear and related infrastructure that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc.
Reasonable	Means applying judgement in arriving at a decision, considering mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The restoration of land disturbed by the Project to ensure it is safe, stable and non-polluting over the short, medium and long term
Unacceptable risk	The level of risk at which mitigation actions are deemed to be warranted
Watercourse	A river, creek or other stream, including a stream in the form of an anabranch or tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: In a natural channel, whether artificially modified or not, or in an artificial channel that has changed the course of the stream. It also includes weirs, lakes and dams
Well	Pilot wells and production wells
Well pad	An area of up to 1 hectare in size upon which the gas wells are to be located, with the area decreasing to no more than 0.25 hectares following rehabilitation ⁵ , or other area as may be approved in the Field Development Plan

⁵ Workover activities will be contained within the operational area of the well pad area of around 0.2 ha, with an additional laydown area that could be approximately 0.2 ha in size.

Appendix A - Consultation record

Management Plan Consultation Feedback Form

DOCUMENT TITLE: Environmental Management System

STAKEHOLDER: *NSW Environment Protection Authority*

**CONSULTATION
RELEASE DATE:** 16 June 2021

COMMENTS DUE DATE: 15 July 2021

General Feedback

Key Issues

No significant issues identified.

Suggestions for improvement

Section	Type	Specific Feedback
		<i>Detail specific issues with certain sections in the document</i>
<i>eg Section 2</i>	<i>Legislative + Regulatory reqs./ Readability / Usability /</i>	<i>Further detail is required about when a report is required and how the report is to be submitted.</i>

Appendix B - Compliance conditions relevant to the EMS

Table B1 - PEL 238 licence conditions directly relevant to this EMS

PEL 238 licence conditions directly relevant to this EMS	Section reference
Community consultation	
2. The licence holder must carry out community consultation in relation to the planning for and conduct of activities under this licence in accordance with the <i>Exploration Code of Practice: Community Consultation</i> (Department of Industry, March 2016), as amended or replaced from time to time.	Section 1.4
Protection of the environment	
3. The licence holder must prevent, or if that is not reasonably practicable, minimise so far as is reasonably practicable, any harm to the environment arising from activities carried out under this licence. The licence holder must demonstrate why they can only minimise rather than prevent harm to the environment..	This EMS
Rehabilitation	
5. The licence holder must carry out rehabilitation of all disturbance caused by activities carried out under this licence in accordance with the requirements of the <i>Exploration Code of Practice: Rehabilitation</i> (Department of Regional NSW, June 2021), as amended or replaced from time to time, to the satisfaction of the Minister.	
Annual activity reporting	
6. Unless otherwise approved by the Secretary, the licence holder must submit annual activity reports prepared in accordance with the Exploration Guideline: Annual Activity Reporting for Prospecting Titles (Department of Regional NSW, December 2020), as amended or replaced from time to time, at the following times:	Section 2
a) Annually, within one calendar month following the grant anniversary date of this licence;	
b) On any other date or dates directed by the Secretary in writing; and	
c) Within one calendar month of cancellation or expiry of this licence.	
Activity approvals issued prior to 1 March 2016	
18. Any activity or operation the subject of an activity approval under section 36A of the Petroleum (Onshore) Act 1991 and in force on 1 March 2016 must, in addition to any terms of that activity approval, be carried out in accordance with the following Codes of Practice (as amended or replaced from time to time):	
a) Exploration Code of Practice: Environmental Management (Department of Regional NSW, June 2021),	Section 3.4 Refer to the PWMP
b) Exploration Code of Practice: Produced Water Management, Storage and Transfer (Department of Regional NSW, June 2021),	
c) Code of Practice for Coal Seam Gas Well Integrity (Department of Trade and Investment, 2012),	
d) Code of Practice for Coal Seam Gas Fracture Stimulation Activities (Department of Trade and Investment, 2012),	
and these Codes of Practice prevail to the extent of any inconsistency with the terms of such an activity approval, except as provided in condition 20 below.	

PEL 238 licence conditions directly relevant to this EMS	Section reference
19. Where the terms of an activity approval granted prior to 1 July 2015 and the requirements of Part B of the Exploration Code of Practice: Produced Water Managements, Storage and Transfer (Department of Regional NSW, June 2021) relate to the same activity, the terms of the activity approval will prevail over the requirements of the Code of Practice in respect of that activity.	

Table B2 - PAL 2 and PPL 3 lease conditions directly relevant to this EMS

PAL 2 and PPL 3 lease conditions directly relevant to this EMS		Section reference
1. Environmental harm		
The Lease Holder must implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of any exploration activities.		This EMS
2. Petroleum Operations Plan		
a) Activities must only be carried out in accordance with a Petroleum Operations Plan (POP) which has been approved by the Director-General of the Department of Primary Industries [now MEG];		Section 4.3
b) The POP must:		
(i) identify areas that will be disturbed by the operations;		Refer to the POP
(ii) detail the staging of the specific operations;		
(iii) identify how operations will be managed to allow closure of the site;		
(iv) identify how operations will be carried out on site in order to prevent or minimise harm to the environment, including groundwater;		
(v) reflect conditions of approval under:		
(2) the EP&A Act		
(3) the POEO Act		
(4) any other approvals relevant to the development including the conditions of this lease and		
(vi) have regard to any relevant guidelines adopted by the Director-General.		
c) The Lease Holder may apply to the Director-General to amend an approved POP at any time		
d) It is not a breach of this condition if:		
(i) the operations constituting the breach were necessary to comply with a lawful order of direction given under the <i>Petroleum (Onshore) Act 1991</i> , the <i>Environmental Planning & Assessment Act 1979</i> , the <i>Protection of the Environment Act 1997</i> or the <i>Occupational Health and Safety Act 2000</i> ; and		
(ii) the Director-General had been notified of the terms of the order or direction prior to the operations constituting the breach had been carried out. Note: The Director-General is deemed to be notified of the terms of an order or direction if the order or direction was issued by the Department.		
e) A POP ceases to have effect 7 years after the date of approval or other such periods as specified by the Director-General. An approved amendment to the POP under part (c) of this condition, does not constitute an approval for the purpose of this paragraph unless otherwise specified by the Director-General.		
3. Environmental Management Reporting		
a) The Lease Holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise specified by the Director-General.		Section 8.2

PAL 2 and PPL 3 lease conditions directly relevant to this EMS	Section reference
b) The EMR must	
(i) report against compliance with the POP;	
(ii) report on progress in respect of rehabilitation completion criteria;	
(iii) report on the extent of compliance with regulatory requirements; and	
(iv) have regard to any relevant guidelines adopted by the Director-General.	
c) Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.	
4. Incident Reporting	
The Licence Holder must report any incidents causing or threatening material harm to the environment in accordance with Departmental guidelines.	Section 6
5. Rehabilitation	
Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	Refer to the RMP.

Table B3 - EPL 20350 conditions relevant to this EMS

EPL 20350 conditions directly relevant to this EMS			Management Plan / section reference								
L1 Pollution of waters											
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the <i>Protection of the Environment Operations Act 1997</i> .		Refer to the WMP section 3.3.3								
L3 Waste											
L3.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.		Refer to the Waste MP section 5.1.1								
L3.2	This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.										
L3.3	The licensee may transport and reuse drilling and completion fluids from well sites in accordance with the Waste Management Plan approved under development consent SSD 6456.		Refer to the Waste MP section 5.1.5								
L3.4	The licensee may transport and apply drill cuttings from any of their well sites to land at the Premises in accordance with the Waste Management Plan and Rehabilitation Management Plan approved under development consent SSD 6456.		Refer to the Rehabilitation Management Plan								
L4 Noise limits - Operational activities limits											
L4.1	Noise generated at the premises must not exceed the noise limits in the table below:		Refer to the NMP section 5.1								
<table><tr><th>Location</th><th>Day Noise Limit LAeq(15 minute)</th><th>Evening Noise Limit LAeq(15 minute)</th><th>Night Noise Limit LAeq(15 minute)</th></tr><tr><td>any residential sensitive receptor not subject to a private negotiated agreement</td><td>35dB(A)</td><td>35dB(A)</td><td>35dB(A)</td></tr></table>				Location	Day Noise Limit LAeq(15 minute)	Evening Noise Limit LAeq(15 minute)	Night Noise Limit LAeq(15 minute)	any residential sensitive receptor not subject to a private negotiated agreement	35dB(A)	35dB(A)	35dB(A)
Location	Day Noise Limit LAeq(15 minute)	Evening Noise Limit LAeq(15 minute)	Night Noise Limit LAeq(15 minute)								
any residential sensitive receptor not subject to a private negotiated agreement	35dB(A)	35dB(A)	35dB(A)								
L4.2 For the purpose of Condition L4.1:											
a)	Day is defined as the period from 7 am to 6 pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays;		Refer to the NMP section 5.1								
b)	Evening is defined as the period from 6 pm to 10 pm; and		Refer to the NMP section 5.1								
c)	Night is defined as the period from 10 pm to 7 am Monday to Saturday and 10pm to 8am Sundays and Public Holidays		Refer to the NMP section 5.1								
L4.3 To determine compliance:											
a)	with the Leq(15 minute) noise limits in condition L4.1, the noise measurement equipment must be located:										
•	approximately on the property boundary, where any dwelling is situated 30m or less from the property boundary closest to the premises; or		Refer to the NMP Table 8.1								

EPL 20350 conditions directly relevant to this EMS	Management Plan / section reference
<ul style="list-style-type: none"> within 30 meters of a dwelling facade, but not closer than 3m, where any dwelling on the property is situated more than 30 meters from the property boundary closest to the premises; or, where applicable 	Table 8.1
<ul style="list-style-type: none"> within approximately 50 meters of the boundary of a National Park or a Nature Reserve. 	Not applicable to Phase 1
b) with the noise limits in condition L4.1, the noise measurements equipment must be located:	
<ul style="list-style-type: none"> at the most affected point at a location where there is no dwelling at the location; or 	Refer to the NMP Table 8.1
<ul style="list-style-type: none"> at the most affected point within an area at a location prescribed by condition L4.1. 	Refer to the NMP Table 8.1
L4.4 A non-compliance of condition L4.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:	
<ul style="list-style-type: none"> at a location other than an area prescribed by condition L4.1; and/or 	Refer to the NMP Table 8.1
<ul style="list-style-type: none"> at a point other than the most affected point at a location. 	Refer to the NMP Table 8.1
L4.5 The noise limits set out in condition L4.1 apply under all meteorological conditions except for the following:	
a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or	Refer to the NMP section 5.2
b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above the ground level; or	Refer to the NMP section 5.2
c) Stability category G temperature inversion conditions.	Refer to the NMP section 5.2
L4.6 For the purposes of condition L4.5:	
a) Data recorded by a meteorological station (at a location to be negotiated with the EPA) must be used to determine meteorological conditions; and	Refer to the NMP section 7.2
b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.	Refer to the NMP section 7.2
L4.7 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.	Refer to the NMP section 7.2
L5 Hours of operation - construction activities limits	
L5.1 Standard construction hours	
Unless otherwise specified by any other condition of this licence, all construction activities are:	
a) restricted to between the hours of 7:00am and 6:00pm Monday to Friday;	Refer to the NMP section 5.1

EPL 20350 conditions directly relevant to this EMS	Management Plan / section reference
b) restricted to between the hours of 8:00am and 1:00pm Saturday; and	Refer to the NMP section 5.1
c) not to be undertaken on Sundays or Public Holidays.	Refer to the NMP section 5.1
L5.2 Exceptions to standard construction hours	
The following activities may be carried out outside of the hours permitted by Condition L5.1:	
a) Construction work that causes $L_{Aeq(15minute)}$ noise levels that are no more than 5 dB above rating background level at any residence not subject to a private negotiated agreement, in accordance with the <i>Interim Construction Noise Guideline</i> (DECC, 2009);	Refer to the NMP section 5.1
b) The delivery of plant, equipment and materials which is required to be delivered outside of the standard construction hours by Police and/or other authorised authorities; and	Refer to the NMP section 5.1
c) Emergency work to avoid loss of life, damage to property and/or environmental harm. The licensee must on becoming aware of the need to undertake emergency work – notify the NSW Environment Protection Authority Environment Line on 131 555.	Refer to the NMP section 5.1
L6 Potentially offensive odour	
L6.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the <i>Protection of the Environment Operations Act 1997</i>	Section 3.3.4
O1 Activities must be carried out in a competent manner	
O1.1 Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and a) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Section 9
O2 Maintenance of plant and equipment	
O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:	
b) must be maintained in a proper and efficient condition; and	Section 3.3.4
c) must be operated in a proper and efficient manner.	Section 3.3.4
O3 Dust	
O3.1 All areas in or on the premises must be maintained in a condition that prevents or minimises the emission into the air of dust.	Section 3.3.4
O3.2 Any activity in or on the premises must be carried out by such practicable means as to prevent or minimise the emission into the air of dust.	Section 3.3.4
O3.3 Any plant in or on the premises must be operated by such practicable means as to prevent or minimise the emission of dust into the air.	Section 3.3.4
O4 Emergency response	

EPL 20350 conditions directly relevant to this EMS	Management Plan / section reference
O4.1 An Emergency Response Plan must be developed which documents the procedures to deal with all types of incidents (e.g. spill, explosions or fire) that may occur at the premises or outside of the premises (e.g. during transfer) which are likely to cause harm to the environment.	Refer to the PIRMP
O5 Processes and management	
O5.1 The licensee must ensure that waste identified for recycling is stored separately from other waste.	Refer to the Waste MP section 5.1.3
O5.2 Any liquid and/or non-liquid waste for processing, storage, resource recovery or disposal at the premises must be assessed and classified in accordance with the EPA Waste Classification Guidelines as in force from time to time.	Refer to the Waste MP section 6.1
O5.3 Waste must be classified in accordance with the EPA Waste Classification Guidelines as in force from time to time prior to dispatching from the premises.	Refer to the Waste MP section 6.1
O5.4 All above ground tanks containing material that is likely to cause environmental harm must be bunded or have an alternative spill containment system in place.	Refer to the Waste MP section 7 Table 7.1
O6 Other operating conditions	
O6.1 A Soil and Water Management Plan (SWMP) must be prepared and implemented in accordance with the requirements outlined in <i>Managing Urban Stormwater: Soils and Construction, Vol 1, 4th Edition</i> (Landcom, 2004) within 3 months from the issue date of this licence	Refer to the ESCP
O6.2 The SWMP must include, but is not limited to, the following:	
1. a discussion around the management of existing and future sediment basins, specifically, how these will be managed to prevent pollution, and	Refer to the ESCP section 5.6
2. a description of the measures taken to minimise soil erosion and the discharge of sediment and other pollutants to lands and/or waters for the duration of the licence.	Refer to the ESCP section 5.4 Refer to the ESCP section 5.5
O6.3 The SWMP should also refer to relevant Volume 2 guidance including but not limited to <i>Managing Urban Stormwater: Soils and Construction - Volume 2a Installation of Services</i> and <i>Managing Urban Stormwater: Soils and Construction - Vol 2c Unsealed Roads</i>	Refer to the ESCP section 3.2.1
O6.4 The SWMP must be updated to reflect the proposed irrigation of treated water at the premises, prior to irrigation occurring.	Refer to the ESCP section 11.3
O6.5 The licensee must manually operate the high point vents and low point drains on the water and gas gathering piping networks at the premises.	Refer to the SWMP section 5.5
O6.6 The quantity of treated water applied to the utilisation area(s) must not exceed the capacity of the utilisation area(s) to effectively utilise the water.	Refer to the IMP section 5.1 and section 5.5
O6.7 Treated water application to the utilisation area(s) must not occur in a manner that causes surface run-off from the utilisation area(s).	Refer to the IMP section 5
O6.8 The licensee must design and implement a Gas Leak Detection and Repair (LDAR) program for all gas process plant and equipment on the premises. The LDAR program must include the following:	Refer to the NGP Well Integrity Control Plan

EPL 20350 conditions directly relevant to this EMS		Management Plan / section reference
1. The objective of the LDAR is to prevent and minimise the emission of air pollutants (consistent with condition E3 of this license).		
2. All gas process plant and equipment must be checked for leaks at an interval not exceeding six (6) months, unless otherwise approved in writing by the EPA		Refer to NGP Well Integrity Control Plan
3. All leaks must be repaired within 15 days of detection, unless otherwise approved in writing by the EPA.		Refer to NGP Well Integrity Control Plan
M1 Monitoring records		
M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.		Refer to the SWMP section 11
M1.2 All records required to be kept by this licence must be:		
a) in a legible form, or in a form that can readily be reduced to a legible form;		Refer to the SWMP section 11
b) kept for at least 4 years after the monitoring or event to which they relate took place; and		
c) produced in a legible form to any authorised officer of the EPA who asks to see them.		
M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:		Section 8.6.1
a) the date(s) on which the sample was taken;		
b) the time(s) at which the sample was collected;		
c) the point at which the sample was taken; and		
d) the name of the person who collected the sample.		
M2 Requirement to monitor concentration of pollutants discharged		Refer to the IMP
M5 Recording of pollution complaints		
M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.		Section 7
M5.2 The record must include details of the following:		
a) the date and time of the complaint;		
b) the method by which the complaint was made;		
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;		
d) the nature of the complaint;		
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and		
f) if no action was taken by the licensee, the reasons why no action was taken.		
M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.		
M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.		

EPL 20350 conditions directly relevant to this EMS		Management Plan / section reference
M6 Telephone complaints line		
M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.		Section 7
M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.		
M6.3 The preceding two conditions do not apply until: the date of the issue of this licence		
R1 Annual return documents		
<p>R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:</p> <ol style="list-style-type: none"> 1. a Statement of Compliance, 2. a Monitoring and Complaints Summary, 3. a Statement of Compliance - Licence Conditions, 4. a Statement of Compliance - Load based Fee, 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan, 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and 7. a Statement of Compliance - Environmental Management Systems and Practices. <p>At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.</p>		Section 8
R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect EPA or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').		Section 8
R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.		Section 8
<p>R1.8 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:</p> <ol style="list-style-type: none"> a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder. 		Section 8
R2 Notification of environmental harm		
R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.		Section 6
Note: <i>The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.</i>		
R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.		

EPL 20350 conditions directly relevant to this EMS	Management Plan / section reference
R4 Other reporting conditions	
R4.1 The licensee must submit to the EPA updated spatial information with the Annual Return when there have been infrastructure changes to the licence as identified in condition A2.1. The information must be provided in an ESRI geodatabase or shapefile format or any ESRI compatible dataset in GDA94.	Section 8
R4.2 The licensee must supply with the Annual Return a Groundwater Monitoring Report for groundwater monitoring points identified by this licence which provides: a) an analysis and interpretation of monitoring results and b) actions to correct any identified adverse trends.	Section 8
R4.3 The licensee must retain records of the Gas Leak Detection and Repair (LDAR) program for a period of at least four years from the date the leak was detected.	Refer to the SWMP section 11
R4.4 The licensee must submit a brief summary report on the Gas LDAR program with the annual return. The summary report must include, but may not be limited to the following: a) The total number and type of components not repaired within the required timeframes in O6.8.3 b) Reviewing current leak detection practices and technology implemented at the premises to ensure it is fit for purpose c) The licensee must carry out a full review of the Leak Detection and Repair Program every 5 years. In undertaking the review, the licensee must benchmark the effectiveness of current leak detection practices in the existing LDAR program with best available leak detection practices and technology.	Section 8
R4.5 In relation to a well at the premises, if the licensee submits a well status notification to the Department of Regional NSW in accordance with the petroleum legislation guide titled 'Onshore petroleum reporting and data submission', a copy of that well status notification must be supplied to the EPA at the same time.	Section 8
R4.6 During the current reporting period, the licensee must report to the EPA the number of wellheads that will be present at the premises at the commencement of the next reporting period.	Section 8
R4.7 The report for the number of wellhead must be supplied to the EPA by email to info@epa.nsw.gov.au at least 21 days before the end of the current reporting period.	Section 8
R4.8 The report for the number of wellheads must be prepared each reporting period.	Section 8
G1 Copy of licence kept at the premises or plant	
G1.2 A copy of this licence must be kept at the premises to which the licence applies.	Section 1.5
G1.3 The licence must be produced to any authorised officer of the EPA who asks to see it.	
G1.4 The licence must be available for inspection by any employee or agent of the licensee working at the premises.	

EPL 20350 conditions directly relevant to this EMS	Management Plan / section reference
E1 Tintsville Water Management Facility	
E1.1 The Tintsville Water Management Facility must not receive produced water until the following measures have been prepared and implemented.	Refer to the PWMP section 3.2.1
1. A revised Produced Water Management Plan.	
2. Any pond receiving produced water has been upgraded to comply with the NSW Government <i>Exploration Code of Practice: Produced Water Management, Storage and Transfer</i> which is subject to amendment from time to time.	
3. Installation of double lining with sumps and real time leak detection on any pond receiving produced water.	
E3 Air Impurities	
E3.1 Activities occurring at the premises must be carried out in a manner what will minimise the emissions of air pollutants from the premises	Refer to the NGP Well Integrity Control Plan

Table B4 - SSD 6456 consent conditions relevant to this EMS

SSD 6456 consent conditions relevant to this EMS	Section reference
Consent condition A1 In meeting the conditions of this consent, the Applicant must implement all reasonable and feasible measures to prevent and, if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the development.	This EMS and associated management plans and protocols
Consent condition A2 The Applicant must carry out the development:	
a) in compliance with the conditions of this consent;	Section 1.2
b) in accordance with all written directions of the Planning Secretary; and	Section 1.2
c) generally, in accordance with the EIS.	Section 1.2
<i>Note: The general layout of the development is shown in Appendix 2.</i>	
Consent condition A3 The Applicant must comply with any written directions of the Planning Secretary on:	
<ul style="list-style-type: none"> the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary: and 	Section 1.2
<ul style="list-style-type: none"> the implementation of any actions or measures contained in any such document. 	Section 1.2
Consent condition A4 The conditions of consent and directions of the Planning Secretary prevail to the extent of any inconsistency with the documents listed in condition A2(c), the most recent document prevails.	Section 1.2
Consent condition A5 The Applicant may only undertake the development in the following stages:	Section 1.1.2 and 1.2
a) Phase 1, comprising ongoing exploration and appraisal activities;	
b) Phase 2, comprising construction activities for production wells and related infrastructure;	
c) Phase 3, comprising gas production operations; and	
d) Phase 4, comprising gas well and infrastructure decommissioning, rehabilitation and mine closure.	
Consent condition A7 At least two weeks prior to commencement or completion of each Phase of the development, the Applicant must notify the Department of the relevant date via the Major Projects Portal	Section 1.1.2
Consent condition A8 If petroleum mining operations are suspended during Phase 1 to Phase 3, the Applicant must notify the Department immediately via the Major Projects Portal of the suspension, and then again prior to the recommencement of operations.	Section 6
Consent condition A9 The Applicant shall not commence:	

SSD 6456 consent conditions relevant to this EMS	Section reference
a) Phase 2 until a planning approval is granted for a transmission pipeline to deliver gas from the development to the domestic gas network; and	Section 1.1.2
b) Phase 3 until a transmission pipeline to deliver gas from the development to the domestic gas network is commissioned,	Section 1.1.2
to the satisfaction of the Planning Secretary.	Section 1.1.2
Consent condition A10 Condition A9 does not prevent gas from the development being sent to the Wilga Park Power Station or any local industry.	Section 1.1.2
Consent condition A11 Consent is not granted or refused in respect of:	Section 3.3.4
a) The Westport workers accommodation facility;	
b) The Leewood power generation facility; and	
c) Flaring infrastructure at pilot wells or production wells.	
Consent condition A12 Petroleum mining operations may be carried out in the project area until 31 December 2045. Note: Under this consent, the Applicant is required to decommission and rehabilitate the project area and carry out other requirements in relation to petroleum mining operations. Consequently, this consent will continue to apply in all respects other than to permit the carrying out of petroleum mining operations until the rehabilitation of the project area and other requirements have been carried out to the required standard.	Section 3.2
Consent condition A16 The Applicant must design, construct, operate, maintain and decommission all:	Section 3.3.4
a) gas wells in accordance with the Code of Practice for Coal Seam Gas Well Integrity (2012, as may be updated or amended); and	
b) gas and water gathering lines in accordance with relevant standards including the <i>Code of Practice for Upstream Polyethylene Gathering Networks - CSG Industry</i> (2019) and <i>AS/NZS 4130:2018 Polyethylene (PE) Pipes for Pressure Application</i> , unless otherwise agreed for individual gas wells or gathering lines by the Planning Secretary, in consultation with the EPA, Resources Regulator and MEG.	
Any application to vary the requirements of the code for individual gas wells or gathering lines must be accompanied by a detailed justification of the proposed variation, demonstrating that the variation to the code would not compromise the Applicant's ability to comply with the conditions of consent and any relevant PEL or PPL.	
Note: The Code of Practice for Coal Seam Gas Well Integrity and the Petroleum Onshore Act 1991 provide a number of reporting and notification requirements for gas wells and related petroleum mining operations, including location surveys, annual reporting, operational reporting (for seismic programs, pilot wells and production wells, drilling notifications, well completion reporting, decommissioning (plug and abandonment) reporting, cementing reporting, and incident reporting.	
Consent condition A17 The Applicant must not undertake any hydraulic fracturing of coal seams in the project area at any time.	Section 3.3.4

SSD 6456 consent conditions relevant to this EMS	Section reference
<p>Consent condition A18</p> <p>The Applicant may undertake approved petroleum mining operations 24 hours a day, 7 days a week.</p> <p>Note: Construction and operational activities are limited by the noise criteria in Part B.</p>	Section 3.3.4
<p>Consent condition A19</p> <p>Within 6 months of commencement of Phase 1, unless the Planning Secretary agrees otherwise, the Applicant must surrender the development consent for the Bibblewindi Gas Exploration Pilot Expansion (SSD-5934) and Dewhurst Gas Exploration Pilot Expansion (SSD-6038) in accordance with the EP&A Regulation.</p> <p>Note: This requirement does not include the surrender of construction and occupation certificates for existing and proposed building works under the former Part 4A of the EP&A Act or Part 6 of the EP&A Act as applies from 1 September 2018. The surrender should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.</p>	
<p>Consent condition A20</p> <p>Upon the commencement of development under this consent, and before the surrender of the development consents required under condition A19, the conditions of this consent prevail to the extent of any inconsistency with the conditions of those consents.</p>	Section 3.3.4
<p>Consent condition A21</p> <p>Within 6 months of commencement of development under this consent the Applicant must enter into a PA with the Council in accordance with;</p> <p>a) Division 7.1 of Part 7 of the EP&A Act; and</p> <p>b) the terms of the offer in Appendix 8.</p>	Section 3.3.4
<p>Consent condition A22</p> <p>The Applicant must establish and operate a CCC for the development in accordance with the Department's <i>Community Consultative Committee Guidelines: State Significant Projects</i> (2016) or its latest version, and to the satisfaction of the Planning Secretary. The CCC must be operational prior to commencement of Phase 1.</p> <p>Notes:</p> <ul style="list-style-type: none"> • The CCC is an advisory committee only. The Department, EPA, and other relevant agencies are responsible for ensuring that Santos complies with this consent. • In accordance with the Guidelines, the Committee should comprise an independent chair and appropriate representation from Santos, Council and the local community. 	
<p>Consent condition A23</p> <p>With the approval of the Planning Secretary, the Applicant may:</p>	
<p>a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program</p>	Section 4.4

SSD 6456 consent conditions relevant to this EMS	Section reference
b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);	No combination proposed as part of this Strategy
c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and	Section 1.2
d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by a consent	No combination proposed as part of this Strategy
Consent condition A25 Unless the Applicant and the applicable authority agree otherwise, the Applicant must:	Section 3.3.4
a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and	
b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development, to the satisfaction of the applicable authority.	
c) Note: This condition does not apply to any damage to roads caused by the development.	
Consent condition A26 All demolition of applicable structures must be carried out in accordance with <i>Australian Standard AS 2601-2001 The Demolition of Structures</i> (Standards Australia, 2001).	Section 3.3.4
Consent condition A27 All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.	Section 3.3.4
Notes: <ul style="list-style-type: none"> Under Part 6 of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the development 	
Consent condition A28 All plant and equipment used in the project area, or to monitor the performance of the development, must be:	Section 3.3.4
d) Maintained in a proper and efficient conditions; and	
e) Operated in a proper and efficient manner.	
Consent condition C5 If a landowner considers the development to be exceeding any relevant noise, air quality, water or blasting criterion or performance measure in this consent, or in any management plan required under this consent, on their residence or land, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land.	Section 8.3.2

SSD 6456 consent conditions relevant to this EMS		Section reference
Consent condition C6 If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reason for that decision, within 21 days of the request for review.		Section 7.1.3
Consent condition C7 If the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or other timeframe agreed by the Planning Secretary and the landowner, of the Planning Secretary's decision, the Applicant must:		Section 7.1.3
a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to:		
(i) consult with the landowner to determine their concerns;		
(ii) conduct monitoring to determine whether the development is complying with the relevant criterion or performance measures on their residence or land; and		
(iii) if the development is not complying with the relevant criterion or performance measure, identify measures that could be implemented to ensure compliance with the relevant criterion or performance measures;		
b) give the Planning Secretary and landowner a copy of the independent review; and		
c) comply with any written requests made by the Planning Secretary to implement any findings of the review.		
Consent condition D1 Prior to the commencement of Phase 1, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:		This EMS
a) be prepared in consultation with the EPA;		Section 1.4
b) provide the strategic framework for environmental management of the development;		Section 4.1
c) identify the statutory approvals that apply to the development;		Section 3.2.1
d) set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;		Section 2 Table 2.1
e) set out the procedures to be implemented to:		
(i) keep the local community and relevant agencies informed about the progress and performance of the development;		Section 5
(ii) receive, handle, respond to and record complaints;		Section 7
(iii) resolve any disputes that may arise during the development;		Section 7
(iv) respond to incidents and non-compliance; and		Section 6
(v) respond to any emergency.		Section 6
Consent condition D2 The Applicant must implement the approved Environmental Management Strategy		Section 3.3.4 Section 10
Consent condition D4 Within 2 months of:		Section 10

SSD 6456 consent conditions relevant to this EMS	Section reference
a) the submission of an incident report; b) the submission of an Annual Review; c) the submission of an Independent Environmental Audit; d) the submission of a Field Development Plan; e) the submission of a Groundwater Model Update; or f) the approval of any modification of the conditions of this consent, The Applicant must review the suitability of existing strategies, plans and programs required under this consent.	
Consent conditions D5 If the review determines that the strategies, plans and programs required under this consent require revision - to either improve the environmental performance of the development, cater for a modification or comply with a direction – then the Applicant must submit the revised document to the Secretary for approval within 6 weeks of the review. <i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i>	Section 10
Consent conditions D6 The Applicant must notify the Department and any other relevant agencies via the Major Projects Portal immediately after it becomes aware of the incident. This notice must describe the location and nature of the incident.	Section 6
Consent conditions D7 Within 7 days of becoming aware of a non-compliance with the conditions of this consent, the Applicant must notify the Department of the non-compliance via the Major Projects Portal. This notice must set out the non-compliance, the reasons for the non-compliance (if known) and what actions have been taken, or will be taken, to address the non-compliance. <i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</i>	Section 6 Section 8
Consent conditions D8 By the end of March each year, unless the Planning Secretary agrees otherwise, the Applicant must submit an Annual Review of the environmental performance of the development to the Department via the Major Projects Portal. This review must:	Section 8.1
a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;	
b) report on the progress of biodiversity credits retirements and the associated actual versus proposed surface disturbance for each stage;	
c) report on greenhouse gas emissions and the status of any associated offset obligations;	
d) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the:	
(i) relevant statutory requirements, limits or performance measures/criteria;	
(ii) requirements of any plan or program required under this consent;	

SSD 6456 consent conditions relevant to this EMS	Section reference
<ul style="list-style-type: none"> (iii) monitoring results of previous years; and (iv) relevant predictions in the document/s listed in condition A2(c); e) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; f) evaluate and report on compliance with the performance measures, criteria and operating conditions in this consent; g) identify any trends in the monitoring data over the life of the development; h) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and i) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development. 	
<p>Consent conditions D9</p> <p>Within one year of commencement of Phase 1 and every 3 years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. The audit must:</p> <ul style="list-style-type: none"> a) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; b) be carried out in consultation with the relevant agencies and the CCC and Advisory Groups; c) assess the environmental performance of the development and whether it is complying with the relevant requirements in this consent, water licences and mining leases for the development (including any assessment, strategy, plan or program required under these approvals); d) include a hazard audit undertaken in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines', including verification of implementation of engineering or non-engineering control measures in the hazards studies/plans required under this consent; e) review the adequacy of any approved strategy, plan or program required under the abovementioned approvals and this consent; f) recommend appropriate measures or actions to improve the environmental performance of the development and any assessment, strategy, plan or program required under the abovementioned approvals and this consent; and g) be conducted and reported to the satisfaction of the Planning Secretary. <p>Note: The audit team must be led by a suitably qualified auditor and include experts in groundwater, well integrity, hazards, and any other fields specified by the Planning Secretary</p>	Section 8.3

SSD 6456 consent conditions relevant to this EMS	Section reference
Consent conditions D10 Within 3 months of commencing an Independent Environmental Audit, unless the Planning Secretary agrees otherwise, the Applicant must submit a copy of the audit report to the Department (and any other NSW agency that requests it) via the Major Projects Portal together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations.	Section 8.3
Consent conditions D11 Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit. <i>Note: For the purposes of this condition, as set out in the EP&A Act, “monitoring” is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an “environmental audit” is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</i>	Section 4
Consent conditions D13 From the commencement of Phase 1, until the completion of all rehabilitation required under this consent, the Applicant must:	Section 1.5 Section 5 Section 7
a) make copies of the following information publicly available on its website:	
(i) the document/s listed in condition A2(c);	
(ii) current statutory approvals for the development;	
(iii) approved strategies, plans and programs;	
(iv) detailed plans for the Phases of the development;	
(v) minutes of CCC and Advisory Group meetings;	
(vi) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;	
(vii) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;	
(viii) a summary of the current phase/s and progress of the development;	
(ix) contact details to enquire about the development or to make a complaint;	
(x) a complaint register, updated monthly;	
(xi) the Annual Reviews of the development;	
(xii) a record of all incidents and non-compliances;	
(xiii) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant’s response to the recommendations in any audit report; and	
(xiv) any other matter required by the Planning Secretary; and	
b) keep such information up to date.	

Appendix C - Staging approval



Planning,
Industry &
Environment

Ms Cassie Hay
Senior Environmental Advisor
Santos Limited
32 Turbot Street
Brisbane QLD 4000

14/04/2021

Dear Ms Hay

**Narrabri Gas Project (SSD-6546)
Staging Approval**

I refer to your letter of 8 March 2021 and the revised Attachment A submitted in accordance with Condition A23 of Schedule 2 of the Development Consent for the Narrabri Gas Project (SSD-6546).

The Department has carefully reviewed the documents and is satisfied that staging in the four phases would allow the progressive development of the project:

- Phase 1, ongoing and minor new exploration and appraisal activities;
- Phase 2, construction activities for production wells and related infrastructure;
- Phase 3, gas production operations; and
- Phase 4, gas well and infrastructure decommissioning, rehabilitation and closure.

Accordingly, the Planning Secretary has approved the proposed Staging Approach and Management Plan development for the Narrabri Coal Project.

If you wish to discuss the matter further, please contact Wayne Jones on 6575 3406.

Yours sincerely

A handwritten signature in black ink, appearing to be 'S O'Donoghue'.

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

Attachment A – Proposal to stage management plans

1. Introduction

The Independent Planning Commission of NSW approved the Narrabri Gas Project (NGP) on 30 September 2020 under State Significant Development (SSD) consent (SSD-6456). The approved project includes the progressive development of up to 850 new gas wells on up to 425 new well pads and the construction and operation of gas processing and water treatment facilities until 31 December 2045.

The SSD consent requires the project to be carried out in stages. Condition A5 of the consent states:

The Applicant may only undertake the development in the following stages ^[1]:

- a) Phase 1 ^[2], comprising ongoing exploration and appraisal activities;*
- b) Phase 2, comprising construction activities for production wells and related infrastructure;*
- c) Phase 3, comprising gas production operations; and*
- d) Phase 4, comprising gas well and infrastructure decommissioning, rehabilitation and closure.*

The consent was drafted with the intent that management plans would be staged according to the progressive development of the project. The *Narrabri Gas Project Assessment Report* (DPIE June 2020) states that “management plans are likely to be developed in stages as the project is rolled out progressively and would only need to cover specific requirements of the stage rather than the whole project”. Condition A23 of the consent states:

With the approval of the Planning Secretary, the Applicant may:

- a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);*
- b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined);*
- c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and*
- d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by a consent of any adjoining mine subject to common, shared or related ownership or management.*

¹ Condition A6 of the consent states “Condition A5 does not prevent the Applicant from carrying out the development of phases concurrently, subject to the other conditions of this consent.

² Phase 1 is defined under the consent as “The phase of the development comprising ongoing exploration and appraisal activities in the project area, including: seismic surveys; core and chip holes; construction and operation of pilot wells (up to 25 wells on up to 25 well pads across the project area); and pilot well ancillary infrastructure, including access tracks, gas and water gathering lines, water balance tanks, safety flaring infrastructure, utilities and services, and environmental monitoring equipment including groundwater monitoring bores...”.

Santos

Prior to approval of the project, Santos was carrying out exploration and appraisal activities within Petroleum Exploration Licence (PEL) 238 and Petroleum Assessment Lease (PAL) 2. Santos plans to continue exploration and appraisal of the resource in the near term until a Final Investment Decision (FID) can be made. The first stage of new activities to be carried out under the consent (Phase 1 activities) will comprise a minor extension to the existing exploration and appraisal activities only.

This application seeks approval to prepare specific management plans for Phase 1 activities only. The application includes:

- an indicative description of Phase 1 activities that will be included in the first Field Development Plan (Section 2)
- the proposed staging of specific management plans required to be approved prior to Phase 1 commencing (Section 3).

2. Description of Phase 1

This description of Phase 1 works and associated figure is for the purpose of the seeking approval to stage management plans required under the consent and is indicative only. The final Phase 1 scope and footprint will be determined following completion of micro-siting, cultural heritage, and consultation processes required under the consent, and approved as part of the first Field Development Plan.

Continuation of existing exploration and appraisal activities

Current exploration and appraisal activities will continue in PEL 238 and PAL 2. These include:

- Tintsville Pilot
- Bibblewindi East Pilot
- Bibblewindi West Pilot
- Dewhurst North Pilot
- Dewhurst South Pilot
- Dewhurst northern and southern flow lines
- Leewood Water Management Facility including ponds, water treatment plant and irrigation area
- Bibblewindi Facility including gathering system, water balance tank, compressor and flare
- Bibblewindi to Leewood buried gas pipeline.

New exploration and appraisal activities

The Phase 1 scope includes continuation of the above described existing activities as well as construction and operation of the following new proposed infrastructure:

- 4 coreholes
- 6 pilot wells
- 1 deep reservoir monitoring bore (converted corehole)
- shallow water monitoring bores
- associated linear infrastructure
- seismic surveys.

The attached figure shows the general layout of the proposed Phase 1 activities. This layout may change as a result of further micro-siting, cultural heritage and consultation processes still to be carried out. The Field Development Plan will describe the final activities and their locations.

Appendix D - Santos Environment, Health & Safety Policy

Environment, Health & Safety



Policy

Our Commitment

Santos is committed to being the safest gas company wherever we have a presence and preventing harm to people and the environment

Our Actions

We will:

1. Integrate environment, health and safety management requirements into the way we work
2. Comply with all relevant environmental, health and safety laws and continuously improve our management systems
3. Include environmental, health and safety considerations in business planning, decision making and asset management processes
4. Identify, control and monitor risks that have the potential for harm to people and the environment, so far as is reasonably practicable
5. Report, investigate and learn from our incidents
6. Consult and communicate with, and promote the participation of all workers to maintain a strong environment, health and safety culture
7. Empower our people, regardless of position, to "Stop the Job" when they feel it necessary to prevent harm to themselves, others or the environment
8. Work proactively and collaboratively with our stakeholders and the communities in which we operate
9. Set, measure, review and monitor objectives and targets to demonstrate proactive processes are in place to reduce the risk of harm to people and the environment
10. Report publicly on our environmental, health and safety performance

Governance

The Environment Health Safety and Sustainability Committee is responsible for reviewing the effectiveness of this policy.

This policy will be reviewed at appropriate intervals and revised when necessary to keep it current.

Kevin Gallagher

Managing Director & CEO

Status: **APPROVED**

Document Owner:	Jodie Hatherly, General Counsel and VP Legal, Risk and Governance		
Approved by:	The Board	Version:	3

20 August 2019

Page 1 of 1

Appendix E - Santos complaints line contact details

Complaints line

Santos takes complaints received from a member of the community in relation to the conduct of our operations very seriously. Project related complaints may be submitted to:

Telephone (business hours): **02 6792 9000**

Operations On-Call/Emergency: **0427 923 401**

Freecall number: **1800 071 278**

Email: energy.nsw@santos.com

Postal Address:

Santos Ltd

PO Box 859

NARRABRI NSW 2390

Street Address:

Santos Ltd

Narrabri Operations Centre

300 Yarrie Lake Road

NARRABRI NSW 2390