Tubridgi Gas Storage Project
Operational Environmental Plan

Public Summary

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Document Revision History

Rev	Date	Revision Description
1	26-02-2023	Document created for E-PLN-023 TGS OEP Rev 4

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Abbreviations

Term	Meaning/ Description
ACV	Authorisation to Clear Vegetation
AER	Annual Environmental Report
AGIG	Australian Gas Infrastructure Group
AGIT	AGI Tubridgi
ARI	Average Rainfall Interval
ASW	Ashburton West
ALARP	As Low As Reasonably Practicable
AMP	Asset Management Plan
AS	Australian Standard
ASS	Acid Sulphate Soils
ASSMP	ASS Management Plan
BTEX	Benzene, toluene, ethylbenzene, xylenes
CBA	Cost Benefit Analysis
CMP	Crisis Management Plan
CMT	Crisis Management Team
Cth	Commonwealth
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	Dampier to Bunbury Natural Gas Pipeline
DBP	Dampier Bunbury Pipeline
DEC	Department of Environment and Conservation
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DFES	Department of Fire and Emergency Services
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EGM TAM	Executive General Manager Transmission Asset Management
EGM TO	Executive General Manager Transmission Operations
EMS	Environmental Management System
EP	Environment Plan
EPBC	Environment Protection and Biodiversity Conservation
EPO	Environment Performance Objective
EPS	Environment Performance Standard
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESD	Ecologically Sustainable Development
FMP	Field Management Plan
GEF	Griffin Export Facility
GIS	Geographic Information System
GWL	Groundwater Licence
HAZID	Hazard Identification study
HSE	Health, Safety and Environment
IBRA	Interim Biogeographic Regionalisation for Australia
IMT	Incident Management Team

Term	Meaning/ Description
JHA	Job Hazard Analysis
km	Kilometre
KP	Kilometre Point
MAE	Major Accident Event
mm	Millimetre
MNES	Matters of National Environmental Significance
MS	Ministerial Statement
NGERS	National Greenhouse and Energy Reporting Scheme
NORMs	Naturally Occurring Radioactive Materials
NPI	National Pollutant Inventory
OSCP	Oil Spill Contingency Plan
PIC	Person in Charge
PL	Pipeline Licence
PPE	Personal Protective Equipment
RiWI Act	Rights in Water and Irrigation Act 1914
SFARP	So Far As Is Reasonably Practicable
SWL	Surface Water Licence
TDS	Total Dissolved Solid
TGS	Tubridgi Gas Storage
TGSP	Tubridgi Gas Storage Project
WA	Western Australia
WAWP	Wheatstone Ashburton West Pipeline
WONS	Weeds of National Significance

Definitions

Term	Meaning/ Description
Aspect	Elements of the operator's activities, products, or services that may interact with the environment. Includes planned and unplanned activities.
Clearing	The killing or destruction of; removal of; severing of trunks or stems; or the doing of any other substantial damage to native vegetation in an area.
Consequence	The outcome of an event expressed qualitatively or quantitatively, being a loss, impact, injury, an expressed concern, disadvantage or gain.
Inherent Risk	The risk rating for an event before control measures (EPSs) are applied, reflects the worst-case scenario.
Landholder	Those who hold any underlying tenure or interest in the land in which the pipeline is held. This includes freehold landowners, lessees, pastoralists, Native Title bodies and Claimants, local government authorities, government departments and other utilities.
Likelihood	The probability or frequency of an event occurring.
Native vegetation	Any indigenous vegetation; be it aquatic or terrestrial; living or dead (excluding plantations).
Petroleum activity	Any operations or works carried out in the State under a petroleum, geothermal, or pipeline instrument; or any other operations or works carried out in the State relating to petroleum or geothermal exploration or development, or to a pipeline which may have an environmental impact.
Residual risk	The risk rating for an event after control measures (EPSs) are applied.

1. INTRODUCTION

1.1 Background

AGI Tubridgi Pty Limited (AGIT) operates and maintains the Tubrigdi Gas Storage Project (TGSP), a subsurface gas injection and extraction facility with a nominal supply capacity of up to 120 TJ/d of natural gas. The storage facility is connected to the Dampier to Bunbury Natural Gas Pipeline (DBNGP) via the Wheatstone Ashburton West Pipeline (WAWP) allowing gas producers to store or withdraw gas from the TGSP. The TGSP benefits gas producers and customers alike who may require storage capacity to bank unused gas, smooth production profiles or to store gas to cover planned production outages.

The TGSP utilises a five (5) well program with associated flowlines back to the TGSP facility located at the previous Griffin Export Facility (GEF). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) under the *Petroleum Geothermal and Energy Resources Act 1967* have issued production Licence L9 for activities related to TGSP.

The *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012* require the development and implementation of an Environment Plan (EP) to the satisfaction of the DEMIRS. The *Tubridgi Gas Storage Project – Operations Environment Plan* (the EP) has been prepared to satisfy this requirement.

The operation of the TGSP facilities commenced in Q2 2017, with free flow capability available to enable injection intially with compression added in later 2017 and to allow withdrawal when required.

In 2023, AGIT has commenced the TGS Expansion Project which includes the construction of four new wells (TRW2, TRW8, TRW10 and TCW11) and installation of two new flowlines to connect two oof the new wells into the existing flowline network. As part of the installation of the new flowline for TRW2, AGIT identified the opportunity to repurpose the mothballed Griffin Onshore Gas Pipeline (PL20) under Ashburton West System. As a result of the development, a portion of the Griffin Onshore Pipeline was transferred from PL20 to L9 (Figure 1-3). The construction is expected to complete by Q4 2024.

1.2 Proponent

AGI Tubridgi Pty Limited (AGIT) is the licence holder and nominated operator and exercises all rights and retains all obligations associated with L9.

AGIT is part of the Australian Gas Infrastructure Group (AGIG), which also includes the Dampier to Bunbury Natural Gas Pipeline (DBNGP). AGIT relies on the services of DBNGP (WA) Nominees Pty Limited (DBP), the owner of the DBNGP, for the provision of labour and equipment to undertake its business. In this regard AGIT adopts all AGIG and DBP policies and procedures across the operation of its business.

Public enquiries regarding the Tubridgi Gas Storage Project may be directed to AGIT via:

Attn: Head of Land Management
PO Box Z5267
Perth, St Georges Terrace WA 6831
Telephone: +61 8 9223 4300
land.management@agig.com.au

1.3 Objectives

The objective of this EP is to identify and assess environmental aspects associated with operations of the TGSP facilities and establish suitable controls so as to eliminate or minimise these risks to a level that is low, negligible or reduced to as low as is reasonably practical (ALARP).

Additionally, the EP aims to establish performance objectives and measurement criteria for the ongoing monitoring of environmental performance.

Ultimately, this EP is intended as both a legally binding regulatory document and a practical tool for implementation in the management of environmental risks during operation of the TGSP.

This EP has been developed in accordance with the Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in WA (DEMIRS, June 2022).

1.4 Scope

The scope of this EP includes all activities associated with operation of the TGSP, namely:

- Injection and withdrawal facilities
- Inlet separation
- Pre-treatment, including a Mercury Removal Unit
- Gas Dehydration
- Compression for sales gas injection and withdrawal
- Custody Transfer Metering
- Flow line launchers and receivers
- Well head facilities
- Evaporation pond
- Control Room
- Waste oil separator tanks and waste oil transfer system
- Diesel fuel storage and power generation
- Camp accommodation and related ancillary services (water, sewage etc)
- Potential water well construction and operation (Years 5-10)
- Helipad
- Storage and laydown of drill rig and associated facilities and temporary camp
- Store rooms and undercover storage area for spares, chemicals and oils

The details of this project are described in project documents and will be embedded into the Asset Management Plan – description of the assets.

This EP should be read in conjunction with the following other key management documents:

- TGS Field Management Plan (TSF-Z-PLN-001-01)
- TGS Well Management Plan (TGS-Z-PLN-003-01)
- TGS Emergency Response Procedure (TGS-Z-PRO-011-01)
- TGSP Safety Case (TGS-Z-PLN-006-01)
- TGS Asset Management Plan (TGS-Z-PLN-004-01)

1.5 Location

The TGSP facilities are situated at the previous Griffin Export (GEF) Facility, adjacent to the Ashburton West (ASW) Facility, and located approximately 31 km southwest of Onslow at the below approximate coordinates:

- Long/Lat WGS 84: Longitude 114.866924 Latitude -21.783898
- GDA 94 Zone 50: Easting 279,452.90 Northing 7,589,568.15

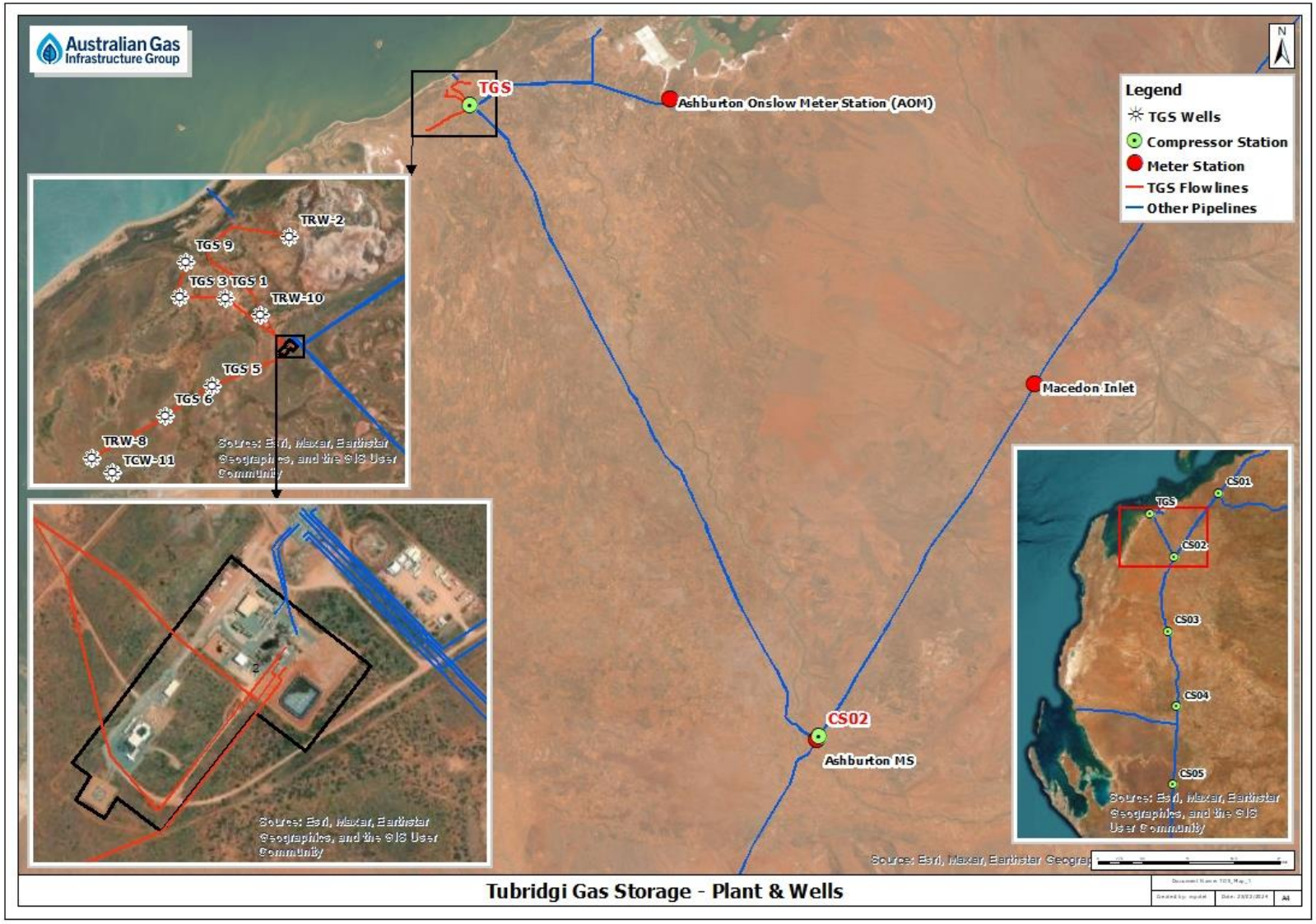

Figure 1-1: Map of Tubridgi Gas Storage Plants & Wells – Regional Location

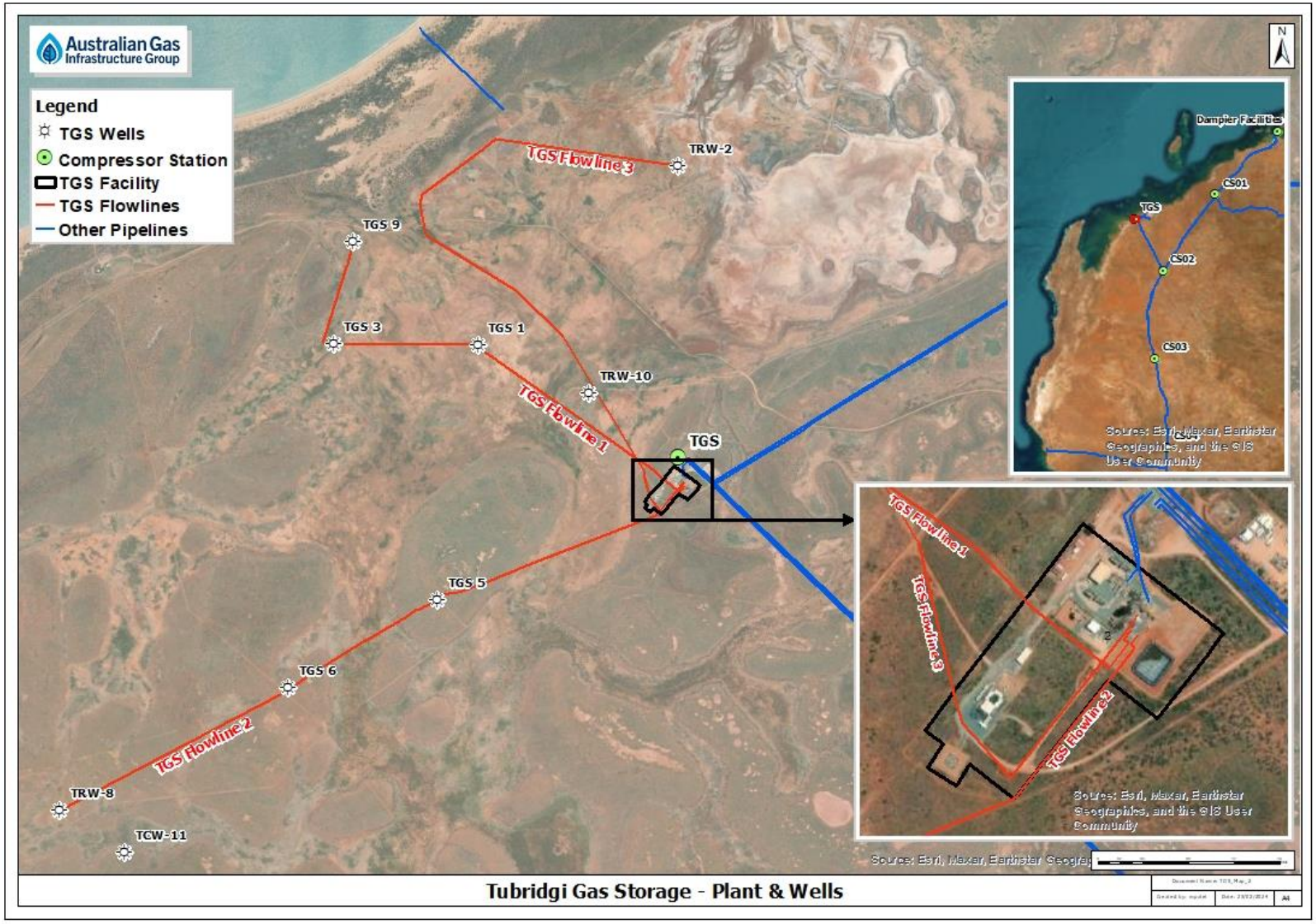

Figure 1-2: Map of Tubridgi Gas Storage Plants & Wells

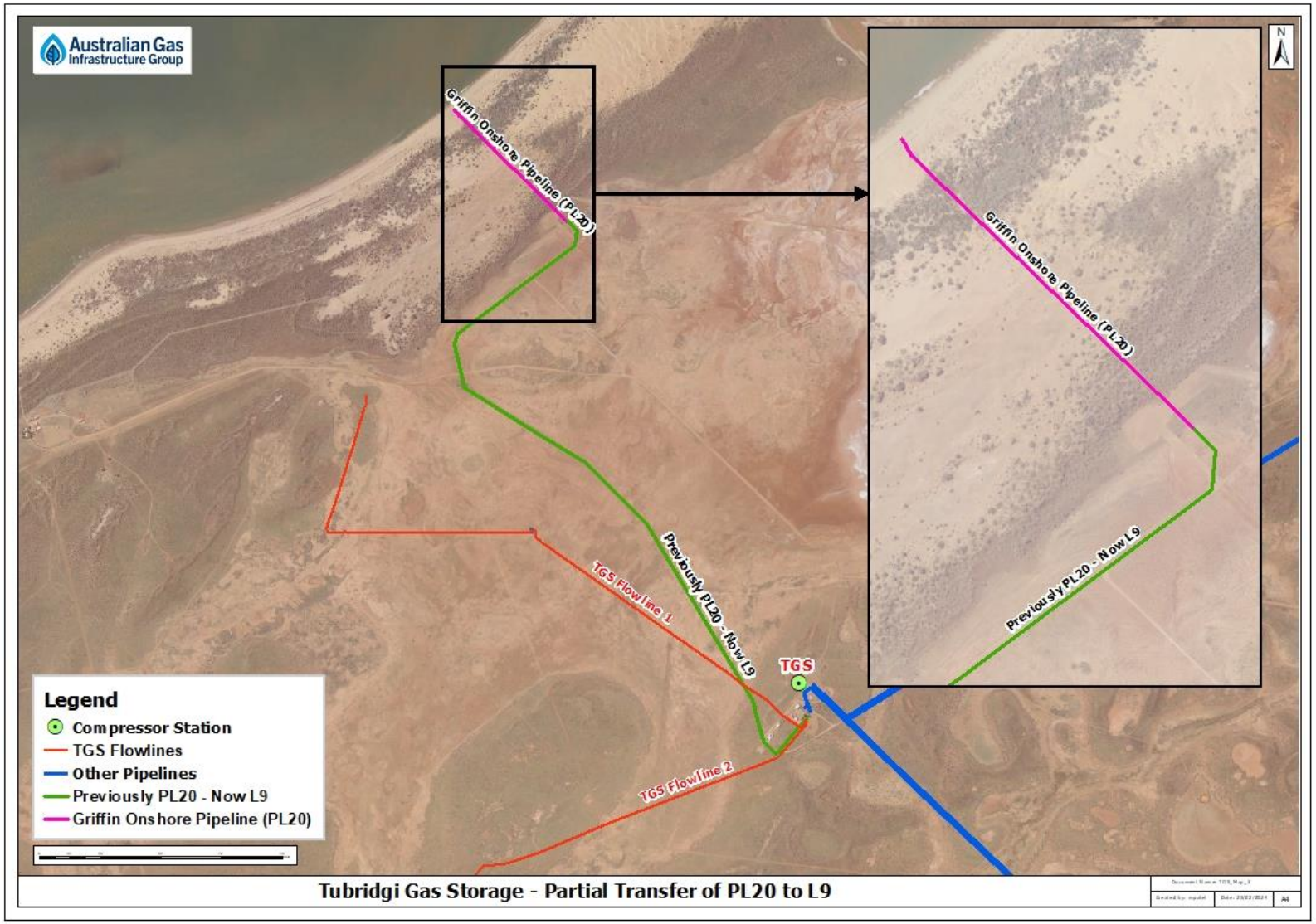

Figure 1-3: Map of Tubridgi Gas Storage – Partial Transfer of PL20 to L9

1.6 Schedule

The operations of the TGSP commenced in 2017, with steady state operations. Initially the gas storage was in injection mode until approximately 2020, when withdrawal was requested by customers. Withdrawal is also managed in terms of daily notifications and the plant operated to meet both injection and withdrawal operations for the day.

TRW2, TRW8 and TRW10 are expected to be commence operation by Q4 2024.

2. ENVIRONMENTAL MANAGEMENT FRAMEWORK

2.1 Policy

AGIT adopts all AGIG and DBP policies and procedures across the operation of its business.

TGS has a corporate culture which strives for Health, Safety and Environment (HSE) excellence, driven by a corporate commitment to protect people and the environment. Central to this is the AGIG Environmental Policy which is signed and endorsed by its CEO and a set of core principles, called Zero Harm Principles, which are aimed at establishing principles for undertaking activities that have been assessed as having the highest risk to TGSP and its workforce.

The AGIG Environmental Policy is reviewed regularly, or when there is a significant change to the organisation or its activities, to ensure that the policy remains comprehensive and current. Employees are consulted during the review process through a number of mechanisms, including HSE Committees.

2.2 Structure and Responsibility

All personnel are responsible for the environmental performance of their activities and for reporting any environmental hazards and incidents. Overarching environmental roles are described in Table 2-1 below and specific environmental responsibilities are addressed in **Section 6**.

Table 2-1: Key Environmental Responsibilities

Position Title	Environmental Responsibilities
Executive Leadership Team	• Hold overall responsibility for environmental management; • Review, understand, approve and support implementation of the EP; and • Ensure adequate resources are provided for the implementation of the EP.
Executive General Manager Transmision Asset Management (TAM)	• Ensure that environmental obligations are embedded into design, systems and processes for satisfying compliance and due diligence requirements; • Ensure that proposed project additions and alterations obtain all necessary environmental approvals; and • Coordinate emergency response in accordance with the TGSP Emergency Response Procedure (TGS-Z-PRO-011-01).
Executive General Manager Transmission Operations (TO)	• Ensure that environmental obligations are embedded into AGIT's systems and processes for satisfying compliance and due diligence requirements; • Ensure maintenance and operations personnel are adequately trained to carry out their environmental duties; • Facilitate the implementation of this plan in relation to field maintenance activities; • Ensure the requirements of the Master Obligations Register (including modifications and updates) are communicated to the managers as appropriate; • Ensure incident reporting protocols are communicated and adhered to; • Respond to environmental incidents as required; and • Remediation of contaminated sites.
Executive General Manager Commercial	• Ensure environmental obligations are embedded into the operation and dispatching of the facility, wells and flowlines; • Control Room Operators are adequately trained to carry out emergency and everyday operations to minimise environmental impacts;

Position Title	Environmental Responsibilities
	• Manage and coordinate the emergency response from the control room in support of the ERP and CMT; and • Drive fuel efficiency with a focus on fuel gas minimisation of compressors including blowdown minimisation.
Well Engineer – Design and Operations	• Manage the Field and Well Management Plans; • Provide scheduling and project management for well maintenance activities; and • Review and manage well related events and emergency response requirements
Superintendents / Managers: • Facilities; • Mainline; • Engineering and Operational Project; • Project Management Office; and • Planning and Supply.	• Ensure personnel training plans reflect the environmental duties and the training is carried out; • Ensure this plan is embedded in the asset management tool (Maximo); • Review and understand the Master Obligations Register (including modifications and updates) and that these are reflected in work instructions relative to activities; • Ensure incident reporting protocols are followed and that the maintenance personnel report Events/Hazards and near misses; and • Respond to environmental incidents as required.
Environmental Manager	• Monitor implementation of and compliance with this EP and environmental risk assessment recommendations; • Facilitate and monitor EP reviews; • Review audit reports and monitor completion of required corrective actions; • Report significant environmental non-compliances with EP and legislation internally to the AGIG Executive Leadership Team and externally to regulatory authorities, as required; and • Ensure all environmental obligations are added to the Master Obligations Register and are kept current in that register.
Senior Environmental Advisor	• Identify changes during operation and update the EP to address and manage any new environmental risks; • Provide assistance and/or advice regarding implementation of the EP and any other environmental management concern; • Liaise with government agencies regarding environmental issues; • Assess environmental incidents to determine regulatory reporting requirements; • Report on, and address as required, existing and emerging Native Title and Cultural Heritage issues; and • Undertake planned external reporting.
Land Manager	• Liaise with landholders, traditional owners, community representatives, contractors, councils, planning and local government authorities as well as utilities and infrastructure owners on land management and environmental matters as required.
Training and Development Manager	• Facilitate the maintenance, implementation and ongoing improvement of training and induction programs.

Position Title	Environmental Responsibilities
Project Manager	• Ensure construction related environmental impacts are managed as per this EP; • Manage and monitor environmental aspects; • Assist and provide resourcing to achieve environmental controls; • Assist in environmental inspections, incident investigations and action close out; • Ensure all construction personnel are aware and abide by environmental legislative requirements and obligations; • Report on and address any environmental hazards; and • Promote environmental initiatives.
Person in Charge (PIC)	• Ensure application of work management system to meet requirements of Safety Case, Asset Management Plan and this EP; • Ensure the management response to all hazards, incidents and near misses (events) is implemented and actions effective; • Lead or delegate event investigations; • Ensure ongoing resource competency for personnel and contractors conducting work in the field with assistance from Training and Development Manager; and • Provide assistance and reviews of monitoring and reporting data including collection, sampling and provision of records to meet reporting requirements.
Person in Control (onsite)	• Provide onsite incident management response; • Provide onsite leadership and management of operations including Site Coordinator and Permit Issuing roles; • Manage site security and stakeholder communications from a site perspective; • Ensure the management and reporting of all hazards, incidents and near misses (events); and • Participate in event investigations.
All Personnel	• Read, understand and implement the control measures detailed within Section 6 of this plan; • Report all observed non compliances to a supervisor; • Report all observed incidents, hazards and near misses; • Continually seek to identify areas for improvement of environmental management; and • Conduct HSE inspections as required across the plant.

2.3 Legislation and Other Requirements

Key environmental legislation and other requirements that may apply to the TGSP facilities are presented in Table 2-2 below.

Table 2-2: Associated Environmental Legislation and Other Requirements

Commonwealth Legislation	
Aboriginal and Torres Straits Islander Heritage Protection Act 1984	An Act to ensure the protection of Cultural Heritage which requires that any new development in previously undisturbed areas is reviewed to assess potential heritage impacts and ensure appropriate approvals are in place prior to commencing works. Any modifications or enhancements (projects) include a heritage impact assessment. Awareness of the requirements under this Act and the State Act ensure knowledge of assessment requirements and identification of heritage artefacts.
Environment Protection and Biodiversity Conservation Act 1999	An Act to identify and ensure the protection of Matters of National Environmental Significance (MNES). Approval requirements are set out for any new developments either undertaken on Commonwealth Land or considered to have potential to impact upon MNES. While TGSP has no specific MNES identified, any future works are assessed against MNES impacts.
National Greenhouse and Energy Reporting Act 2007	This Act requires the monitoring and if required, reporting of greenhouse gas and energy production / consumption. This is completed annually and relates to fuel gas use, gas venting and diesel fuel use.
Native Title Act 1993	An Act to ensure Native Title holders' rights are protected throughout development within proclaimed areas. Any modifications or enhancements (projects) include a heritage impact assessment.
Western Australian Legislation and Associated Regulations	
Aboriginal Heritage Act 1972	All sites of Aboriginal archaeology are protected and will require pre-clearance survey and permit if materials are to be disturbed. Declared heritage places are protected and will need to be avoided or consent obtained if site is to be disturbed. Any modifications or enhancements (projects) include a heritage impact assessment as well as ensuring personnel are aware of their requirements to protect any heritage identified. Immediately prior to any clearing activities, Traditional Owner Monitors or an Anthropologist shall inspect the area to ensure no cultural heritage items or areas are impacted.
Biodiversity Conservation Act 2016	Supersedes the Wildlife Conservation Act 1950 and requires management of impacts to threatened species, ecological communities, and conservation reserves. Includes requirements under regulations for licensing to take or impact native flora and fauna. Level 1 flora surveys were completed prior to the flowline construction activities, to confirm no declared flora or threatened ecological communities are present within the disturbance footprint.
Biodiversity Conservation Regulations 2018	Fauna licensing for any fauna handling required as part of constructing the new flowlines. Additionally includes threatened flora and communities licensing requirements for impacts to conservation significant species.
Biosecurity and Agriculture Management Act 2007	Includes obligations for the management of declared weeds within WA and the need for the identification and management of weed species. Declared weeds such as mesquite occur are known to occur within the TGSP area and require management and landholder consultation for best management practices.

Bushfires Act 1954	Sets out requirements for fire protection matters including firebreaks around compounds and fire ban controls. Total Fire Ban exemptions and conditions for work have been built into hot works and other fire prevention controls. Recent updates to the regulations also include no hot works during catastrophic fire rating days.
Contaminated Sites Act 2003	To identify, record, manage and clean up contamination. Under the Act, known or suspected contaminated sites must be reported to the Department of Water and Environmental Regulation, investigated and, if necessary, cleaned up (remediated).
Environmental Protection Act 1986	Act to ensure the protection of the Environment. Includes requirements for referral of projects, licensing of scheduled activities and obligation to prevent pollution and minimise impacts to the environment. This includes the reporting of any pollution.
Environmental Protection Regulations 1987	Regulations (including sub regulations) in terms of the management of noise, clearing of native vegetation, controlled wastes, unauthorised discharges and litter is managed on site. Main interaction is the Clearing Permit used for initial clearing of each flowline disturbance footprint. Management of noise and discharge of wastes is also required under this Act to ensure no negative impacts to receptors.
Environmental Protection Regulations (Abrasive Blasting) 1988	Management of environmental risks relating to abrasive blasting activities including noise, dust and waste management. Abrasive blasting may occur occasionally during operations but normally within compound areas.
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	Regulations specific to the clearing of native vegetation and includes potential exemptions under Petroleum related legislation and activities. Permits for clearing are currently held for the project.
Environmental Protection (Noise) Regulations 1997	Controls in relation to noise levels at environmental receptors. Includes management of activities that could breach levels including timing of activity, duration, notification to stakeholders and noise monitoring.
Dangerous Goods Safety Act 2004	The transport, handling and storage of dangerous goods will need to conform to the requirements of the Act. This includes contractor's delivering and removing hydrocarbons from site. This also includes training requirements for certain personnel as well as storage and segregation requirements. The site currently holds a Dangerous Goods License.
Petroleum Pipelines Act 1969	Manages the pipeline license area and includes pipeline safety and Safety Case obligations and the obligation to minimise environmental impacts.
Petroleum and Geothermal Energy Resources Act 1967	Provide for the licensing, development and operation of oil and gas facilities
Petroleum and Geothermal Energy Resources (Environment) Regulations 2012	Sets out specific requirements including the development and approval of the EP for wells, flowlines and other facilities and the need to manage environmental impacts.
Petroleum Pipelines (Environment) Regulations 2012	Sets out specific requirements including the development and approval of pipelines EPs and the need to manage environmental impacts.
Rights in Water and Irrigation Act 1914	Requirements for management of impacts to water bodies including surface and ground water.
Rights in Water and Irrigation Regulations 2000	Includes the licensing and management requirements for the abstraction of water and any impacts to beds and banks.

International Conventions	
Convention on Biological Diversity	International agreement which obliges the Australian Government to have policies and procedures to protect biodiversity and plan for biological conservation outcomes.
Migratory Birds – China	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with China.
Migratory Birds – Japan	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with Japan.
Migratory Birds – Republic of Korea	International agreement to provide an important mechanism for pursuing conservation outcomes for migratory bird species with the Republic of Korea.
Standards	
AS2885 Pipelines – Gas and Liquid Petroleum	Pipeline design requirements as well as specific to line of sight clearing requirements (vegetation maintenance) and pigging requirements.
AS1940:2017 The storage and handling of flammable and combustible liquids	Ensure the bunding of hydrocarbons on site is managed according to this standard.
AS1697: 2005 Installation and maintenance of steel pipe gas systems	Installation and maintenance of steel pipe systems including design criteria to ensure containment.
AS1692:2006 Tanks for flammable and combustible liquids	Pressure vessel requirements for waste oil, oil and the odorant tanks to ensure design and maintenance to ensure containment.
AS3780:2008 The storage and handling of corrosive substances	Any minor storage of corrosives on site will meet this standard.
AS2507 :1998 The storage and handling of pesticides	Any minor / temporary storage of pesticides and herbicides will meet this standard.
AS/NZS ISO 31000:2018 Risk Management Guidelines	Outlines a comprehensive approach to identifying, analysing, evaluating, treating, monitoring and communicating risks across an organisation.
Codes and Guidelines	
Australian Pipeline and Gas Association (APGA) Code of Environmental Practice	Code for the implementation of environmental controls during construction and operations of pipelines.
Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia	Provides guidelines for preparing EPs in relation to petroleum activity, including: • Seismic, geotechnical, or other surveys. • Drilling, well interventions, and hydraulic fracturing. • Construction, installation, operation or modification of a facility or pipeline. • Storage, processing or transport of petroleum or geothermal energy. • Care and maintenance of wells, facilities or pipelines. • Decommissioning, dismantling or removing of a well, facility or pipeline. • Rehabilitation and closure.
Australian Dangerous Goods Code	Code that defines what is a Dangerous Good and requirements for the transport, storage and handling applicable to chemicals and odorant utilised for this operation.
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) ANZECC	Guideline that provides values for water discharge levels to the environment under the National Water Quality Strategy.

Guideline – Treatment and Management of soil and water in ASS landscapes (DER, 2015a).	Department of Water and Environmental Regulation (DWER) Guideline in relation to management and treatment of Acid Sulphate Soils (ASS).
Identification and investigation of acid sulphate soils and acidic landscapes (DER, 2015b)	Guidelines that set out the requirements for assessing ASS presence, likelihood of impacts and triggers for treatment. This links to the above Guideline in developing an ASS Management Plan.
Water Quality Protection Note 13 – Dewatering of soils at construction sites	DWER Guidance Note on how to minimise impacts from dewatering and outlines approval requirements, discharge management and sets out an indicative water quality for discharge.

Section Error! Reference source not found. of this EP outlines the process and requirements f or periodic review of environmental legislation and other requirements that may apply to the TGSP.

Relevant management plans for TGSP are also available within the following documents:

- TGS Field Management Plan (TSF-Z-PLN-001-01)
- TGS Well Management Plan (TGS-Z-PLN-003-01)
- TGS Emergency Response Procedure (TGS-Z-PRO-011-01)
- TGSP Safety Case (TGS-Z-PLN-006-01)
- TGS Asset Management Plan (TGS-Z-PLN-004-01)
- TGS Rig Operation Safety Case (TGS-Z-PLN-012-01).

2.4 Project Approvals

AGI Tubridgi Pty Limited is the licence holder of L9 issued by DEMIRS under the *Petroleum and Geothermal Energy Resources Act 1967* for the operation of the Tubridgi Gas Storage Facility. The *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012* require the development and implementation of an Environment Plan (EP) to the satisfaction of the DEMIRS. This EP has been prepared to satisfy this requirement for the proposed operations.

Part IV of the WA *Environmental Protection Act 1986* (EP Act) requires a proponent to refer any proposal that is likely, if implemented, to have a significant effect on the environment. Under this legislation, the original Tubridgi Gas Field and Griffin Oil Field developments were assessed and approved via the release of MS 112 and 308 respectively. Continued consultation with the Department of Water and Environmental Regulation (DWER) confirms that the activities are in accordance with the works approved under MS112 and MS308.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires that a person must not undertake an action that is likely to have a significant impact upon a listed Matter of National Environmental Significance (MNES) without approval. Original development of the Tubridgi and Griffin sites predated the EPBC Act and as such no assessment was required.

Whilst the accommodation camp at TGS utilises third-party potable water deliveries, abstraction of groundwater and surface water for the construction works may be required. The following licenses are currently in place for this purpose:

- Surface Water Licence (SWL) 166334;

Additional water licencing may be sought under the *Rights in Water and Irrigation Act 1917* (RIWI Act) as required.

The TGSP facilities lie within a determined area for which the Thalanyji people have been recognised as the traditional custodians. In this determination, it was found that native title was deemed to have been extinguished within the boundaries of Lot 226, and within the larger boundary of the production Licence L9 to the extent that the rights exercised by AGIT are deemed to take precedence over any Native Title rights that may exist.

AGIT is aware of its obligations under the *Aboriginal Heritage Act 1972* (WA) (AH Act) and has worked with the Thalanyji group to ensure these obligations are met. It is noted that the recently enacted *Aboriginal Cultural Heritage Act 2021* (WA) (ACH Act) in early 2023 was repealed by the *Aboriginal Heritage Legislation Amendment and Repeal Act 2023* (the Act) in November 2023 and replaced by an amended version of the *Aboriginal Heritage Act 1972* (WA) (AH Act). Aboriginal surveys and risk assessments have been completed over the new flowline disturbance areas and where any known or identified risk of heritage exists, this has been recorded and avoided.

AGIT has a Dangerous Goods license in relation to the natural gas held in pipelines and the plant facility being above manifest / threshold levels.

3. EXISTING ENVIRONMENT

The objective of this section is to provide a description of the existing natural, social and cultural environment that may be affected by the operation of the TGSP.

3.1 Climate

TGSP is located in a sub-tropical arid zone with temperatures varying slightly throughout the region, mainly due to distance from the coast and elevation. Typical temperatures for the site(s) can be taken from the nearest town of Onslow, which has a mean monthly maximum of 36.5°C in January and 25.6°C in July. Corresponding mean monthly minimums are 25.1°C in February and 13.1°C in July (BOM, 2024).

Mean evaporation figures are very high, often exceeding 300 mm/month in summer and varying between 150 and 200 mm/month during winter. Humidity is relatively high with maximum mean monthly relative humidity (9am) being approximately 42% in October and 63% in June (BOM, 2024). Rainfall is generally low and erratic, with mean monthly rainfalls ranging from 0.7 mm in October to 58 mm in February. The average annual total rainfall for Onslow is 303.4 mm (BOM, 2024).

The summer season is characterised by prolonged dry periods created by anti-cyclonic activities to the south. Thunderstorms may develop as a result of convectional activity, with tropical cyclones occurring regularly in the area. Tropical cyclones often produce large amounts of rainfall, which can cause widespread flooding and the temporary isolation of regional population centres.

During winter, moderate to strong south easterlies and easterlies prevail, while in summer, moderate southerly and westerly winds dominate. Spring and autumn tend to be transitional periods during which both summer and winter winds can occur. Periods of light winds (less than 11 km/hr) prevail for approximately 43% of the year.

The region experiences on average two cyclones per year, with the 'cyclone season' extending from December to April. Cyclones typically approach from the north east and either remain offshore or turn southwards to cross the mainland coast between Dampier and the North West Cape.

3.2 Geology

TGSP is situated within within the Coastal Plains Geomorphic Province which is characterised by extensive sandy plains with north-west or north trending longitudinal dunes, broad clay-pans and circular grassy depressions. Natural relief across the province rarely exceeds 40 m above the surrounding plains and occurs in the form of dune crests and isolated hills.

The Coastal Plains Geomorphic Province is dominated by the Coastal Plains Soil Region. This soil region consists of eight broad units including skeletal soils, stony plains, sandy plains, sand dunes, drainage floors, clay-pans, swamps and depressions, and coastal mud flats.

Soils are generally red-brown with poorly developed profiles. Soils are commonly alkaline as a result of accumulation of sodium and calcium ions at shallow depths. Rangeland surveys carried out indicate soils on the Onslow Coastal Plain tend to be low in nitrogen and phosphorus (Payne et al., 1988, in DDG, 2013).

No areas of acid sulphate soils (ASS) with moderate or higher risk were encountered when the TGSP was intially constructed. A review of Pilbara ASS maps via the DataWA website

(DWER-053) confirms that the two new flowlines would not be located within elevated ASS risk areas (ie. moderate or high risk).

3.3 Flora

Regional Context

The Interim Biogeographic Regionalisation for Australia (IBRA) currently recognises 89 bioregions and 419 subregions (DoE, 2013). The proposed works are located within the Carnarvon Bioregion, specifically within the Cape Range Subregion. The vegetation units within proximity of the proposed works include:

- Coastal Dunes:
  - Beach (very open grass <5%);
  - Dunes (open low scrub over open grass);
  - Berm with freshwater ponds (Mid dense Acacia health over mixed hummock and tussock grass); and
  - Backslopes (with Buffel Grass and Acacia scrub).
- Saline Flats;
- Sand Plains and Calcrete Ridges;
- Drainage Zones; and
- Grassed Floodplains (BHP, 2006b).

Vegetation that occurs in area of the proposed works is associated with the Carnarvon Botanical District (Beard, 1975). Vegetation is eremaean in character, reflecting the semi-arid environment and consists of sparse to moderate mixed *Acacia* scrub over dense hummock *Triodia pungens* grassland. *Acacia* species include *A. tetragonophylla, A. synchronicia, A. sclerosperma* and *A. farnesiana.* A sparse dwarf scrub *Senna* species, *Stylobasium spathulatum* and *Psoralea* species occurs. Calcrete ridges outcropping from the surrounding sand plains support *Hakea subarea, A. coriacea* and *A. sclerosperma* with the dwarf shrub *Adriana tomentosa* (Beard, 1975).

Detailed Site Assessments

Using information from the latest Mattiske rehabilitation assessment report of TGS flowlines and TGS2 Well conducted in December 2023, the following two vegetation communities were identified within the TGSP area:

- *Tecticornia spp.* low sparse chenopod shrubland with *Sporobolus mitchellii*, *Eriachne helmsii*, low isolated tussock grasses on clayey plains;
- *Acacia tetragonophylla* low scattered shrubs over *Triodia epactia* low hummock grassland with *Cenchrus ciliaris* low open tussock grassland on clayey plains; and

Four introduced weed species have previously been identified in the area as part of the 2020 rehabilitation assessment (Mattiske, 2020), namely:

- *Aerva javanica* (Kapok bush);
- *Cenchrus ciliaris* (Buffel grass);
- *Cenchrus setiger* (Birdwood grass); and
- *Vachellia farnesiana* (Mimosa bush).

A total of 61 vascular plant taxa which were representative of 43 genera and 16 families were recorded across all control and rehabilitation monitoring sites (Mattiske, 2023). Given the proximity of this survey area and the same representative vegetation communities, plant species are considered representative of the proposed new flowlines. The majority of the taxa recorded were from *Fabaceae* (15 taxa), *Poaceae* (12 taxa), *Chenopodiaceae* (8 taxa), and *Asteraceae* (6 taxa). These families accounted for 67% of all taxa recorded.

Threatened and Priority Flora

No declared threatened flora species as listed by the Department of Parks and Wildlife (DPaW) have previously been recorded within the TGSP area during surveys in 2016, 2020, and 2023 (Mattiske, 2016, Mattiske, 2020, Mattiske, 2023).

Mattiske (2016) assessed one Priority flora species as being likely to occur in the TGSP area (as part of a Level 1 vegetation survey for new drill pads and access tracks) and another as possibly occurring, namely:

- *Eremophila forresti* subsp. *viridis* (Priority 3): Likely to occur; and
- *Triumfetta echinata* (Priority 3): Possible occurrence.

During vegetation rehabilitation monitoring of old TGSP trunklines in 2020, only one Priority flora species, *Abutilon* sp. *Pritzelianum* (S. van Deeuwen 5095) (Priority 3) was identified (Mattiske 2020). The species was associated with the *Acacia tetragonophylla* low shrubland vegetation community.

On rehabilitation survey conducted in 2023, one Priority 3 taxon, as listed by the DBCA (WAH 1998–) was also recorded; *Abutilon sp. Pritzelianum* (S. van Leeuwen 5095). Twenty individuals of the Priority species were recorded in the TGS2 rehabilitation site, within vegetation community CP3.

Threatened and Priority Ecological Communities

No Threatened or Priority Ecological Communities were recorded or inferred to occur within the TGSP area (Mattiske, 2016).

Vegetation Community and Condition

Vegetation condition was based on the ranking scale developed by Trudgen (1988). Vegetation condition throughout the TGSP area was previously recorded by Mattiske (2016) as excellent. A more recent 2020 vegetation and flora survey for the proposed Ashburton Salt Project (Biota Environmental Sciences, 2020), whose survey extent partially included the new flowline locations, noted the following vegetation communities and conditions:

- Flowline 1 (from existing TGS6 well, to new TRW8 well) – *Acacia tetragonophylla, A. synchronicia, A. sclerosperma subsp. sclerosperma*, (*A. coriacea subsp. coriacea*) scattered tall shrubs to tall open shrubland over *A. stellaticeps* scattered low shrubs to low shrubland over *Triodia epactia* hummock grassland with **Cenchrus ciliaris* very open tussock grassland. Also crosses a small area of *Acacia tetragonophylla*, (*A. synchronicia*) tall shrubland over *Eriachne benthamii/flaccida* open to very open tussock grassland with *Triodia epactia* scattered hummock grasses to very open hummock grassland. Very Good and Good condition; and
- Flowline 2 (from existing Tubridgi 5 well to TRW2) – outside of survey extent.

Conservation Reserves

The Cane River Conservation Park is the closest gazetted conservation reserve to the proposed works. The Park is located approximately 70 km south-east of the proposed works.

3.4 Fauna

The TGSP area traverses a broad range of fauna habitats, the majority of which are widespread throughout the Pilbara region. This ranges from shrublands on red sand dunes and swales, to bare claypans. These areas provide habitat to a number of fauna species, particularly migratory bird species. A total of 244 fauna species have the potential to occur in the TGSP area including 20 mammal, 7 amphibian, 77 reptile, 133 bird and 7 introduced species.

A number of conservation significant species have been identified as potentially occurring within the TSGP area. Conservation significant species identified on the databases (SLIP WA database) as having a moderate to high likelihood of occurring within the vicinity of the TGSP include:

- Northern Quoll (*Dasyurus hallacatus*)
- Greater Bilby (*Macrotis lagotis*)
- Oriental Plover (*Charadrius veredus*)
- Eastern Great Egret (*Ardea modesta*)
- Rainbow Bee-eater (*Merops ornatus*)
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*)
- Barn Swallow (*Hirundo rustica*)
- Fork-tailed Swift (*Apus pacificus*)
- Woma (*Aspidites ramsayi*)
- Western Pebblemound (*Pseudomys chapmani*)
- Common Greenshank (*Tringa nebularia*)
- Australian Bustard (*Ardeotis australis*)
- Pilbara Olive Python (*Liasis olivaceus*)
- Common Sandpiper (*Actitis hypoleucos*)
- Oriental Pratincole (*Glareola maldivarum*)
- Little North-westerna Mastiff Bat (*Mormopterus loriae cobourgiana*)
- Osprey (*Pandion haliaetus*)
- White-bellied Sea-eagle (*Haliaeetus leucogaster*)
- Peregrine Falcon (*Falco peregrinus*)

It is considered highly unlikey that vegetation clearing required for constructing the new flowlines as well as maintenance of existing TGSP assets will impact conservation signifcant fauna given the small areal extent (approximately 7.45 ha) and proximity to existing disturbance footprints of existing wells, the plant and pastoral operations. Any clearing activities would be undertaken via an internal approval system to ensure clearing is minimised and in line with MS112 requirements.

Emergency lighting and compressor lighting has been added to the plant to ensure safe operations. Current lighting is below (lower) than any previously approved lighting fixtures and focussed inwards towards the plant. There is no credible risk from lighting on nearby beaches (potential turtle activity) assessed from the project.

3.5 Hydrology and Hydrogeology

The Ashburton River is an intermittent watercourse that travels in a northwest direction and meanders through extensive flood plains between Nanutarra and Onslow. The river is characterised by long dry periods and with irregular significant flow events resulting from high intensity rainfall events. The magnitude of stream flow is predominantly determined by the Average Rainfall Interval (ARI) of the rainfall events. On average, flows occur in the Ashburton River every one to three years. River flows predominantly occur during the wet season

(October to March) and are typically short-lived (AECOM 2010). The region usually experiences a dry season during the months March to September.

The flood plain is underlain by shallow, saline to hyper-saline groundwater that displays levels of dissolved metals above marine guideline criteria values (ANZECC 2000), commensurate with accumulation of salt in the local groundwater environment and the high groundwater salinity.

Shallow, unconfined aquifers associated with major river channels occur within the hinterland of the north of the Tubridgi precinct (Ashburton North), within 10m of the surface inland, and within a few metres of the surface at the coast. Shallow hydrological investigations beneath the local area indicate the localised subsurface groundwater flow also occurs in a south easterly direction, generally following surface contours (Astron Environmental, 1996). Monitoring data indicates that the groundwater at the site is relatively saline, which is likely to be the natural state of the groundwater, due to high salinities expected in coastal low-lying areas (GHD, 2011). Salinities of up to 35,000 mg/L (as Total Dissolved Solids (TDS)) have been recorded with most bores generally having a salinity of between 5,000 and 25,000 mg/L (GHD, 2011). Any runoff from Tubridgi is likely to drain southeast along the topographic contours of the calcrete rise.

The most recent groundwater monitoring event (URS, 2013) identified groundwater elevations at ASW between 4.035 and 6.003 metres below ground level.

Studies by Woodward Clyde Pty Ltd (1993) and Astron Environmental (unpublished data 1995 (a), (b) and (c)) suggest that there is fresh water located within the coastal dune areas, which is restricted to small reserves, that is, "lenses above more saline water". These lenses are replenished during recharge periods, with the salinity of these lenses fluctuating seasonally, which is primarily due to rainfall and evaporation.

The TGSP facilities operational footprint does not encroach within 500 m of any surface water bodies, nor does it intersect any conservation significant wetlands or drainage lines.

3.6 Contamination

The TGSP facility and Ashburton West location were previously the subject of remediation works from contamination caused by a previous proponent. One site was located at the old GEF and this is being managed under the ASW EP. The current status of the location under the *Contaminated Site Act 2003* is '**remediated for restricted use'**.

AGIT does not expect any additional contaminated areas to be identified across the new flowline locations. Previous due diligence studies by GHD on Urala Station in 2015 found no contamination along previous flowlines (across the Tubridgi Gas Field), old wellheads or any other signs of contamination across areas that may have been impacted by the TGSP.

AGIT also commissioned GHD to undertake a gas leak survey in 2016. This included flow lines, known fault areas, plugged and abandoned wells and areas near the Ashburton River. This survey found no evidence of any gas leak from the gas reservoir at any of these locations. A follow up survey was completed in 2020 with no evidence of any gas leak from the reservoir identified.

Groundwater monitoring bores are in place around the TGSP and Ashburton West Facilities to assist with monitoring of previous contamination from a previous proponent.

3.6.1 Previous Disturbance

The Tubridgi Gas Field was originally constructed and operated through 1990-2005 when production was ceased. Previous disturbance included the installation of the Griffin Pipeline,

Tubridgi well installation, flow line installation and access tracks. While the previous wells have been plugged and abandoned, the previous flow lines remain in place.

Where possible and to avoid additional disturbance, these flowlines and associated infrastructure may be targeted for reuse in future projects or abandoned. This will require a specific review of capability and to ensure they are fit for purpose. Any new drilling projects will require a Construction Environment Plan or associated approval from DEMIRS.

3.7 Socio-Economic

From a socio-economic perspective, the TGS project is located within the pastoral region (Section 3.7.1) based on the predominant land use. Specifically, the TGSP falls within the Shire of Ashburton Local Government Area (LGA), which spans approximately 105,647 km^2 and has a population of approximately 13,026 (ABS, 2016). Onslow is the closest major town located 31 km north of the project. Major industries include mining, pastoralism and fishing.

The TGSP facilities are located within Lot 226 on Deposited Plan 219154 being the whole Land Record 3107/117. The Crown Lease was transferred to DDG Operations Pty Ltd on 28 September 2012 from BHP Billiton. Lot 226 houses the bulk of above ground facilities for the TGSP. Lot 226 is zoned industrial by the Shire of Ashburton. In 2020, DDG Operations Ptd Ltdr changed names to AGI Operations.

As related entities, AGIT has land access arrangements in place with AGI Operations Pty Ltd to enable operational access to any area within production licence L9 that are required for the TGSP and utilises Lot 226 and parts of Urala Station under the same in house arrangement.

The existing TGSP is located within the Pastoral Region of Western Australia, located on Urala Station, which was established in 1912 and covers approximately 55,988 ha. The station is used predominantly for grazing cattle, sheep and other livestock.

AGI Operations Pty Ltd is the current holder of Urala Station Pastoral Lease (2016). This allows for uninterrupted access to the site from a landholder perspective. Urala homestead is the closest sensitive receptor, located approximately 6.5 km from TGSP facilities. The homestead may be inhabited depending on the needs of the station. Urala Homestead has permanent managers in residence.

Access to site utilising Old Onslow Road and Urala Road does include crossing Minderoo Station and stakeholder engagement with Minderoo and the Shire of Ashburton has been undertaken regarding traffic management and potential impacts or simultaneous operations during the proposed project timeline. The outcome of this was that AGIO committed to ensuring that access roads used by the project are maintained to the current or better standard.

3.7.1 The Pastoral Region

The pastoral region extends from Dampier in the City of Karratha to the Shire of Northampton. The LGAs traversed by the proposed flowlines and existing facilities in the pastoral region are described in the Table 3-1.

Table 3-1: Local Governments in the Pastoral Region

LGA	Area (km²)	Popn[1]	Major Towns	Major Industries/ Land Use
Karratha	15,235	22,199	Major Towns: Karratha and Dampier; Ports: Cape Lambert and Dampier.	Iron ore, salt, natural gas, pastoral, fishing, tourism
Ashburton	105,647	7,391	Onslow	Mining, pastoral, fishing, fish processing, oil, tourism, salt

3.8 Cultural Heritage

During on ground surveys conducted in conjunction with the Thalanyji group, no sites of cultural significance were identified. AGIT has an interim heritage agreement for the well drilling program and flowlines and is continuing consultation with the Thalanyji group to progress to a full agreement.

The facilities work is being undertaken wholly on Lot 226 which is the site of the former Griffin Export Facility. This lot is zoned as 'Industrial' under the Shire of Ashburton Town Planning Scheme No 7. The entire site has been fully developed and disturbed in the past and as such no heritage values remain within Lot 226. This has been confirmed through recent heritage surveys undertaken onsite. The closest recognised heritage site is in the vicinity of the beach dunes located some 3.5kms from Lot 226.

AGIT has conducted a review of the 1998 Thalanyji Consent Determination (reference number WAD6113), as it covers the easement and lease areas subject to the TGSP and GEF facilities. This assessment concluded that these facilities and associated easements are listed as exclusions and therefore not subject to Native Title. The determined area map is included below.

In addition, the Thalanyji and Minderoo Indigenous Land Use Agreement (ILUA) (Reference number W12009/024) dated 2011 outlines that the easements and leases on Minderoo are specifically excluded (as per the consent determination) from the agreement.

Previous cultural heritage surveys have been undertaken in the area, however in consultation with the local Traditional Owners (Thalanyji - BTAC) a further survey may be conducted in regards to ethnographical and archaeological aspects in the project area.

AGIT is investigating potential growth opportunities on site and undertook at cultural (archaeological) and ethnographic survey of any proposed disturbance. This survey (2021) was conducted with BTAC and their requested archaeologists. The results of the survey will allow for site planning of any new works.

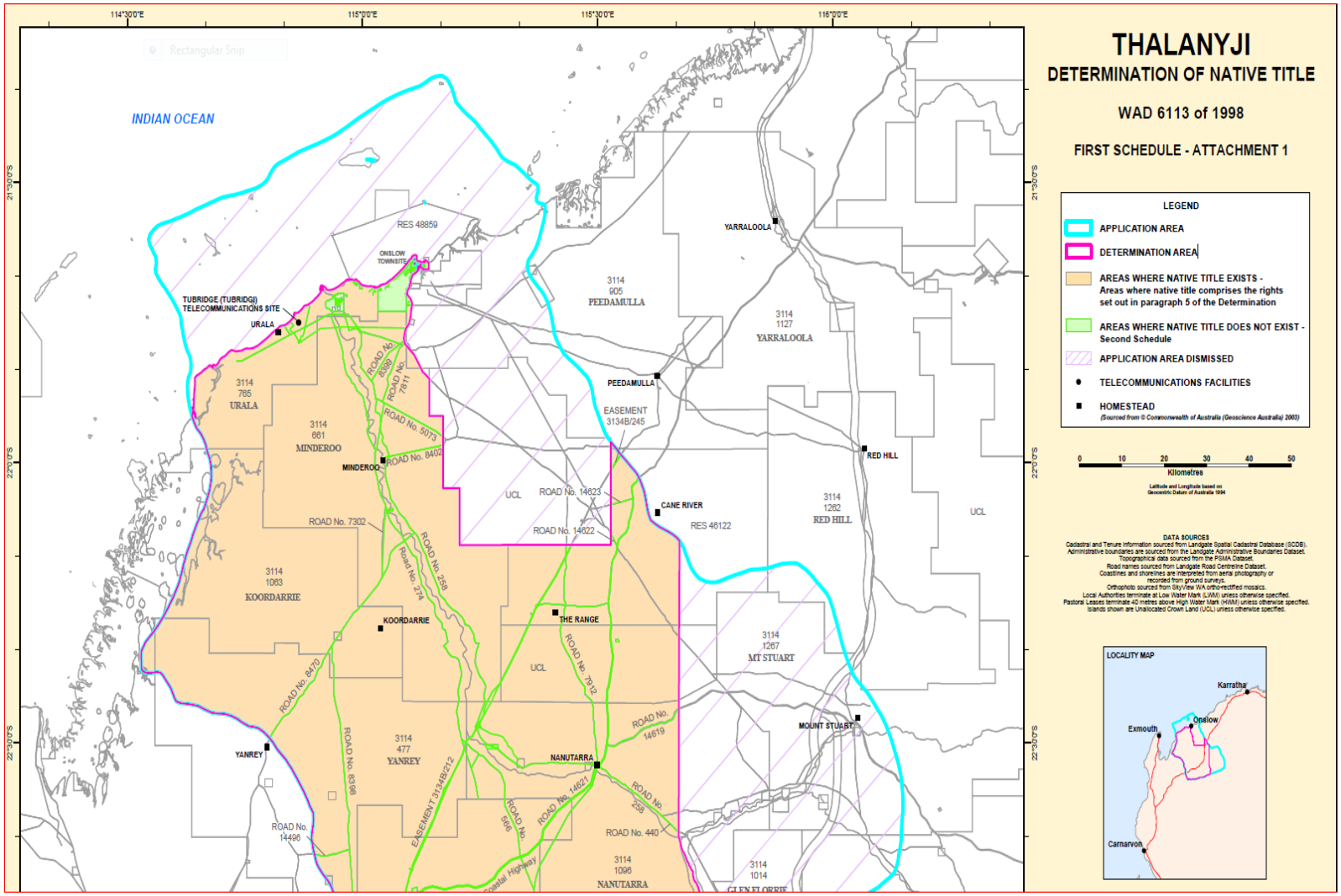

Figure 3-1 Determination of Native Title

4. ACTIVITY DESCRIPTION

The TGSP is a subsurface gas injection and extraction facility with a nominal capacity of up to 120 TJ/d of natural gas. The project is driven to use existing facilities that were acquired from BHP integrated with new equipment. The main source of equipment reuse utilises existing equipment at the decommissioned Griffin Export Facility (GEF), which now forms part of the Tubridgi Gas Storage Facility. Whilst the TGSP operates 24 hours a day for 7 days a week, works will only be undertaken during daylight hours except for planned outages (such as shutdowns), emergency works or in relation to the investigation and management of alarms, alerts or other asset integrity events.

The TGSP facilities include:

- Inlet separation equipment
- Pre-treatment, including slug catcher and Mercury Removal Units
- Gas Dehydration with regeneration unit
- Compression for sales gas injection and withdrawal (compressors)
- Custody Transfer Metering
- Pig launcher/receiver facilities
- Evaporation ponds
- Control Room
- Switching room
- Accommodation (including air conditioning system, sewage system, potable water system)
- Helipad
- Laydown areas and loading ramp
- Turkeys Nest
- Surface storm water capture tanks
- Cold vent
- Closed drain system with oily water separators and tanks
- Processed water drain system with separator unit
- Gas Engine Alternators (GEA)
- Diesel Engine Alternators (DEA)
- Bunded diesel tank (35kL)
- Bunded refuelling hardstand with day tank (3kL)
- Site earthing system
- Flow lines including cathodic protection
- Communications equipment including guyed microwave tower
- Wellhead facilities and wells TGS1; TGS3; TGS5; TGS6; TGS9, TRW2, TRW8, TRW10 and TCW11
- Plugged or suspended wells TGS4; TGS4A; TGS7; and TGS7A
- Access Roads
- Drilling laydown area
- Drill rig camp, sewage and waste management

Mothballed equipment (that may be pressurised) that remains part of the facility includes:

- LPG Export Pipeline (liquid pipeline)
- Flare Knockout Drum, Flare Knockout Vaporiser
- Nitrogen Rejection Unit – Nitrogen Rejection Column, Expander Booster Unit, Nitrogen Compressors, LNG Export Pumps, C2- Condenser 2, C2- Subcooler, N2 Rejection Column Condenser
- Recovery – De-propaniser, Condensate Pumps, De-Propaniser Condenser, De-Propaniser Reboiler, Condensate Sub-Cooler, De-Propaniser Reflux Pumps, De-Propaniser Reflux Drum, Feed Gas Trim Cooler, C2- Condenser, De-Ethaniser Condenser, De-Ethaniser Reboiler
- Minor pipework
- Fire Water – Fire Water Storage Tank, Fire Water Pump Package

This equipment may be progressively removed during the life of the project.

The TGS Facility, for the purpose of co-location within the Urala Station will be fenced off at a boundary fence that aligns with appropriate noise levels and include Ashburton West (ASW) infrastructure.

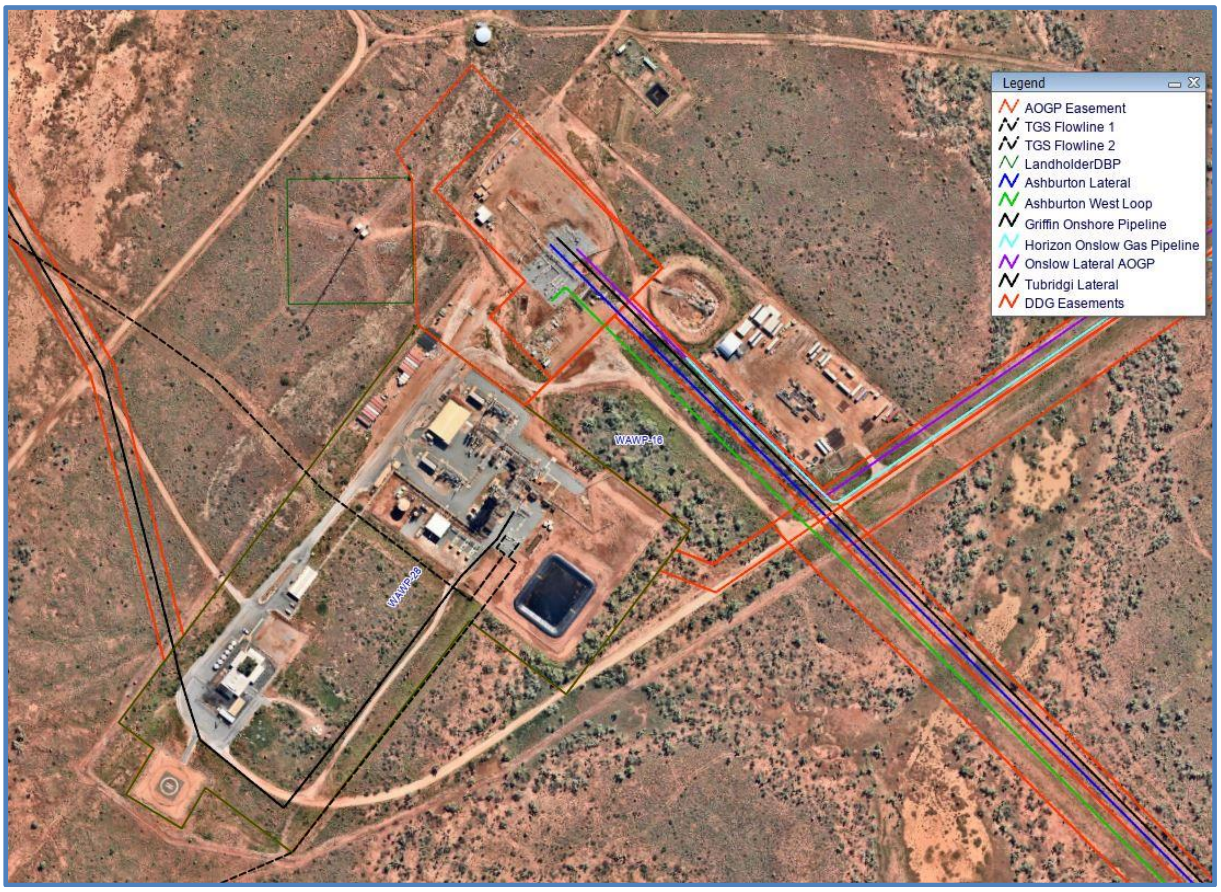

Figure 4-1: TGS Plant Area

Wellheads and Flowlines

DN200 (8″) flowlines will connect the storage facilities to each of the eight wellheads. Each wellhead has similar equipment. The equipment includes the following:

- Wellhead Christmas tree
- Safety shutoff valve
- Corrosion inhibitor facility
- Choke Valve
- Gas dewpoint and custody grade flow measurement
- Coalescing filter
- Solar panels and batteries
- Provision for the connection of pig launcher/receiver
- Above ground pipework with isolation valves and vents
- DN200 (8″) flow line buried and coated with 3-layer tri laminate coating protected with impressed current cathodic protection system (solar-powered)
- Flow lines are located in signed posted alignment within its approved easement
- Controls and communication equipment
- Remotely operable cameras
- Fibre optic cables installed in the same trench as the flowlines
- Access tracks
- Fenced compound area

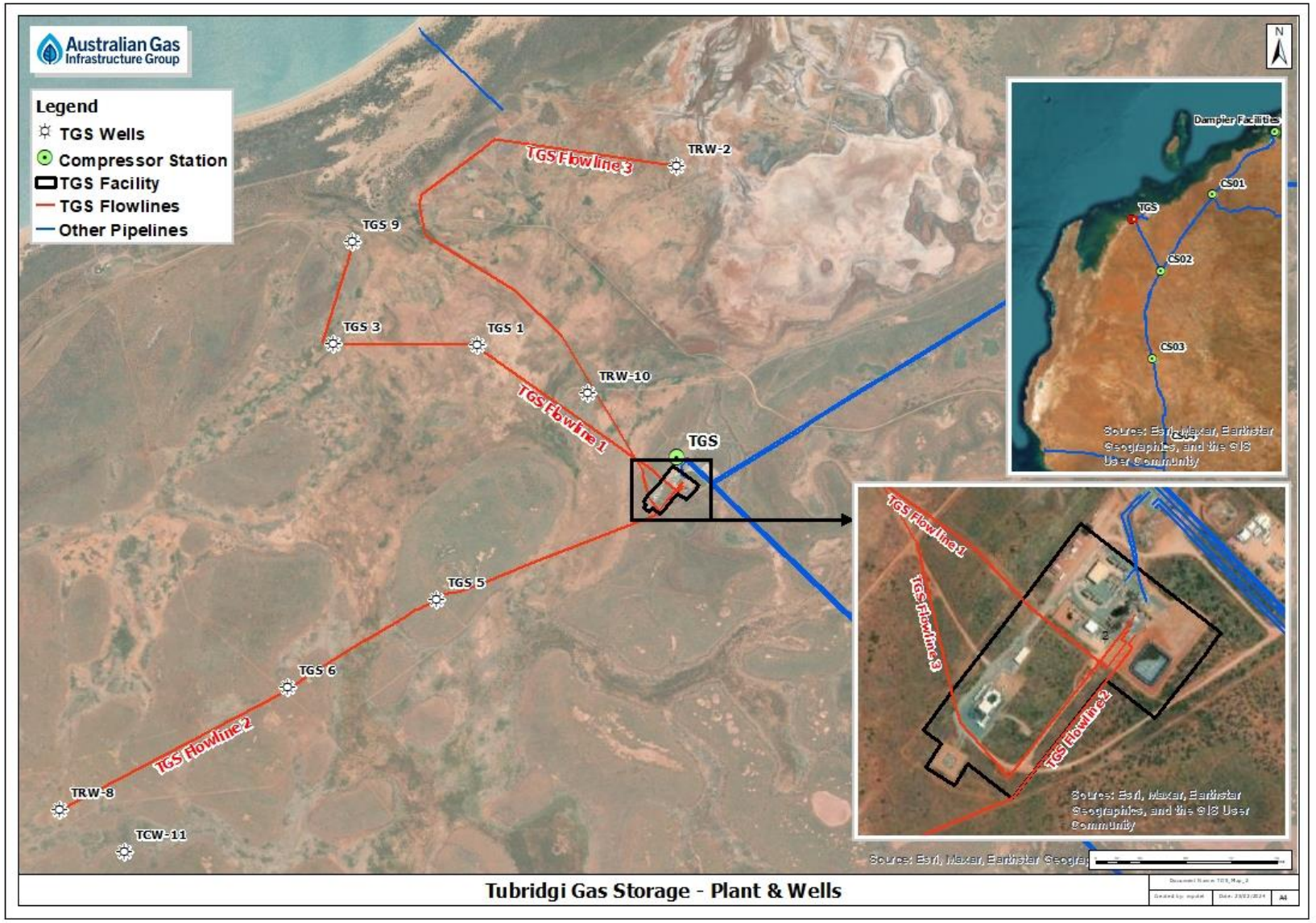
Australian Gas Infrastructure Group
Legend
TGS Wells
Compressor Station
TGS Facility
TGS Flowlines
Other Pipelines
TGS Flowline 3
TRW-2
TGS 9
TGS 3
TGS 1
TRW-10
TGS Flowline 1
TGS
TGS 5
TGS 6
TGS Flowline 2
TRW-8
TCW-11
Dampier Facilities
CS01
TGS
CS02
CS03
TGS Flowline 1
TGS Flowline 3
TGS Flowline 2
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Tubridgi Gas Storage - Plant & Wells

Figure 4-2: Wellhead and Flowline Configuration

4.1 Interconnect

The TGSP is connected to the Ashburton West Facility via an existing 200 meter DN150 (6") interconnecting pipeline used previously by the GEF to supply gas to the Tubridgi Lateral. The interconnecting pipeline is coated with HD Polyethylene coating and protected with impressed-current cathodic protection system. The interconnecting pipeline is in its designated easement and sign posted for clear visibility of its alignment. This may be upgraded depending on volume and need. This would include trenching and minimal clearing requirements.

4.2 Communications

The site communication network is designed to enable the site to be remotely controlled from DBP Gas Control in Perth when required. Communication to TGSP uses a microwave link supplied from a Spur off MLV22 via Telstra's McCann Well site.

The design interconnects all site buildings and integrate them to the DBNGP communication network providing SCADA, Corporate, CSN, Telephony and VHF 2-way radio network. Satellite communications will be as available service and reinforcement of the 4G mobile network with satellite service backup.

4.3 Pigging

The flowlines have been designed and constructed to enable the internal cleaning of the pipelines. Facilities are included for the installation of launchers and receivers, internal cleaning via pigging of the flow lines will be conducted as determined from the Asset Management Plan.

Product collected from the pigging operation will be contained in the pig barrel. The volume of contaminants collected is typically minimal ($<1m^3$ including water) and may include sand, remnants of corrosion inhibitor and water. On opening of pig barrel any contaminants will be removed via brush into a bunded container and will then be disposed of as hazardous waste through a licensed waste contractor. The waste container will remain bunded onsite to prevent any spills until disposal occurs. The possibility of BTEX and Norms in waste fluids will be handled in accordance with established fluid handling policy.

4.4 Evaporation Pond

An approximately 50m x 50m evaporation pond has been included to manage water entrapped in the gas during withdrawal. The pond will be located within the fenced compound. Rope ladders shall be installed to facilitate small fauna egress.

Process water is water vapour that is removed from the gas through the dehydration process or water that is produced from the well or from condensation within plant equipment. Potential contaminants, though not expected, would be salt from the produced water, engine oils from the compressor units, corrosion inhibitor and BTEX in the water vapour that is used in the pipework.

The evaporation ponds are dual lined including a geotextile under layer and a 2mm HDPE primary liner. The pond design is based on the requirements of the Water Quality Protection Note 26 (DoW, 2013) and includes the capability to detect leaks in the primary layer.

Biodegradation of potential (but not expected) contaminants will take place with no residual impacts expected in sedimentation. The evaporation pond will be regularly inspected for signs of wear and tear and signs of degradation. Groundwater bores currently installed in the area may also be tested with samples analysed by a NATA accredited laboratory.

The evaporation pond includes a 500mm freeboard requirement. Expected volumes for the evaporation pond are between 1,000kL to 1,500kL with a capacity volume of ~3,000kL for the pond. If algae becomes a concern a HSE approved biocide may be added where no or limited ecotoxicity is identified.

4.5 Accommodation

The operating workforce is accommodated at the exisiting permanent 14 room / 30 person TGSP Accommodation Facility that was installed and refurbished as part of the WAWP project. Accommodation on site can be expanded up to the limiting flow on the biosystem (wastewater up to 9,000L per day). If this is likely to be exceeded waste water will be captured and removed from site by a licensed waste controller or through an additional approved temporary (less than 3 months continuous operation) treatment system.

The accommodation facilities include:

- Self-contained accommodation units
- Kitchen, laundry and lounge facilities
- Capability to manage night landing on helipad
- Water supply and waste water (bio-cycle system)
- Electricity supply is provided from the TGS Plant
- Gymnasium

These facilities have been refurbished to ensure compliance with the Building Code and other relevant requirements to ensure the facilities are habitable, such as:

- Smoke detectors and fire alarms;
- Power generation with emergency lighting provisions and residual current devices (RCD) protection; and
- Structural design meets Region D requirements in accordance with AS/NZS 1170.2.

A 56-person drill camp is also located onsite and can be used as overflow abiding by the above controls for waste water levels and waste management as per Section 6. This camp would only be used for temporary works.

Figure 4-3: Layout of the Existing Accommodation Facility

5. ENVIRONMENTAL RISK IDENTIFICATION AND ASSESSMENT

5.1 Overview

AGIT ensures the effective management of risk across its business through implementation of the AGIG Risk Management Policy. The AGIG Risk Management Policy makes a commitment to ensure that:

- Systems are in place to identify (as far as reasonably practicable) risks faced by the business;
- The impact of identified risks is understood;
- Risk treatment owners are nominated to manage the identified risks; and
- Assurance is provided on the effectiveness of the risk management system and risk controls.

5.2 Risk Process Methodology

To identify, understand and manage all environmental sources of risk and consequent impacts associated with the operational of the TGSP facilities, a comprehensive Environmental Risk Assessment (ERA) was completed on 28 December 2016. The approach is alignment with the following:

- AS/NZS ISO 31000:2018 process summarised by Figure 5-1;
- HB 203:2012 Managing Environment-related Risk guidelines; and
- Guidelines for the Development of Petroleum and Geothermal EPs in WA (DMP, 2016).

The risk management process provides a framework to demonstrate:

- That the identified impacts and risks are reduced to ALARP; and
- The acceptability of impacts and risks.

The ERA including the review consisted of a multidisciplinary team of in-house personnel including HSE and followed a structured process which sought to:

- Outline the key operational activities;
- Identify, analyse and evaluate associated hazards and corresponding environmental impacts;
- Where necessary, establish suitable controls; and
- Systematically assess any associated residual environmental risks.

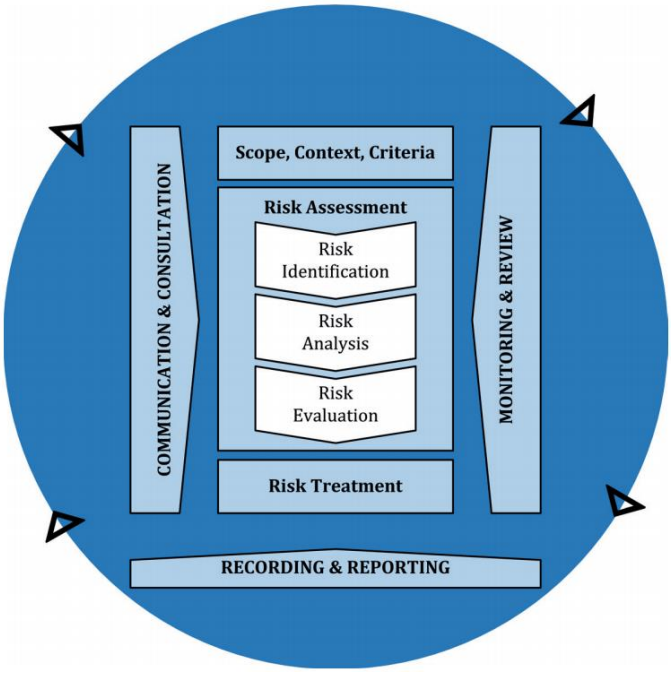

Figure 5-1: AS/NZS ISO 31000:2018 Risk Management Process

Additionally, a structured workshop conducted on the 16 of January 2024. This workshop consisted of AGIT personnel from different departments and a team of qualified environmental consultants. The function of the workshop was to review and validate risk ratings and asociated controls, and address any material gaps in the risk management process.

The following actions were undertaken during the risk management process:

- Definition of the study objectives and areas to be studied.
- Identification of activities involved in operation and maintenance of the assets.
- Brainstorming of the hazards and their causes.
- Assessment of the risk associated with the identified hazards including:
  - Determination of worst case credible consequences;
  - Identification of the existing safeguards (management control and mitigation systems and procedures);
  - Determination of the likelihood of the consequence occurring; and
  - Categorisation of the risk utilising the AGIG Qualitative Risk Analysis Matrix
- Development of control measures (where deemed appropriate) to address the risks deemed unacceptable or not ALARP. Consideration of not just the proposed risk control action but also the accountability, resource requirements, timing, performance measures, monitoring and reporting requirements.
- Evaluation of the residual risk as per the methodology outlined in Step 4.
- Documentation of all findings to inform this EP (Section 6 risk assessment tables).

The team has confirmed that the risks are reduced to SFARP based on the level of understanding of the threats and resulting risks taking into consideration experience and judgement on the effectiveness of the associated controls. The process used for the management of risk to a tolerable level is consistent with an example model included in the NOPSEMA Guidance Note on SFARP (N-04300-GN0166, June 2020), which is based on the Oil and Gas UK's SFARP framework and is illustrated in Figure 5-2.

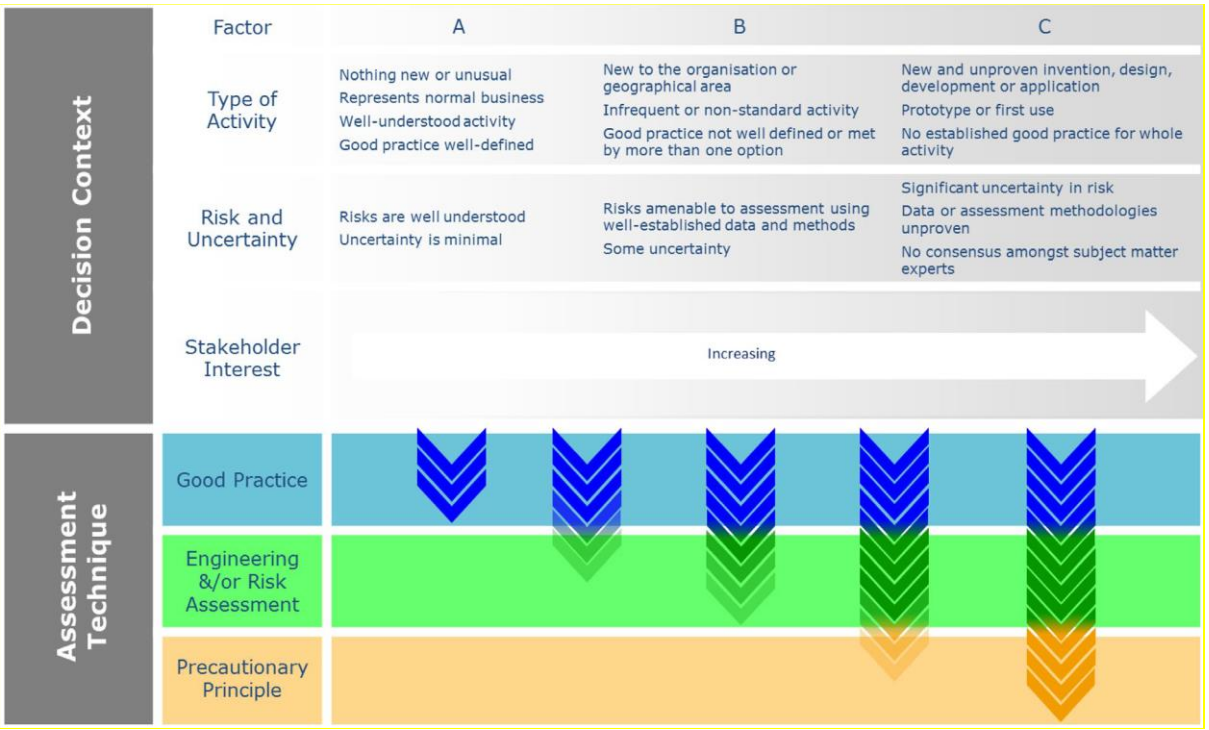

Figure 5-2: SRAFP Framework Risk Management Process

5.3 Control Measures

5.3.1 Decision Making Tools

The following tools were considered, as appropriate and applicable to nature and scale, to assist with identifying control measures:

- **Legislation, Codes and Standards** – identifies the requirements of legislation, codes and standards which are to be complied with for the activity.
- **Good Industry Practice** – identifies further engineering control standards or guidelines which may be applied over and above that required to meet the legislation, codes and standards.
- **Risk Based Analysis** – assesses the results of probabilistic analyses such as modelling, quantitative risk assessment and/or cost benefit analysis to support the selection of control measures identified during the risk assessment process.

5.3.2 Hierarchy of Controls

The hierarchy of controls framework was used to assist with the selection of the highest control measures to effectively manage risks and demonstrate ALARP. When applying mitigation strategies to identified risks, consideration is given to the application of a hierarchy of controls that identify the most effective (elimination) to the least effective (PPE) control options. Although commonly used in the evaluation of occupational health and safety (OHS) hazard control, the Hierarchy of Controls philosophy is also a useful framework to ensure reasonable and practicable solutions have not been overlooked.

Table 5-1: Hierarchy of Controls

Control Type	Description of Control
Elimination	The most effective control measure in which the hazard/s are completely removed/eliminated at the source, thus eliminating the risk potential. If complete elimination means the activity can no longer be delivered, then eliminate as many risks associated with the hazards as possible.
Engineering / Substitution / Isolation	Engineering – Reduce the hazard through engineering changes or changes to systems of work. Substitution – Substitute the hazard with something safer. Isolation – Isolate people from the hazard.
Administrative Controls	Undertake work methods and/or procedures to minimise exposure to hazards and reduce the level of harm.
Personal protective equipment (PPE)	Correctly use or wear PPE to protect people from harm.

Administrative and PPE controls do not control the hazard at the source and used on their own, are found to be the least effective in minimising risks. They are used:

- Only when there are no other practical control measures available;
- As an interim measure until a more effective method of controlling the risks is introduced; and
- To increase the effectiveness of higher-level control measures.

Reducing the risk may involve either a single or a combination of different control measures that work together to provide the highest level of reasonably practicable protection.

5.3.3 Cost-Benefit Analysis

A cost-benefit analysis (CBA) has previously been undertaken and reviewed as part of the risk register review process to demonstrate whether the cost to adopt certain practices or risk control measures are grossly disproportionate to the benefits. All cost-benefit analysis is conducted by suitably qualified personnel.

The identification of costs was performed based on the qualitative assessment by personnel familiar with the practicalities of implementing the control measures. Costs included in the analysis including for installation, operation, training, maintenance, and any losses following shutdown of operations for putting the measure in place (e.g. production losses). These costs only include all claimed costs incurred by AGIT and does not include costs incurred by other parties (e.g. members of the public).

The benefits assessed include all reduction in risk to the environment, health and safety issues, and operational risks.

If a control measure significantly reduces the impact or risk but does not change the residual risk rating, it may still be considered as a net benefit and contribute to achieving ALARP.

If the cost of implementing a control measure is significant, then the cost may be deemed as prohibitive and not warranted when considering the potential environmental benefits. If the cost is not considered prohibitive and there is an environmental benefit, or decreased in risk, then the control will be implemented if practicable.

5.4 Risk Evaluation

The evaluation of environmental risks requires criteria against which the tolerability of the risks can be determined. Risks must be reduced to ALARP, which involves comparing the estimated level of risk determined from the risk analysis with established risk acceptance criteria and deciding whether (further) risk treatment is required.

The most effective approach to determining tolerability of a risk is to classify them into one of the three distinct tolerability regions defined below. The determination of tolerability is provided by the risk matrix utilised during a qualitative risk assessment.

- **Intolerable Risk:** A major risk that requires further risk reduction. Further analysis required to identify risk reduction measures. Must be reduced to ALARP or tolerable.
- **Tolerable if ALARP:** Risk is tolerable if determined to be ALARP. Further mitigation measures should be applied to reduce the risk if possible.
- **Acceptable Risk:** Risk is considered to be acceptable. No further risk treatment necessary, however opportunities for continuous improvement can still be applied.

5.4.1 Demonstration of ALARP

ALARP can generally be defined as a level of risk that is not intolerable and cannot be reduced further without the expenditure of costs that are grossly disproportionate to the benefit gained.

The ALARP principal arises from the fact that infinite time, effort and money could be spent attempting to reduce a risk to zero. An iterative evaluation process is employed until such time as any further reduction in the residual ranking is not reasonably practicable to implement.

Following identification of the residual ranking, the ALARP principle is applied.

Where the residual rank is **NEGLIGIBLE** or **LOW**, good industry practice or comparable standards have been applied to control the risk, because any further effort towards reduction is not reasonably practicable without sacrifices grossly disproportionate to the benefit gained.

Where the residual rank is **INTERMEDIATE**:

- Good industry practice is applied for the situation or risk; and
- Alternatives have been identified and the control measures selected to reduce the risks to ALARP. This may require assessment of Company and industry benchmarking, review of local and international codes and standards, consultation with stakeholders, etc. to demonstrate that alternatives have been considered, and reasons for rejection provided.

Where the residual rank is **HIGH** or **EXTREME** the risk is not considered to be acceptable and the activity cannot continue as described. Further control measures must be applied such that an acceptable risk is demonstrated and the residual risk is reduced to 'Intermediate' or lower as described above. The activity should not be carried out if the residual risk remains 'High or Extreme'.

5.4.2 Demonstration of Acceptability

Environmental impacts may cover a wider range of issues, multiple species, persistence, reversibility, resilience, cumulative effects and variability in severity. The degree of environmental impact and the corresponding level of acceptability is assessed against a number of guiding principles as presented in Table 5-2**.**

Following demonstration that all reasonable and practicable control measures have been adopted to reduce the impacts and risks to ALARP, the pre-defined acceptable levels of impact have been compared with the residual levels of impact and risk. If the residual impact levels lie within the boundaries of the pre-defined acceptable levels, the impact or risk is considered acceptable.

Table 5-2: Acceptability Criteria

Criteria	Question	Acceptability Demonstrated
Internal context compliance	Is the proposed management of the impactor risk aligned with the company Environment Policy?	• The impact or risk must be compliant with the objectives of the company policies. • Where specific procedures and work instructions are in place for management of the impact or risk in question, acceptability is demonstrated.
Stakeholder concerns	Have stakeholders raised any concerns about activity impacts or risks, and if so, are measures in place to manage those concerns?	Stakeholder concerns must have been adequately addressed and closed out.
Laws and standards	Is the impact or risk being managed in accordance with existing Australian or international legislation or standards, such as EPBC Policy Statements, Ministerial referrals or License requirements etc.?	• Compliance with specific laws or standards is demonstrated. • The proposed management of the impact/risk is aligned with species-specific or protected area management plans/ conservation advice.
Industry best practice	Is the impact or risk being managed in line with industry best practice including the APGA Code of Environmental Practice	Management of the impact or risk is aligned with industry best practice including APGA Code of Environmental Practice
Environmental context	• Is the effect on the environment or receptor localised, short-term and recoverable? • Have potential impacts to environmental values or sensitivities been assessed at a local, regional (and if applicable global) level in terms of population level and long-term effects? As such, are adopted controls appropriate and adequate in avoiding such effects and thereby reducing risks to ALARP.	The proposed impact or risk controls, EPO and EPS are consistent with the nature of the receiving environment.
Environmentally Sustainable Development (ESD) Principles	Has the proposed impact or risk been reduced and so aligns with a primary objective of the Regulations and EPBC Act being activities be undertaken in a manner consistent with the principles of ESD?	The potential impact or risk has been reduced, and controls implemented to ensure the principles of ESD are being met, including application of the precautionary principle and/or how uncertainty has been reduced.
ALARP	Are there any further reasonable and practicable controls that can be implemented to further reduce the impact or risk?	There is a consensus that residual risk has been demonstrated to be ALARP.

The process applied to demonstrate acceptability in the reduction of planned impacts is presented in Table 5-3.

Table 5-3: Residual Risk Levels and Associated Decision-making Tools and Principles

Residual Risk Level	Environmental Threshold	Decision Making Tools	Environmental Decision Principles
Negligible / Low Tolerable / Acceptable Zone	No Substantial risk (i.e. negligible risk) of harm to species or communities.	Comparison to codes and standards, good industry practice and professional judgement are used to assess risk acceptability.	If the environmental risk of the hazard has been found to be "Tolerable" and the control measures are consistent with applicable good industry practice, legislative requirements, industry codes and standards, regulator expectations and the environment policy, then no further action is required to reduce the impact or risk further.
Intermediate Broadly acceptable of ALARP ZONE	Likely to cause, or substantial risk of causing serious harm to non-listed species or communities.	Risk based analysis are used in addition to comparison to codes and standards, good industry practice and professional judgement to assess risk acceptability.	An iterative process to identify alternative / additional control mechanisms has been conducted to reduce the risk to the 'Tolerable' zone. Intermediate residual risks are 'Broadly Acceptable' if ALARP can be demonstrated using good industry practice, risk-based analysis, if societal concerns are accounted for and the alternative control measures are grossly disproportionate to the benefit gained.
Extreme / High Intolerable Zone	Likely to cause, or substantial risk of causing significant impact to protected species or communities.	All of above decision-making tools apply plus consideration of company values and societal values.	If the environmental impact or risk has been found to fall within this zone then the activity should not be carried out. Work to reduce the level of risk should be assessed against the Precautionary Principle with the burden of proof requiring demonstration that the risk has been reduced to the ALARP Zone before the activity can be commenced. If after further investigation the risk remains in the 'intolerable' zone, the risk requires appropriate business sign-off to accept the risk.

6. IMPLEMENTATION STRATEGY

Each hazard and associated impacts identified during the ERA has been reviewed and attributed to at least one of the below environmental aspects (**Appendix A**):

- Soils and Sediment;
- Flora;
- Weeds;
- Bushfire;
- Fauna;
- Cultural Heritage and Stakeholder Engagement;
- Air Emissions Including Dust and Noise/Vibration;
- Surface and Ground Water;
- Hazardous Materials Storage and Handling (including Spill Response);
- Waste Management; and
- Rehabilitation.

Within each environmental aspect, each group of impacts and risks has been addressed with an objective to:

- Define the environmental performance objectives that will be required to be achieved in order to ensure environmental protection;
- Define the environmental performance standards that relate to the quality of the performance; and
- Define the measurement criteria for determining whether the objectives and standards have been met for the activity.

This section further establishes an implementation strategy such that the established performance objectives and standards may be met throughout operation of the TGSP. Targeted monitoring commitments have been specified where relevant. These detail the measurement criteria against each standard to measure implementation and effectiveness in achieving the objective against a specific environmental indicator.

7. ENVIRONMENTAL MANAGEMENT SYSTEM

This section describes the documented systems and processes of the Environmental Management System (EMS) used for the safe operation of the TGSP facilities. AGIT adopt all DBP policies and procedures across the operation of its business. Implementation of AGIG's EMS ensures that hazards are identified and assessed to eliminate or minimise the risk to the environment to a level that is As Low As Reasonably Practical (ALARP) throughout operation of the TGSP facilities.

AGIT will notify DMIRS of the commencement and cessation of activities within one week of these events occuring.

7.1 Consultation

The purpose of consultation is to:

- Obtain appropriate input into the ongoing improvement of this EP.
- Ensure key stakeholders remain up to date with TGSP activities.
- Ensure timely response to landholder issues.
- Maintain dialogue with regulatory authorities, including local councils.

7.1.1 Stakeholder Engagement Approach

AGIT has continually engaging with stakeholders since early in the project planning phase to facilitate a collaborative approach and to ensure that local knowledge is considered in the design and management of the project. AGIT has identified a list of relevant stakeholders to be engaged throughout the TGSP operation (Table 7-1).

Table 7-1: List of Relevant Stakeholders

Stakeholder Group	List of Stakeholders
Commonwealth Government	• Department of Climate Change, Energy, the Environment and Water (DCCEEW)
State Government	• Department of Water and Environmental Regulation (DWER) • Department of Jobs, Tourism, Science and Innovation • DEMIRS • Department of Biodiversity, Conservation and Attractions (DBCA) • Department of Parks and Wildlife (DPaW) • Department of Health • Department of Transport • Department of Planning, Lands and Heritage • Main Roads WA • Minister of Mines • Minister for Aboriginal Affairs
Local Government	• Shire of Ashburton
Corporate	• Leaseholders for Minderoo Station and Urala Station •
Community	• Thalanyji (BTAC)

Stakeholder engagement is conducted on a regular or need basis:

- When potential or actual change occurs associated with the TGSP activities and have potential impacts on one or more stakeholders.
- Annually with leaseholders for Minderoo Station.
- When required and outlined in the relevant Access Agreements and statutory approvals.
- On a regular basis to maintain ongoing relationship with stakeholders.

7.1.2 Ongoing Stakeholder Engagement

The consultation conducted to date with key stakeholders is outlined in Table 7-2. AGIT kept a record of regular stakeholder consultation and landowner communication highlighting date, stakeholder consulted, and outcomes. Any significant stakeholder concerns or issues will be reported to DEMIRS in the Annual Environmental Report.

Table 7-2: Stakeholder Consultation Progressed to Date

Stakeholder	Date of Consultation	Items Discussed/proposed to be discussed	Outcomes
Commonwealth, State and Local Government			
Department of Water and Environmental Regulation	• Application – February 2021 • Letter to proponent on S46 inquiry MS112 – May 2021. This includes ongoing consultation and provision of information to inform (decision pending) • November 2021 – provision of recent heritage surveys. • April – July 2022 – status of S46 application • Annual reports • Quarterlty Water reporting	• MS308 Sction 46 update to conditions • MS112 Section 46 application for update to heritage commitment to align with Heritage Agreement with local Traditional Owners • Project briefing – new wells and potential for production • S46 update – provision of information as requested and request for updates on progress • Annual Compliance Assessment Reports • Water usage volumes (when abstraction occuring)	• MS308 - Noise commitment updated to reflect current noise regulations • MS112 – pending review of condition commitment and proposed wording • Water license condition reporting
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	• April, May and June 2016 • September 2016 – January 2017 • April 2021 (approval from DMIRS – TGS OSCP) • Written Notification approval – December 2020 • Bridging Document approval – November 2021 • Project briefing production potential – December 2020 • Annual Reports – July to June annual with submission in September.	• High level overview of activity provided via presentation in person • OSCP update (2.5 year) • Written notification for laydown yard • Bridging Document for Well TGS4A nano sealant works • Briefing in proposed works to include potential production gas • Annual Environmental Reports	• Regular updates to DMIRS on all AGIT operations including TGS • Updated OSCP in line with regulatory requirements • New laydown yard for drill rig and associated equipment • Approval to conduct sealant work on TGS4A • Briefing on titles, deed, technical and environmental approvals in relation to potential for production • Annual environmental reports provide updates on activities completed, audit and incident outcomes.
Shire of Ashburton	Ongoing	• High level overview of activity provided • Lot 226 works • Road closures • Waste Management (Nov 2021)	• Shire has full awareness of project including the approvals relating to road use and operational matters • Camp building operational approval discussions • Road closure and road condition consultation (Old

Stakeholder	Date of Consultation	Items Discussed/proposed to be discussed	Outcomes
			Onslow Road, Twitchen Road) • New waste disposal location near Onslow for potential use. Ongoing as still being built for potential waste use. Reduce transport to Karratha and promote local focus.
Department of Health	October 2016	Water quality monitoring requirements for potable water at camp	• Water cartage process (Chlorine) • Microbiological monitoring requirements and frequency determined.
Native Title Claimant group			
Thalanyji (BTAC)	Ongoing	• Agreement reached on NT and Heritage processes and protocols. • New project operational works including drilling pads and well locations. • Full agreement consultation ongoing	• Consultation, involvement and engagement continues. • Traditional Owner involvement in clearing activities for TGSP Wells. • September 2016 – Interim Agreement on project works reached with Thalanyji. • 2021 – survey of potential future disturbance areas with Traditional Owner representatives and BTAC requested consultants (Archaeologists)
Local Landowners and Other Stakeholders			
Minderoo Station – Crown Lease 56/1967	• May 2016	Access arrangements	Access agreement reached
Urala Station – Crown Lease 330/1967.	• April 2013, 2014, 2015, 2016 • Annual leaseholder requirements • Sub lease arrangements	Access arrangements	• DDG becomes leaseholder of Urala Station June 2016. • Station Manager consultation for use of access tracks and well locations with ongoing consultation on works, water access by station, security issues, fencing, stock movements and general pastoral issues.
Urala Station – Crown Lease	Dec 2012 – June 2016	Sale of Urala Station	Sale of Urala Station by BHPB to DDG

8. DECOMMISSIONING AND REHABILITATION

There is no current plan to decommission the TGSP infrastructure as operational life expected to extend into the foreseeable future. The final decommissioning and rehabilitation plan shall require approval by DEMIRS prior to carrying out the decommissioning and rehabilitation activities. The following points are considered when conducting decommissioning and rehabilitation activities:

- Identification of all potential (or pre-existing) environmental legacies (including contaminated sites) which may restrict post-activity land use.
- Confirmation of future land use; dependent on multiple factors including previous land use, current land use for adjacent areas, stakeholder consultation and ensuring ecological sustainability of the land.
- Removal of above ground facilities.
- Removal of above ground signage and CP points.
- Disturbance areas (compounds, access tracks and airstrips) shall be ripped to mitigate any soil compaction.
- Development of rehabilitation criteria for disturbance areas.
- Best practice (at the time) decommissioning management of the assets either through removal or if left in-situ; to enable a non-polluting, safe and stable condition of the assets.

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Appendix A: Operational Environmental Aspects and Risk Register