




Australian Gas Infrastructure Group

Tubridgi Gas Storage Project – Operations

ENVIRONMENT PLAN

Public Summary

Revision 1.1

October 2018

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1. Introduction

1.1. Background

DDG Tubridgi Pty Limited proposes to operate and maintain the Tubrigdi Gas Storage Project (TGSP), a subsurface gas injection and extraction facility with a nominal capacity of up to 120 TJ/d of natural gas. The storage facility will be 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 is expected to benefit 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 six (6) well program with associated flowlines back to the TGSP facility located at the previous Griffin Export Facility (GEF). The Department of Mines and Petroleum (DMP) under the *Petroleum Geothermal and Energy Resources Act 1967* have issued production Licence L9 for activities related to TGSP.

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

The operation of the TGSP facilities is scheduled to commence in Q2 2017

1.2. Proponent

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

DDG is 100% owned by DUET, an ASX-listed infrastructure fund. DDG relies on the services of DBNGP (WA) Nominees Pty Ltd (DBP), the owner of the DBNGP, for the provision of labour and equipment to undertake its business. In this regard DDG adopt all DBP policies and procedures across the operation of its business.

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

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1.3. Objectives

The objective of this Operations 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 risk during operation of the TGSP.

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
- Diesel fuel storage and Gas / diesel power generation
- Camp accommodation and related ancillary services (water, sewage etc)
- Potential water well construction and operation (Years 5-10)
- Airstrip and helipad

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-WEL-DRILL-Well Management Plan)
- DBP Emergency Response Plan (TEB-003-0021-01)
- TGS Project Emergency Response Plan for Well Activities (TGS-HSE-ERP_Well Activities)
- ASW Operations Environment Plan
- TGSP Safety Case for the operation of the assets defined in the Asset Management Plan
- Asset Management Plan

1.5. Location

The TGSP facilities are situated within the previous Griffin Export Facility (Figure 1), located approximately 30 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*

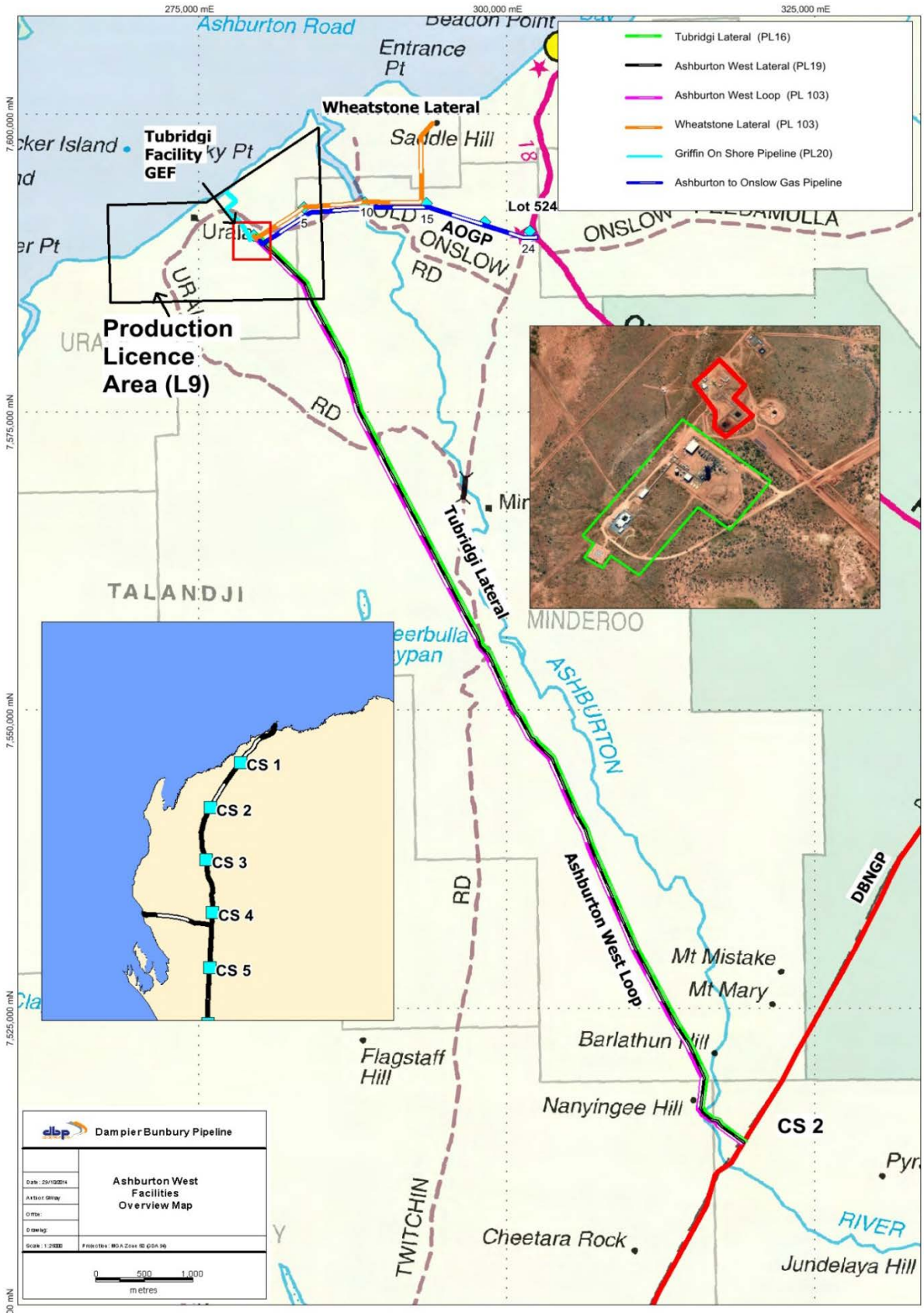

Figure 1-1: Location Map of the Tubridgi Gas Storage Facility (formerly GEF)

2. Environmental Management Framework

2.1. Policy

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

DBP 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 DBP HSE Policy which is signed and endorsed by its CEO. This is supported by a statement of commitment signed by the DBP Executive Team, 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 DBP and its workforce.

A copy of the DBP HSE Policy and Statement of Commitment is provided in Appendix A.

The DBP HSE Policy is reviewed annually, 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. Legislation

Key environmental legislation and other requirements that may apply to the TGSP facilities are presented in Table 2-1 below.

Table 2-1 Associated Environmental Legislation and Other Requirements

Regulatory Aspect	Item
Commonwealth Legislation	• Aboriginal and Torres Straits Islander Heritage Protection Act 1984 • Environment Protection and Biodiversity Conservation Act 1999 • National Greenhouse and Energy Reporting Act 2007 • National Environment Protection Measures (Implementation) Act 1998 • Native Title Act 1993
Western Australian Legislation	• Aboriginal Heritage Act 1972 • Aboriginal Heritage Regulations 1974 • Biodiversity Conservation Act 2016 • Biosecurity and Agriculture Management Act 2007 • Biosecurity and Agriculture Management Regulations 2013 • Bush Fires Act 1954 • Bush Fires Regulations 1954 • Conservation and Land Management Act 1984 • Contaminated Sites Act 2003 • Contaminated Sites Regulations 2006 • Dangerous Goods Safety Act 2004 • Environmental Protection Act 1986 • Environmental Protection Regulations 1987 • Environmental Protection (Abrasive Blasting) Regulations 1998 • Environmental Protection (Clearing of Native Vegetation) Regulations 2004 • Environmental Protection (Controlled Waste) Regulations 2004 • Environmental Protection (NEPM-NPI) Regulations 1998 • Environmental Protection (Noise) Regulations 1997 • Environmental Protection (Unauthorised Discharges) Regulations 2004 • Health Act 1911 • Heritage of Western Australia Act 1990 • Land Administration Act 1997 • Litter Act 1979 • Local Government Act 1995 • Local Government (Miscellaneous Provisions) Act 1960

Regulatory Aspect	Item
	• Main Roads Act 1930 • Native Title (State Provisions) Act 1999 • Petroleum Pipelines Act 1969 • Petroleum and Geothermal Energy Resources Act 1967 • Petroleum Pipelines (Environment) Regulations 2012 • Petroleum and Geothermal Energy Resources (Environment) Regulations 2012 • Planning and Development Act 2005 • Reserves (National Parks Conservation Parks Nature Reserves and Other Reserves) Act 2004 • Rights in Water and Irrigation Act 1914 • Rights in Water and Irrigation Regulations 2000 • Soil and Land Conservation Act 1945 • Waterways Conservation Act 1976 • Wildlife Conservation Regulations 1970
Standards	• AS1940 The storage and handling of flammable and combustible liquids • AS1697 Installation and maintenance of steel pipe systems for gas • AS1692 Tanks for flammable and combustible liquids • AS 2436 Guide to Noise and Vibration Control on Construction, Maintenance and Demolition Sites • AS 2507 The storage handling of pesticides • AS 2832 Cathodic protection of metals • AS 2885.0 Pipelines—Gas and liquid petroleum—General requirements • AS 2885.1 Pipelines—Gas and liquid petroleum—Design and construction • AS 2885.2 Pipelines—Gas and liquid petroleum—Welding • AS 3780 The storage and handling of corrosive substances • AS/NZS 9001 Quality Management Systems – Requirements • AS/NZS ISO 14001 Environmental Management Systems – Requirements with guidelines for use • AS/NZS ISO 14004 Environmental Management Systems – General guidelines and principles, systems and support technologies • AS/NZS ISO 14031 Environmental Management – Environmental performance evaluation guidelines • AS/NZS ISO 19011 Guidelines for quality and / or environmental management systems auditing • AS /NZS 31000 Risk management – principles and guidelines
Codes / Guidelines	• Aboriginal Heritage Due Diligence Guidelines • Australian Dangerous Goods Code • ANZECC (2000) Guidelines for Fresh and Marine Water Quality • Guidelines for De-watering, 2006 • Preparation, review and amendment of monitoring protocols SOP No: 1.2 • Stakeholder Consultation Guideline • Best Practice Erosion and Sediment Control (International Erosion Control Association)

2.3. Project Approvals

DBP Development Group Nominees Pty Ltd is the licence holder of PL 20 issued by the DMP under the *Petroleum Pipelines Act 1969* for the operation of the GEF. The *Petroleum Pipelines (Environment) Regulations 2012* require the development and implementation of an Environment Plan (EP) to the satisfaction of the DMP. The *Tubridgi Gas Storage Project – Facilites Construction Environment Plan* (the EP) has been prepared to satisfy this requirement.

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 (refer Appendix B). Consultation with the Office of the Environmental Protection Authority (OEPA) has confirmed that the proposed activities (including the associated new disturbance footprint) 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. Origianl development of the Tubridgi and Griffin sites predated the EPBC Act and as such no assessment was required. A self-assessment of the proposed additional activities associated with the TGSP indicates that no MNES are likely to be materially affected by construction or operation and as such no referral under this act has been lodged.

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

- Surface Water Licence (SWL) 166334
- Groundwater Licence (GWL)179552
- Groundwater Licence (GWL) 179066

Additional water licencing may be sought under the *Rights in Water and Irrigation Act 1917* 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 L9 Production Licence.

DDG is aware of its obligations under the Aboriginal Heritage Act 1972 (AH Act) and has worked with the Thalanyji group to ensure these obligations are met. A survey and risk assessment of the proposed disturbance footprint have been completed and no sites of significance requiring salvage or avoidance were identified.

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 construction of the TGSP Facilities at ASW.

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 Onslow, which has a mean monthly maximum of 36oC in January to March and 25oC in July. Corresponding mean monthly minimums are 24oC and 12oC (BOM, 2012).

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 being approximately 45% in November and 61% in June. Rainfall is generally low and erratic, with mean monthly rainfalls ranging from 0.7mm in October to 67.4mm in February. The average annual total rainfall for Onslow is 291.9mm (BOM 2012).

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 may cause widespread flooding and the temporary isolation of regional population centres (BOM 2012).

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 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 40m 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 Soil of low to moderate or moderate to high risk were identified in the project operational area. As such any further minor excavations works are not deemed to have ASS risk profiles due to the location of the current infrastructure.

3.3. Flora

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

- Coastal Dunes:
  - Beach (very open grass <5%);
  - Dunes (open low scrub over open grass);
  - Berm with fresh water 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).

The vegetation that occurs in proximity to TGSP belongs to 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. The calcrete ridges outcropping from the surrounding sand plains support *Hakea subarea, A. coriacea* and *A. sclerosperma* with the dwarf shrub *Adriana tomentosa* (Beard, 1975).

A Level 1 flora and vegetation survey was undertaken April 2013 by Mattiske Consulting Pty Ltd Mattiske), in association with construction of the WAWP. No Threatened Ecological Communities (TEC), Priority Ecological Communities (PEC) and Declared Threatened Flora species as listed by DPaW under the *Wildlife Conservation Act 1950 [WA]* were recorded.

One declared noxious weed, *Prosopis* sp. (Mesquite) is known to occur in the area of ASW. Other weed species known to occur in the area include:

- **Aerva javanica* (Kapok bush)
- **Cenchrus ciliaris* (Buffel grass)
- **Cynodon dactylon* (Couch)
- **Malvastrum americanum* (Spiked Malvastrum)
- **Parkinsonia aculeata* (Jerusalem thorn)
- **Portulaca oleracea* (Pigweed)
- **Vachellia farnesiana* (Mimosa bush).

All vegetation clearing associated with the TGSP Facilities construction is located within the existing fenced compound or in close proximity. The quality of vegetation in this area is poor and considered to be of low conservation value.

Additionally, a follow up Level 1 flora and vegetation survey of the area was undertaken by Mattiske Consulting Pty Ltd (Mattiske) in May 2016 (Mattiske 2016).

A total of 46 vascular plant taxa from 41 genera and 21 families were recorded within a survey area that encompassed the proposal area. The majority of the taxa recorded were from Fabaceae (12 taxa), Poaceae (8 taxa) and Chenopodiaceae (three taxa). No taxa recorded during the current survey represented extensions to their currently known range (Mattiske 2016).

Threatened and Priority flora

No Threatened or Priority flora species as listed by the Department of Parks and Wildlife (Parks and Wildlife) were recorded within the proposal area (Mattiske 2016).

Mattiske (2016) assessed one Priority flora species as being likely to occur in the proposal area and another as possibly occurring in the proposal area. These species were:

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

Vegetation communities

The proposal area intersects Beard (1975) vegetation association 676 (Succulent Steppe; Samphire), which has 97.4% of its pre-European extent remaining (Mattiske 2016).

Mattiske (2016) defined and mapped four vegetation communities within the proposal area. The vegetation community for each test well site and proposed access tracks, including area of vegetation to be impacted, are described below.

Table 3-1-1 Vegetation communities in the proposal area (Mattiske 2016)

Code	Habitat	Description
C2	Claypans and Clayey Plains	*Tecticornia* spp. low sparse chenopod shrubland with *Sporobolus mitchellii, Eriachne helmsii* low isolated tussock grasses
ID1	Inland Sand Dunes	*Grevillea stenobotrya* low sparse shrubland over *Acacia stellaticeps* mid open shrubland over *Triodia epactia* hummock grassland
IP8	Inland Sand and Clayey Plains	*Eucalyptus victrix* low isolated trees over *Acacia tetragonophylla , Acacia synchronicia* tall isolated shrubs with *Acacia stellaticeps, Acacia coriacea* subsp. *coriacea, Senna artemisioides* subsp. *oligophylla* low sparse shrubland over *Triodia epactia* mid hummock grassland with *Eulalia aurea, Eragrostis eriopoda, *Cenchrus ciliaris* low sparse tussock grassland
IF4	Inland Floodplains and Depressions	*Eucalyptus victrix* low open woodland over *Acacia synchronicia, Acacia tetragonophylla, Scaevola spinescens* tall sparse shrubland over *Sporobolus mitchellii, Eriachne helmsii, Eulalia aurea* low open tussock grassland

Vegetation condition and weeds

Vegetation condition throughout the proposal area was recorded by Mattiske (2016) as excellent. Introduced flora species (weeds) were recorded throughout the proposal area; however, these were in low density such that native species structure and composition were unaltered. Cattle movement and grazing was prevalent across the survey area, but at low intensity (Mattiske 2016).

Three weeds were recorded within the Mattiske (2016) survey area: *Prosopis pallida (Mesquite), *Cenchrus ciliaris (Buffel Grass) and *Vachellia farnesiana (Mimosa Bush). *Prosopis pallida is a Declared Pest (Plant) pursuant to the *Biosecurity and Agriculture Management Act 2007* (WA) and has a legal status of Prohibited (s12) and a control category of C2 (Eradication) across Western Australia (DAFWA 2016). At the regional scale, *Prosopis pallida has a medium environmental weed rating. One individual was recorded at one location by Mattiske (2016). Buffel Grass was recorded throughout the area surveyed by Mattiske (2016). This species occurs throughout the Carnarvon bioregion and has a low environmental weed ranking. Mimosa Bush was recorded at three locations surveyed by Mattiske (2016). This species occurs throughout the Carnarvon bioregion and has a low environmental weed ranking.

Threatened and Priority Ecological Communities

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

Conservation Reserves

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

3.4. Fauna

The greater TGS 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 the Migratory bird species. A total of 244 fauna species have the potential to occur in the Project area including; 20 mammal, 7 amphibian, 77 reptile, 133 bird and 7 introduced species.

Due to the broad geographic extent intersected by the Construction Corridor, a number of potential conservation significant species have been identified as potentially occurring. Conservation significant species identified on the databases as having a moderate to high likelihood of occurring within the vicinity of the ASW include:

- Northern Quoll (Dasyurus hallacatus)
- Great / White Egret (Ardea alba)
- Oriental Plover (Charadrius veredus)
- Eastern Great Egret (Ardea modesta)
- Rainbow Bee-eater (Merops ornatus)
- Barn Swallow (Hirundo rustica)
- Fork-tailed Swift (Apus pacificus)
- Australian Bustard (Ardeotis australis)
- Common Greenshank (Tringa nebularia)
- Cattle Egret (Ardea ibis)
- Pilbara Olive Python (Liasis olivaceus)
- Common Sandpiper (Actitis hypoleucos)
- Oriental Pratincole (Glareola maldivarum)
- Osprey (Pandion haliaetus)
- White-bellied Sea-eagle (Haliaeetus leucogaster)
- Peregrine Falcon (Falco peregrinus)

It is considered highly unlikey that vegetation clearing required in association with the TGSP facilities operational footprint is likely to impact conservation signifcant fauna given the small scale operational footprint (approximately 35 ha) and proximity to existing disturbance footprint of the plant and pastoral operations. Any clearing would occur within previously disturbed locations and for the purposes of minor excavation (dig up of flowline), vegetation management, access track management and firebreaks.

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 Wheatstone precinct (Ashburton North), within 10m of the surface inland, and within a few metres of the surface at the coast. A previous but recent (2013) search of the DoW Water Information Reporting database for the WAWP Project identified seven bores within the vicinity of the WAWP corridor, monitored for groundwater levels between 1994 and 1997. The screened depth of the seven bores ranged from 12–46 metres below ground level, significantly deeper than planned excavation for installation of the pipeline. Bore installation records identified predominantly sand to sandy clay and clay lithologies, including shallow clay lithologies likely to present a barrier to groundwater movement.

The TGSP Facilities 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. Community

TGSP falls within the Shire of Ashburton Local Government Area, which spans approximately 105,647 km^2 and has a population of approximately 10,000 (ABS, 2013). Onslow is the closest major town located 16km 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 on 28 September 2012 from BHPB. Lot 226 house the bulk of above ground facilities for the TGS project.

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

3.7. Cultural heritage

During on ground surveys conducted in conjuntion with the Thalanyji group, no sites of cultural signfiance were identified.

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 vicinty of the beach dunes located some 3.5kms from Lot 226.

4. Activity Description

The TGSP is a subsurface gas injection and extraction facility with a nominal capacity of upto 120 TJ/d of natural gas. The project aims to utilise as much as possible of the existing mothballed equipment at the existing Griffin Export Facility (GEF), described under the ASW Operations Environment Plan.

While operating 24/7 works will only be undertaken during daylight hours unless for planned outages (shutdowns) emergency work or the investigation of alarms.

The storage facilities will include the following key processing units:

- Inlet Separation
- Pre-treatment, including a Mercury Removal Unit (existing GEF Pre-Treatment Skid, U-701A)
- Gas Dehydration (existing GEF Dryer Skid, U-705, with new regeneration circuit)
- Compression for sales gas injection and withdrawal (2 x compressor packages, Ariel JGD6 – two stage, Waukesha engine 12V275+ (2700 kW @ 1000rpm))
- Custody Transfer Metering (existing GEF metering skid with new Coriolis Meters)
- Facilities for the connection of pig launcher/receiver
- Cold vent
- Evaporation pond

A DN200 flowline will connect the storage facilities to each of the 6 wellheads. Each wellhead will have identical equipment except for the flowline connections. The equipment includes the following:

- Wellhead Christmas tree
- Surface safety shutoff valve
- Corrosion inhibitor injection spool
- Electric Choke Valve
- Coalescing filter
- Solar panels and batteries
- Facilities for the connection of pig launcher/receiver

4.1. SCADA

The TGSP will be remotely controlled and supervised from the TSCC located in Perth. The SCADA system that enables this remote control and a Remote Terminal Unit (RTU) is installed in the refurbished Control Room.

Site functionality includes:

- Remote and local operational control of the actuated shutdown valves
- Monitor miscellaneous pressures, temperatures, valve positions and site status
- Gas quality and energy flow rates metering data

4.2. Interconnect

The TGSF 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 laterals. The interconnecting line is coated with HD Polyethylene coating and protected with impressed current cathodic protection system. The interconnecting line is in its designated easement and sign posted for clear visibility of its alignment.

4.3. Communications

Site communications are designed to enable the site to be remotely controlled from DBP Gas Control in Perth. Communication to TGSP will be microwave supplied from a new Spur off MLV22 via Telstra’s

McCann Well as well as back up systems through satellite and radion communications. The site communications tower forms part of the project and is linked with Ashburton West Facilities.

4.4. Pigging

The flow lines 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 follows:

- Internal cleaning of the lines after withdrawal to ensure internal corrosion inhibitors do not contaminate the wells when the operation switches to injection from a prolonged period of withdrawal
- Intelligent pigging operation as determined from the Asset Management Plan

Product collected from the pigging operation will be contained. Potential contaminants may include sand, remnants of corrosion inhibitor and water. On opening of the 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.

4.5. Evaporation Pond

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

Process water will be water vapour that is removed from the gas through the dehydration process or water that is produced from the well. Potential contaminants, though not expected, would be salt from the produced water and corrosion inhibitor in the water vapour that is used in the pipework.

The evaporation pond is 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 (including a wear strip) for signs of degradation. Ground water bores currently installed in the area may also be tested with samples analysed by a NATA accredited laboratory.

The depth of the evaporation pond is 2250mm from top of bank and 1750mm if you include the 500mm freeboard requirement. Expected volumes for the evaporation pond is between 1,000kL to 1,500kL.

4.6. Accommodation

The operating workforce will be accommodated at the exisiting permanent 14 room / 30 person Tubridgi Accommodation Facility that was installed and refurbished as part of the WAWP project.

The accommodation facilities include:

- Self-contained accommodation units
- Kitchen and lounge facilities
- First Aid Room
- Facility to manage night landing on helipad
- Water suply
- Electricity supply is provided from the TGS Plant
- Sewage treatment and irrigation

4.7. Control Room

The refurbished control room is located between the main compound and the accommodation units. The control room consists of the following:

- Control panels and SCADA equipment
- Communication equipment
- Corporate servers – printers, comupters and internet/e mail access ;
- Emergency shutdown capabilty
- Meeting and conference rooms
- Work stations
- Stores
- Coffee making facility
- Ablution facility
- Vehicle parking

The Control Room is designed to enable local control of the TGS Facility during campaign maintenance and outages. It is also a base location for the manning resources and management of any emergency associated with the TGS facility

4.8. Power

Electrical power at TGS is generated from two types of power sources:

- Gas Engine Alternators (GEA)

The three GEAs are Waukesha VGF H24 engines, and all capable of generating (395kVA) 316kW at 415VAC, of electrical power. The GEAs will be managed by a ComAp InteliSys BB-NT controller and each GEA will be given a priority in a preferred order of operation.

The controllers will monitor the site load to automatically start and stop GEAs according to site loads and can all can synchronise to one another and operate in parallel.

- Diesel Engine Alternators (DEA).

There are currently two Diesel Engine Alternators (DEA) on site supplying the general site power and accommodation power. The DEAs are Cummins engines with DEA1 capable of generating (110kVA) 88KW and DEA2 is capable of generating (66kVA) 52kW of electrical power.

The DEAs are designed to supply backup power to the site and will be considered as emergency power during black site incident, or when there's no availability of fuel gas supply. Each DEA is controlled by an ComAp Intelisys IG-NT controller. Both DEAs can operate in parallel can to provide a total up to (176kVA) 140kW of emergency electrical power.

Diesel storage onsite will be minimised (operating level will be targeted under 10kL) however the existing 55kL tank will be retained for storage. Fuel is managed through existing piping infrastructure and the concrete hardstand with bund is linked to a contained waste oil system. All diesel storage and the DEAs have secondary containment in place for prevention of contamination from any leaks or spills.

Wellhead power is supplied through a Solar Power system and battery backup system.

4.9. Potable water storage

Potable water is stored in five (5) 30,000L water storage tanks at TGS Facilities accommodation area. The storage capacity is sufficient for the accommodation capacity and water is currently carted in by trucks.

4.10. Wastewater

The sewage system is a single phase BioMAX system and has a capacity up to 9000L/day. The BioMAX system and irrigation field is located within the accommodation facility. The nearest environmental sensitivity to the system is the Ashburton River located approximately 12kms to the east.

The system consists of 5 sealed, interlined cement tanks:

1. Anaerobic chamber - anaerobic treatment
2. Aerobic chamber - aerobic treatment
3. Clarification chamber - sludge settlement and removal
4. Disinfection chamber - contact with chlorine
5. Pump out chamber - discharge to disposal system

The effluent from the sewage system is clear and odourless and discharged through a filter to a dripper irrigation system.

The system has two mechanical components, a side channel air blower and a submersible pump. An alarm system is installed to detect loss of air pressure and high water level in the plant. The system has an in-built emergency storage of approximately two days to allow rectification before overflow occurs. The system undergoes scheduled maintenance at a minimum of quarterly intervals and in response to any alarms or other observed failures.

4.11. Water

Normal water use (as per potable water) shall be supplied through imported water from Onslow (standpipe) as required. Additionally DDG has a surface water licence to access water from the Ashburton and groundwater bore licences which will be retained and used as required

4.12. Access tracks

Access tracks have been constructed to utilise the existing Urala Station tracks as well as new tracks to access well heads. The access tracks will be graded and repaired to enable light vehicles on a routine basis with HV use when campaign maintenance is being undertaken. Maintenance will also include management of drainage, floodwater controls, erosion and weeds.

4.13. Helipad and Airstrip

An existing helipad has been refurbished and made operational. The helipad is equiped with night landing capability for operational use and emergency evacuation. The helipad includes a wind sock, lighting and cleared area to facilitate the landing / take off of helicopters.

The airstrip is an existing 1200m long airstrip that was constructed by the previous operator and was refurbished to allow an additional capability for access to and from site when restricted for prolonged periods. Cleaing of the airstrip is managed under a Native Vegetation Clearing Permit.

Airstrip maintenance will include the weed control, grading, drainage and floodwater controls and repacking of the surface and stock fences. At this stage the airstrip is only designed for daytime capability however further improvements may be made to enable night time use. Dependant on site requirements and back up airstrip may be constructed in the future as it has been identified that this airstrip location is susceptible to localised flooding which impacts effectiveness.

4.14. Laydown and loading ramp / Turkeys Nest

The laydown area from construction activities will be retained as part of the operational requirements for the storage of large equipment and to enable and facilitate shutdown maintenance works and overhauls of large equipment (i.e. vessels, compressors and tanks). Maintenance of these areas shall

include management of erosion (runoff from nearby ridgeline) civil and related works as well as weed management requirements.

The Turkeys Nest was used by a previous proponent and was part of the remediation works undertaken on site in 2013-2014. The Turkeys Nest was also used by Urala Station at times for storage or waste materials holding.

The Turkeys Nest is currently lined as a contingency sump for drilling fluids and cuttings. The Turkeys Nest is designed as a lined area to be utilised for bio-remediation onsite (minor volumes only).

The design includes a HDPE liner, bentonite, compacted earthen bunds and fauna egress controls in a fenced area (temporary fence when liquids are present). The remediation of soil includes minor volumes undergoing bioremediation through the addition of fertiliser to encourage bacterial breakdown of hydrocarbons.

4.15. Maintenance

General maintenance activities undertaken during the operation of the TGSP shall include (but not limited to):

- Internal and External flowlines inspections
- Filter maintenance and change-out
- Pressure control
- Vessel and equipment inspections
- Leak detection inspections
- Inspection of first response equipment
- Cyclone maintenance/readiness inspections
- Replace used consumables (gas cylinders, oil, filter pads)
- Equipment maintenance
- Plant and vehicle (inspections)
- Gas measurement calibration
- Well valve adjustment and alignment
- Fault finding and repairs
- Test and tag electrical and other equipment
- Corrosion protection checks
- Civils and other maintenance (weeds, access tracks, vegetation maintenance)
- Aerial surveillance and road surveillance
- Communication and electrical checks and maintenance

5. Environmental Risk Identification and Assessment

DDG ensures the effective management of risk across its business through implementation of the DBP Risk Management Policy (Appendix C). The DBP 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
- Assurance is provided on the effectiveness of the risk management system and risk controls

In order to identify, understand and manage all environmental sources of risk and consequent impacts associated with the construction of the TGSP Facilities, a comprehensive Environmental Risk Assessment (ERA) was completed on 28 December 2016. The ERA included a multidisciplinary team of in house personnel following a structured process which sought to:

- outline key construction activities;
- identify, analyse and evaluate associated hazards and corresponding environmental impacts;
- where necessary, establish suitable controls; and
- systematically assess the residual associated environmental risk.

This approach is in line with the AS/NZS ISO 31000:2009 process summarised by Figure 5-1.

The ERA methodology employed a structured workshop which completed the below key steps:

1) Definition of the study objectives and area to be studied.
2) Identification of activities involved in operation and maintenance of the assets.
3) Brainstorming of the hazards and their causes.
4) Assessment of the risk associated with the identified hazards including:
    i. determination of worst case credible consequences;
    ii. identification of the existing safeguards (management control and mitigation systems and procedures);
    iii. determination of the likelihood of the consequence occurring;
    iv. categorization of the risk utilizing the DBP Operational Qualitative Risk Analysis Matrix (Appendix C).
5) 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.
6) Evaluation of the residual risk as per the methodology outlined in Step 4.
7) Documentation of all findings within the TGSP Facilities Construction Environmental Aspects and Impacts Risk Register (Appendix D).

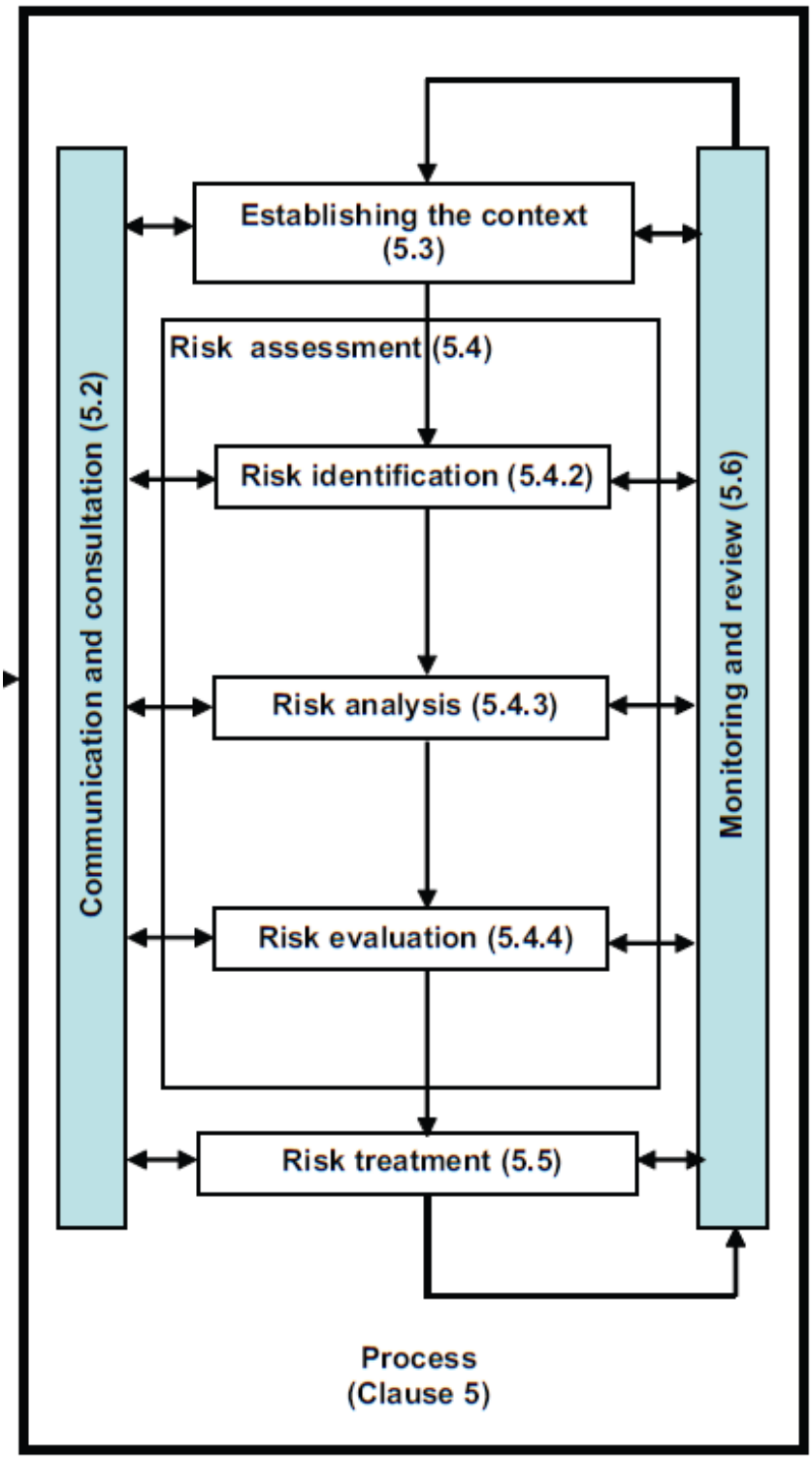

Figure 5-1 AS/NZS ISO 31000:2009 Risk Management Process

6. Implementation Strategy

6.1. Soils and Sediment

- Where the flowlines are likely to affect or be affected by gully erosion, stabilization works including diversion structures may be required.
- Topsoil, subsoil and trench spoil disturbed during earthworks shall be stockpiled separately such that the soil profile may be maintained during backfilling.
- Soil and surface stability shall be maintained at all times (e.g. cut and fill excavation shall be shaped to maintain slope stability and temporary erosion control berms, drains and sediment barriers shall be installed as necessary and maintained until final operational clean-up is completed).
- If a JHA identifies erosion as a possible impact, erosion and sediment control structures shall be constructed, such as sediment traps or drainage controls.
- Following the completion of earthworks, trench spoil, subsoil and topsoil shall be returned in that order such that the soil profile is reinstated.
- All vehicle movements shall be restricted to within existing access tracks or approved operational areas.

6.2. Flora

- Maintain a GIS Environmental Database to present available information regarding the location of environmentally sensitive areas and relevant adminstrative boundaries.
- Adminster the DBP Authroisation to Clear Vegetation internal permitting process to facilitate pre clearing checks by suitably qualified personnel and communicate clearing controls and boundaries to on ground personnel.
- Trimming overhanging branches shall be undertaken using the ‘three-cut method’ to prevent bark stripping in accordance with the DBP Vegetation Clearance Procedure
- Records shall be kept to document the details of clearing conducted in order to facilitate reporting in accordance with relevant approvals.
- When undertaking line of sight clearing, vegetation slashing will be at the maximum height above ground level practicable (standardly 200 mm).
- The width of wellhead access tracks shall be maintained no wider than 5m
- Access shall be restricted in areas subject to rehabilitation

6.3. Weeds

- Internal clearing permits shall identify the presence of mesquite where applicable and establish the below minimum controls:
    - Clearing of mesquite shall require mechanical removal (including roots and stumps)
    - Cleared mesquite plant material shall be stockpiled separately within the affected area taking care to avoid drainage ways and avoid creating excessive fuel loads.
    - On rehabilitation, stockpiled mesquite plant material shall be respread over the affected area and treated with an appropriate herbicide spray.
- As far as practicable, minor operational construction activities will be scheduled for drier periods and avoided during wet conditions.
- Targeted weed management shall be undertaken to promote control of existing populations. This shall involve opportunistic treatment with herbicides/ diesel or mechanical/physical removal for mesquite.
- All vehicles shall remain on designated roads and access tracks and shall not go outside approved access areas.
- All herbicides shall be applied strictly in accordance with the directions on the label or in line with Best Practice Management Guidelines.

- Any imported soil from outside of Urala Station shall be certified as weed and pathogen free.

6.4. Bushfire

- Fire weather warnings will be monitored daily through local government sources and other relevant authorities and communicated to operational construction crews daily.
- All activities shall be conducted in accordance with the requirements of regulatory and local fire authorities. In particular, operations shall comply with relevant fire restrictions unless an exemption has been sought and approved.
- All equipment shall be maintained and operated to comply with relevant fire safety standards (e.g. use of exhaust spark inhibitors).
- All welding and grinding shall be undertaken with facilities in place to prevent any sparks contacting any flammable material.
- During hot works located near the boundary fence, dedicated assistants (spotters) shall be alert for evidence of spot fires.
- All vehicle movements shall be restricted to exisitng access tracks or parking areas (e.g. not over shrubs, tall grass or cleared vegetation residue).
- All vehicles shall be fitted with dry chemical extinguishers (light vehicles with 1 kg units, trucks etc 9 kg units).
- Where flammable or combustible chemicals are required to be stored on-site, appropriate fire-fighting equipment shall be available. Incompatible chemicals shall not be stored together.
- Firebreaks shall be maintained around buildings and facilities as appropriate.
- Relevant personnel shall be trained in the use of fire fighting equipment.
- The following is prohibited in hazardous areas:
    - smoking
    - the presence of matches, lighters and naked flame
    - the access of any sources of ignition to the area (e.g. spark-ignition engines, motor vehicles etc.).

6.5. Fauna

- Vehicles movements shall be restricted to established tracks and operational footprint.
- Vehicle speeds shall not exceed 60km within the Urala L9 area of operations.
- Fauna shall not be fed and direct contact with fauna shall be avoided.
- Domestic waste shall be maintained within sealed bins and collected for appropriate disposal.
- Pets shall be prohibited on site.
- Bunting shall be erected as required to manage livestock interference.
- All compound gates shall be closed overnight to prevent stock access
- All excavations shall be filled as soon as practicable, not greater than 200m and include fauna shelters every 50m.
- The evaporation pond shall be located within a fenced compound to prevent ingress of large fauna.
- The evaporation pond shall be equipped with suitable and adequate fauna egress (e.g. rope ladders).
- Records shall be kept of all trapped or injured fauna interactions to document the date, location, species, habitat, and any notes such as the form of encounter and details regarding release.
- Translocation of fauna shall be immediate, to suitable habitat at a suitable distance from disturbance and done in a manner to minimise stress to the animal.
- Injured and orphaned animals shall be transferred to a wildlife carer where possible or euthanized where care is not available. Injured animals shall not be left to suffer.
- Carcases shall be relocated away from roads and work areas to prevent carrion feeding species being attracted to where they may, in turn, be injured.

6.6. Cultural Heritage

- All personnel working on or near an Aboriginal site shall be made aware of their responsibilities under the *Aboriginal Heritage Act 1972*.
- No ground disturbing activity shall be conducted outside the spatial limits of the culturally cleared disturbance footprint.
- If a previously unidentified cultural site is identified, the following must be undertaken:
    - stop all work within 30 m of potential Heritage site
    - report the location and nature of the site to the Senior HSE Advisor
    - establish a 30 m buffer around the site, outside which work may continue.
- Notify the relevant regulatory body and Aboriginal group regarding any previously unidentified potential sites encountered during works, as soon as practicable.

6.7. Land Users

- Third party land users near the construction area shall be identified and consulted regarding construction activities.
- Impact on local roads or other infrastructure and maintenance or management of access shall be agreed with relevant authorities.
- Appropriate signage, shall be installed during operation to clearly identify the presence of facilities, wellheads and the flowlines.
- Crossing points for stock and vehicle access shall be maintained as agreed with landowner.
- Gates shall be left as they were found so as not to alter stock movements.

6.8. Dust and Air Emissions

- The planned release of gas shall be minimised.
- Whenever possible, planned gas releases shall be conducted during meteorological conditions that facilitate rapid dispersion of the gas.
- Residents, landowners and appropriate authorities shall be advised of a pending major venting operation prior to undertaking the activity.
- Document the scale, conditions and justification for all unplanned and planned gas releases.
- Maintain decommissioned and operating infrastructure as required by the Asset Management Plan to promote efficiency and prevent unnecessary emissions.
- Dust suppression shall be applied as determined by site personnel
- Appropriate dust emission controls shall be applied during operation as necessary. If dust problems still occur at particular sections of the pipeline corridor, the following measures shall be adopted as appropriate:
    - Revegetate using existing species and prevent access until the vegetation is established.
    - Ensure speed limits are appropriate and being observed.
    - Minimise vehicle movements.
    - Use geotextiles, hessian or mulched vegetation on localised areas.
    - If available, spray water on the problem areas.
- Ozone depleting substances shall not be stored or used at any time.
- Vehicle movements shall be restricted to dedicated access tracks or operational areas.
- All registered complaints regarding dust nuisance shall be reported as an environmental incident.

6.9. Noise

- Equipment shall be selected in consideration of its noise emissions. Where practicable, equipment should be selected that is likely to result in the lowest noise impact whilst still completing the required task.

- Equipment shall be fitted with appropriate noise abatement devices (e.g. mufflers, silencers and screens).
- All equipment shall be regularly and efficiently maintained to ensure that noise-attenuating measures are operating efficiently.
- Report and respond to all noise complaints as an environmental incident.

6.10. Surface and Ground Water

- Groundwater abstraction shall only be undertaken in compliance with a valid licence issued under the RiWI Act.
- Should dewatering be required, a comprehensive assessment of the potential environmental impacts shall first be undertaken in accordance with Water Quality Protection Note 13 Dewatering of soils at operational sites (DoW 2012).
- Records shall be kept of the dates of dewatering, volumes abstracted, method and location of disposal.
- If any works are required within areas of a moderate – high risk of ASS, conduct an ASS investigation prior to conducting the works if those works will either disturb more than 100m^3 of soil or require dewatering and if necessary prepare an ASS Management Plan to detail the required controls. Request approval from DMP prior to any works in these areas.
- The evaporation pond shall include capability to detect leaks in the primary layer as well as a daily inspection of water levels. A 500mm operating freeboard shall be maintained at all times.
- The evaporation pond shall undergo regular visual inspections of the wear strip (at a minimum weekly)

6.11. Hazardous Materials Management

- All sites shall maintain a Material Safety Data Sheet (MSDS) Manifest and the MSDS for all stored hazardous materials shall be readily accessible.
- All chemicals used during operations shall be transported, stored, handled and disposed of in accordance the requirements of the relevant legislation and industry standards.
- Chemical use shall be minimised where practicable and the minimum practicable volume of chemicals shall be stored on-site.
- Hazardous materials shall be stored in containment facilities (e.g. bunded areas, leak proof trays) designed to hold 110% of the capacity of the largest tank or 25% of the total combined volume of stored materials (whichever is greater) and be impervious to prevent the release of spilt substances to the environment.
- Additional spill containment facilities such as compacted pads or drip trays are to be provided at refuelling stations, oil and chemical storage sites and vehicle maintenance areas.
- The location of on-site fuel/chemical storage areas shall be clearly signed and designated.
- Hazardous materials are to be provided, stored and maintained in a sealed condition, without leaks.
- Hazardous materials shall be stored in labelled and lidded containers.
- Hazardous materials shall be stored within secondary containment at all times
- Refuelling tanks, lines, hoses, pumps, couplings, valves and associated equipment are to be provided and maintained in good working order.
- Major servicing of plant and equipment shall be undertaken off-site in appropriately equipped areas.
- A drip tray or absorbent material to intercept inadvertent spillage will be used at all times when re-fuelling or lubricating.
- Appropriate spill response equipment, including containment and recovery equipment, shall be available on site and in vehicles undertaking work where there is the potential for fuel or chemical spillage.
- All spills must be addressed immediately in accordance with the Spill Response Procedure (E-PRO-016)
- Spills shall be stopped at source as soon as practicable.
- Spilt material shall be contained to the smallest possible area.
- Spilt material shall be recovered as soon as possible, using appropriate equipment.

- All spills shall be recorded as an incident requiring reporting on the:
    - date, time, location
    - quantity and material spilled
    - circumstances that caused the spill
    - size and type of affected area
    - damage / harm caused
    - description of clean-up activities

6.12. Waste Management

- Signage shall be established to inform personnel of the appropriate waste streams for disposal in each recepticle.
- All personnel shall be inducted regarding the requirement for segregation of key waste streams.
- All waste shall be disposed of in dedicated, labelled and lidded bins.
- All hazardous wastes will be segregated.
- All hazardous wastes will be stored within secondary containment.
- All waste shall be collected by a licenced contractor for disposal at a licenced facility.
- Records shall be kept to document the movements of controlled waste.
- Waste recepticles shall not be overfilled.
- Good housekeeping shall be maintained at all times.
- Onsite sewage treatment shall be inspected quarterly as part of ongoing maintenance.

6.13. Rehabilitation

- All waste materials and equipment shall be removed from the construction areas once drilling operations are completed.
- All flagging and bunting installed for other than environmental or safety reasons shall be removed
- All temporary gates shall be removed (unless required for operations)
- Areas subject to high traffic movement of other compaction processes shall be ripped to a depth of 30cm prior to respreading topsoil.
- Salvaged topsoil and vegetation shall be respread across the rehabilitation area
- Rehabilitation criteria shall be met as set out in consultation with DMP.

7. Environmental Management System

This chapter describes the documented systems and processes of the Environmental Management System (EMS) used for the safe construction of the TGSP facilities. DDG adopt all DBP policies and procedures across the operation of its business. Implementation of DBP'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 construction of the TGSP facilities.

7.1. Induction and Training

All staff and contractors shall be required to undertake an environmental awareness induction prior to commencement of works on the TGSP facilities. The environmental awareness induction is targeted to educate staff and contractors regarding DBP's environmental objectives and their individual responsibilities for environmental management. The environmental awareness induction covers off on the following key topics:

- Flora
- Fauna
- Weeds and pathogens
- Bushfire
- Cultural heritage
- Hazardous Materials
- Spill response and
- Waste management

The induction additionally ensures that all personnel are capable of implementing the JHA process to identify and manage risks.

All visitors receive a site-specific induction appropriate in length and content for the type of work being undertaken.

Employees will be trained and provided with appropriate resources to ensure compliance with environmental laws, codes and standards and company policies. These additional specific training needs are addressed on an as needs basis. DBP will maintain a record of training for all personnel.

7.2. Incident Management

It is a mandatory requirement for any personnel working for or on behalf of DBP to respond to all hazards and events that have affected or have the potential to adversely affect the environment.

Examples of such events include: fuel spillage, excessive noise incidents, or a complaint from a neighbour.

The first line of response is to take immediate actions to minimise risks to persons, plant, equipment and the environment. These actions may include:

- stop work,
- assess site and make the area safe,
- notify other parties that may be affected by the Hazard / Event

Following this, hazards and events must then be classified and reported on in accordance with the Event Reporting and Investigation Procedure (S-PRO-014). The level of analysis required will vary dependent upon the level of associated risk.

At a minimum this internal reporting will require documentation of all details, notification of key stakeholders (in accordance with the classification) and determination of corrective actions with due dates and accountabilities.

Hazard and event reporting is conducted and recorded via InControl a tailored software system. InControl facilitates the communication of hazards and events, tracking of corrective actions and the analysis of trends.

All significant events (typically those which result in a risk score of intermediate and above) will be subject to a TAPROOT investigation, led by a suitably qualified Lead Investigator. Typically this person will have knowledge of the people and processes involved. The investigation process shall be coordinated by a qualified TAPROOT facilitator (likely a representative of the DBP HSE department). Actions arising from the incident reports and TAPROOT investigations shall be monitored (via InControl) to ensure their adequate and timely implementation.

The findings of all incident investigations shall be communicated to the construction workforce where appropriate to increase awareness and prevent recurrence.

DBP shall conduct targeted review of all events to identify trends. Preventative actions shall be instigated where necessary based upon the outcomes of this review.

7.2.1. External Reporting

All requirements for external reporting of environemntal incidents is summarised in Table 7-1. In relation to the PGER Act, DBP shall ensure that all relevant parties are informed of any significant incident verbally as soon as possible but not later than within 2 hours of the Operator becoming aware of the incident and then in writing within 3 days.

A Significant Environmental Incident is an event which:

- may but does not necessarily result in any permanent damage to the environment but requires the use of additional personnel or contractors external to the site and additional remediation equipment; or
- the regulatory authority deems as notifiable; or
- is likely to result in wide spread public complaints and anger.

The DMP may be contacted via a 24 hour emergency email address petroleum.environment@dmp.wa.gov.au or during office hours through a reporting phone number (0419 960 621)

Table 7-1 DBP External Incident Reporting/ Notification Requirements

Requirement	Reference	Agency	Timeframe
Where an incident causes or threatens to cause serious[1] or material[2] environmental harm	*EP Act*	EPA	As soon as practicable and no later than 2 hours after the Operator becomes aware of the incident
Recordable Incidents: ▪ Any incident arising from the activity that breaches a performance objective or standard identified in the EP (and is not a reportable incident) shall be reported monthly, on or prior to the 15th day of each month.	*PP Act*	DMP	Monthly, on or prior to the 15th day of each month A NIL report shall be submitted if no recordable incidents occur within the period.
Reportable Incidents: *Consequence based:* Where an unplanned event is identified to have caused (or have potential to cause) an adverse environmental impact where that impact has a consequence rating of 'moderate or more serious than moderate' (NOTE: With reference to the DBP ERA this includes risks with a consequence level of severe, major or catastrophic, refer (Appendix D).	*PP Act*	DMP	As soon as practicable and no later than 2 hours after the Operator becomes aware of the incident. A written report shall be submitted within 3 days after the first occurrence of the reportable incident
Reportable Incidents: *Additional Reporting Requirements:* – Spills of hydrocarbons or hazardous materials in excess of 80 L to the sea or inland waters; Spills of hydrocarbons or hazardous materials in excess of 500L in other areas; – Spills of hydrocarbons or hazardous materials that affect a ground surface area greater than 100m2; – An unplanned gaseous release to atmosphere 500m3 or more; – Death or injury to individual(s) from a Listed Species during an activity; Unplanned impact caused to a matter of national environmental significance (NES) during an activity (as per the EPBC Act).	*PP Act*	DMP	As soon as practicable after the operator becomes aware of the reportable incident and no later than 2 hours after the Operator becomes aware of the incident. A written report shall be submitted within 3 days after the first occurrence of the reportable incident
Known contaminated sites	*Contaminated Sites Act 2003*	DER	Within 21 days of first knowing the site is contaminated
Suspected contaminated sites	*Contaminated Sites Act 2003*	DER	As soon as is reasonably practicable

1 **Serious Environmental Harm**: environmental harm that:

(a) is irreversible, of a high impact or on a wide scale

(b)is significant or in an area of high conservation value or special significance

(c) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding 5 times the threshold amount (i.e. $100,000).

[Environmental Protection Act 1986, s 3A(1)]

2 **Material Environmental Harm**: environmental harm that:

(a) is neither trivial nor negligible; or

(b) results in actual or potential loss, property damage or damage costs of an amount, or amounts in aggregate, exceeding the threshold amount ($20,000);

[Environmental Protection Act 1986, s 3A(1)]

7.3. Emergency Preparedness and Response

For emergency preparedness and response purposes, DDG fully adopts the respective DBP policies and procedures. DBP has three tiers of emergency and crisis response: Incident, Emergency and Crisis.

The Emergency Response Plan (ERP) provides for an Emergency Management Team (EMT) and an Incident Management Team (IMT) who are responsible for managing emergencies and minor incidents.

The Crisis Management Plan (CMP) establishes the Crisis Management Team (CMT) which is responsible for managing Crisis events, being those that are likely to be associated with personnel, public safety, supply, pipeline licence or DBP reputation issues.

In the event that an emergency deteriorates and can no longer be managed effectively by the Emergency Management Team the CMT would be activated.

7.3.1. Emergency Response Plan

The emergency response processes (including storage of emergency response equipment) have been designed to effectively respond to all foreseeable emergency events as identified in various risk assessments (e.g. FSA, HAZOPs, HAZIDs and JHA's) and from DBP experience on other assets including the DBNGP.

The Emergency Response Plan (ERP) is in place to manage events and emergencies so as to limit the consequences of such events so as to:

- Minimise or eliminate any danger or risk to individuals;
- Minimise or eliminate any risk to the business; and
- Ensure that the Onslow Lateral is returned efficiently to a safe condition with minimum impact to the environment.

7.3.2. Emergency Training

All field emergency response personnel are trained and competent in First Aid, Fire Fighting and Defensive Driving. The performance of the tasks associated with Emergency Procedures are an extension of normal work practices and as such the personnel are trained on a regular basis to perform those tasks.

Emergency exercises are conducted annually to assess the emergency response capabilities of the various teams by providing exercises at levels up to and including crisis. The level of escalation may vary from one exercise to another. All exercises include at least activation of the IMT and EMT.

7.4. Monitoring

In accordance with Section 33 of the Regulations DBP shall conduct monitoring of the emissions and discharges defined in Table 7-2.

The Quarterly Emissions and Discharge Report shall consolidate the results of all monitoring for submission to the DMP as specified in Table 7-3.

Table 7-2 Overview of monitoring of emissions

Equipment/ Activity	Emission	Monitoring	Reporting
Vehicles, Fixed and Mobile Plant	Diesel combustion	Diesel purchases shall be monitored. Apportioning of diesel usage by vehicles, fixed and mobile plant shall be estimated.	Emissions of CO_2 equivalents shall be calculated using estimated diesel consumption data in accordance with the NGER Measurement Determination 2008 and reported quarterly.
Generators	Diesel combustion	Diesel purchases shall be monitored. Apportioning of diesel usage by DEA shall be estimated.	Emissions of CO_2 equivalents shall be calculated using estimated diesel consumption data in accordance with the NGER Measurement Determination 2008 and reported quarterly.
Operational venting	Gas	Gas emissions shall be estimated based upon the flow rate during purging and the elapsed time.	Estimated volumes of gas vented during operations shall be reported quarterly.
Waste Disposal	Waste-All types	Monitoring and recording of the type and volume of all waste collected for disposal shall be undertaken.	The total volume for each waste stream collected from site shall be reported quarterly.
Equipment operations	Noise	Noise monitoring – frequent intervals	Noise monitoring – Ministerial Statement compliance reporting

7.5. Inspections and Audits

To provide for regular ongoing inspections against compliance with this plan a weekly environmental inspection will be conducted and documented. At a minimum of one annual environmental compliance audit shall be conducted to ensure that the systems and controls detailed within this EP are implemented. Should inspection or audits identifiy any deficiencies, a corrective action will be established, assigned an owner and due date and monitoried to ensure timely closure.

A Weekly Environmental Inspection shall be undertaken as part of the operations and include environmental issues such as (but not limited to):

- Evaporation pond (level, fauna, visual inspection, operational capabilty, leak monitoring points)
- Waste management (bin levels, segregation)
- Certain tanks and vessels (levels)
- Hazardous materials storage
- Spill kits
- Fauna checks – as required

Monthly Inspections, including Aerial surveillance shall also be undertaken.

7.6. Reporting

To demonstrate and maintain compliance against legislative requirements, routine external reporting to key regulatory agencies shall be conducted. Routine external reporting requirements for the TGSP Facilities are summarised in Table 7-3.

Table 7-3 Overview of external regulatory reporting requirements

Report	Details	Agency	Period	Due Date	Responsibility
Recordable Incident Report	Details the cause, impacts and corrective actions associated with any incident arising from the activity that breaches a performance objective or standard identified in the EP	DMP	Each calendar month	Not later than 15 days after the reporting period. Including a NIL report if no recordable incidents occur	HSE Advisor
Emissions and Discharge Report	Details all emissions and discharges to any land, air, marine, seabed, sub-seabed, groundwater, sub-surface or inland waters environment that occur in the course of the activity	DMP	Each three calendar months (Jan – Mar; Apr – June; Jul – Sept; Oct – Dec)	Not later than 15 days after the reporting period	HSE Advisor
Annual Environmental Report (AER)	Demonstrates environmental performance objectives and standards within the Onslow Lateral Construction EP are being met	DMP	Each calander year (commencing 1 November and concluding 31 October)	Not later than 3 months after the reporting period	HSE Advisor

7.7. Consultation

DDG is committed to ongoing consultation with all stakeholders potentially impacted by its proposed activities. The purpose of consultation is to:

- Keep key stakeholders up to date with proposed activities
- Obtain appropriate input into the ongoing improvement of activities
- Ensure timely response to landholder issues
- Maintain dialogue with regulatory authorities

The consultation conducted to date with key stakeholders is outlined in Table 7-4.

Table 7-4 Stakeholder consultation progressed to date

Stakeholder	Date of Consultation	Items Discussed/proposed to be discussed	Outcomes
Commonwealth, State and Local Government			
Office of the Environmental Protection Authority (OEPA)	May, June, Dec 2016. Jan 2017	High level overview of TGS provided. Annual Compliance Assessment Reports (MS308 and MS112)	Confirmation from OEPA that proposed works can operate under MS112 and MS308 approval. Completion of Annual Comliance Assessment Reports for MS112 and MS308. Provision of approved Environment Plan (Well Activities) (Q4 2016)
Department of Mines and Petroleum (DMP)	April, May and June 2016 ongoing September 2016 – January 2017	High level overview of activity provided via presentation in person	Recognition of pending Environment Plan for assessment, included in recent site visit for ASW Audit by DMP Approval of TGSP Well Activities Environment Plan and subsequent revisions
Shire of Ashburton	April 2013, Nov 2015, Jul-Sept 2016, Dec 2016 and January 2017.	High level overview of activity provided Lot 226 works	▪ Shire has a full awareness ▪ Approvals relating to road use and construction matters ▪ Camp building construction approval discussions
Department of Parks and Wildlife	August 2016	Fauna Licensing	Fauna Handling Licence for TGSP construction.
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			

Stakeholder	Date of Consultation	Items Discussed/proposed to be discussed	Outcomes
Thalanyji	July 2013, 2014, 2015, 2016	Agreement reached on NT and Heritage processes and protocols. New project construction 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.
Local Landowners and Other Stakeholders			
Leaseholders for:			
Minderoo Station – Crown Lease 56/1967	May 2016	Access arrangements	Access agreement reached
Urala Station – Crown Lease 330/1967.	April 2013, 2014, 2015, 2016, 2017	Access arrangements	DDG becomes leaseholder of Urala Station June 2016. Station Manager consultation for use of access tracks and well locations (June 2016), Prior to this an access arrangement was in place with BHPB and included a high level of consultation with the Station Manager
Urala Station – Crown Lease	Dec 2012 – June 2016	Sale of Urala Station	Sale of Urala Station by BHPB to DDG

8. References

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APPENDIX A

DBP HSE Policy

APPENDIX B

Ministerial Statements 112 and 308

APPENDIX C

DBP Risk Policy and Matrix

APPENDIX D

TGSP Operations Environmental Aspects and Impacts Register

ID	EP Ref	Activity	Event	Impact	Control	Consequence	Frequency	Risk Level
1	6.5	Daily commuting	Vehicle strikes	Injury to native fauna/stock	Speed restrictions; licenced fauna handlers on site; minimised commute - workforce accommodated on site, bus for group journeys.	Trivial	Occasional	Low
2	6.8		Dust emissions	Landholder nuisance Vegetation smothering	Water trucks where required; visual observations; complaints response; speed restrictions; traffic management plan, minimised commute - workforce accommodated on site, bus for group journeys.	Minor	Unlikely	Low
3	6.7		Uncontrolled traffic movements	Landholder nuisance	Traffic management plan; monitor shire road closures; complaints response; speed limits and signage; minimised commute - workforce accommodated on site, bus for group journeys.	Trivial	Unlikely	Negligible
4	6.4		Bushfire	Fauna death Vegetation impact Landholder asset loss	Park vehicles away from long dry grass; dedicated parking areas; use existing roads; restrict vehicle movements to within the cleared right of way or existing access tracks. Personnel trained in fire response, fire extinguisher in all vehicles; fire trailer on site at all times	Severe	Remote	Low
5	6.3		Spread of weeds	Introduction of new weeds Spread of existing weeds	All vehicles stick to established tracks or the cleared operational area; minimised commute - workforce accommodated on site, bus for group journeys.	Minor	Unlikely	Low
6	6.11	Chemical storage and handling	Refuelling spill (mobile plant)	Soil and/or water contamination	Dedicated refuelling area or trailer use with drip trays and spill kits; no watercourses located within 500 m of operational area; spill kits; MSDS; Spill Response Procedure (E-PRO-016).	Minor	Unlikely	Low
7	6.11		Fixed plant	Soil and/or water contamination	All fixed plant containing hazardous materials (e.g. GEA, compressor package, regeneration unit) established with secondary containment suitable for likely spill scenario.	Minor	Unlikely	Low
8	6.11		Failure of pressurised hoses	Soil and/or water contamination	Spill response kits; regular maintenance; tool box talks; no major servicing onsite.	Trivial	Frequent	Low

ID	EP Ref	Activity	Event	Impact	Control	Consequence	Frequency	Risk Level
9	6.11		Transport of chemicals to and from site	Soil and/or water contamination	Approved contractors, segregation, secondary containment, comply with AS1940 (and other relevant standards).	Minor	Unlikely	Low
10	6.11		In appropriate hazardous materials storage	Soil and/or water contamination	Dedicated hazardous materials storage area with appropriate secondary containment; comply with AS1940 (and other relevant standards), labelled and lidded in storage, minor quantities only in lab, spill kits, weekly inspection of dedicated storage area	Minor	Unlikely	Low
11	6.11		Loss of containment of bulk fuel	Soil and/or water contamination	Secondary containment; Spill kits; replenished by approved contractors, located away from watercourse; comply with AS1940, weekly inspections	Severe	Remote	Low
12	6.12		Discharge of hydrocarbon waste	Soil and/or water contamination	Labelled, lidded solid and liquid hydrocarbon waste bins;/tanks; collect by a licenced contractor for disposal to a licensed facility, induction on appropriate waste disposal	Minor	Remote	Negligible
13	6.11		Overflow of oily water system	Soil and/or water contamination	Frequent inspections; monitoring; maintenance review for pump out; closure of on-required access points; inspections prior to large rainfall events	Minor	Unlikely	Low
14	6.2	Clearing and vegetation maintenance	Unauthorised clearing	Vegetation impact Loss of fauna habitat Reputation impact Cultural Heritage	Use existing cleared areas where possible; Pre-clearing approvals and demarcation of approved clearing boundary; no known DRF for avoidance; Cultural Heritage awareness	Minor	Remote	Negligible
15	6.3		Spread of weeds	Introduction of new weeds Spread of existing weeds	Clean down of machinery before mobilising to the project area and prior to departure, mesquite controls, where required, internal approvals,	Minor	Unlikely	Low

ID	EP Ref	Activity	Event	Impact	Control	Consequence	Frequency	Risk Level
16	6.8		Dust emissions	Landholder nuisance Vegetation smothering	Minimise the elapsed time between clearing, grading and restoration; refer to BOM forecasts; restrict vehicle speeds; availability of water carts; visual observations;	Minor	Remote	Negligible
17	6.4		Bushfire	Fauna death Vegetation impact Landholder asset loss	Maintain equipment to standards; use spotters; comply with fire restrictions or exemptions; Personnel trained in fire response, fire extinguisher in all vehicles; fire trailer on site at all times	Severe	Remote	Low
18	6.1		Erosion	Soil loss and movement / sedimentation	Maintain existing drainage lines; construct erosion controls where susceptible to erosion; undertake aerial surveillance	Minor	Occasional	Low
19	6.12	Maintenance of mercury filter/bed	Inappropriate disposal of waste	Soil and/or water contamination	Removal from source by licenced waste contractor, review and approve procedure, disposed of in compliance with relevant standards	Severe	Remote	Low
20	6.5	Evaporation pond (storage of produced water)	Fauna entrapment	Fauna injury or death	Install permanent fauna egress (rope ladders), within fenced compound	Trivial	Occasional	Low
21	6.10		Leaching	Soil and/or water contamination	Dual lined, built to withstand 100 yr flood, maintenance of freeboard, wear strip and frequent inspections	Severe	Remote	Low
22	6.10		Overflow / wall breach	Soil and/or water contamination	Weekly inspections, daily inspection of water levels	Severe	Remote	Low
23	6.8	Dust and Air Emissions	Greenhouse Gas unplanned emissions	Air pollution	Pressure monitoring, control system, emergency shutdown systems, pressure relief valves, equipment selection	Severe	Unlikely	Intermediate
24	6.8		Greenhouse Gas planned emissions	Air pollution	Design of new equipment and facility, valve alignment and controls, isolation capability, pressure monitoring, shutdown systems	Minor	Occasional	Low
25	6.2		Dust covering vegetation	Flora stress	Dust suppression, minimise vehicle movements, keep to access tracks and roads	Minor	Unlikely	Low
26	6.8	Ancillaries (offices, lab etc)	Excessive energy consumption	Generation of greenhouse gases	Minimise and monitor the consumption of fuel, educate workforce to promote fuel efficiency and minimise lighting	Trivial	Frequent	Low

ID	EP Ref	Activity	Event	Impact	Control	Consequence	Frequency	Risk Level
27	6.5		Attraction of non-native species	Native fauna injury or death	Utilise existing approved accommodation facility; No pets permitted at site; no feeding fauna; all bins have lids; general housekeeping	Minor	Occasional	Low
28	6.12		Discharge of sewage	Soil and/or water contamination	Utilise existing sewage treatment at accommodation facility; waste from temporary site ablutions managed by a licenced disposal facility	Minor	Remote	Negligible
29	6.12		Domestic waste litter	Native fauna injury or death Landholder nuisance Soil and/or water contamination	Segregation of recyclables; dedicated bins labelled and lidded; housekeeping inspections; collection and disposal by a licenced waste contractor	Trivial	Occasional	Low
30	6.11	Electricity generation / compression	GEA/DEA hydraulic oil spill	Soil contamination	Concrete hardstand, internal containment, spill kits, daily inspection process, asset management plan (maintenance)	Minor	Remote	Negligible
31	6.8		Greenhouse Gas planned emissions	Air pollution	Design of new equipment and facility; valve alignment and controls; isolation capability; pressure monitoring; shutdown systems	Trivial	Frequent	Low
32	6.11		DEA/Fuel tank refuelling	Soil contamination	Concrete hardstand; oily water capture system; spill kits; personnel training/competency	Minor	Remote	Low
33	6.10		Diesel Fuel storage	Soil/ groundwater contamination	Secondary containment bund; minimisation of storage levels	Severe	Remote	Low
34	6.9		Operation	Noise	Standard maintenance, noise monitoring as required, noise modelling, noise attenuation where possible	Trivial	Frequent	Low
35	6.4	Hot Works	Bushfire	Fauna death Vegetation impact Landholder asset loss	Conduct work away from compound boundary; Park vehicles away from long dry grass; dedicated parking areas; use existing roads; restrict vehicle movements to within the cleared right of way or existing access tracks. Personnel trained in fire response, fire extinguisher in all vehicles; fire trailer on site at all times	Severe	Remote	Low
36	6.3	Weed Control	Herbicide impact – Overspray	Flora loss	Use of approved herbicides; Use correct application procedure and equipment;	Trivial	Unlikely	Negligible

ID	EP Ref	Activity	Event	Impact	Control	Consequence	Frequency	Risk Level
37	6.3	Weed Control	Herbicide impact – Spill	Soil contamination	Use of approved herbicides; Use correct application procedure and equipment; secondary containment storage area, PPE and Spill kits available; minimisation of amounts in use	Trivial	Unlikely	Negligible
38	6.5	Gates left open	Fauna in facility	Fauna injury	Gates closed when personnel not on site and at night times (not locked if personnel are onsite); liaison with pastoral staff	Trivial	Unlikely	Negligible
39	6.1	Bioremediation of contaminated material (i.e. soil)	Contaminated material remediation	Soil/water contamination	Contained / lined area; no vehicle movement over liner; minimal volumes; erosion controls as required; sampling procedures	Severe	Remote	Low

APPENDIX E

TGSP Operations Oil Spill Contingency Plan

ZERO HARM

Tubridgi Gas Storage Project

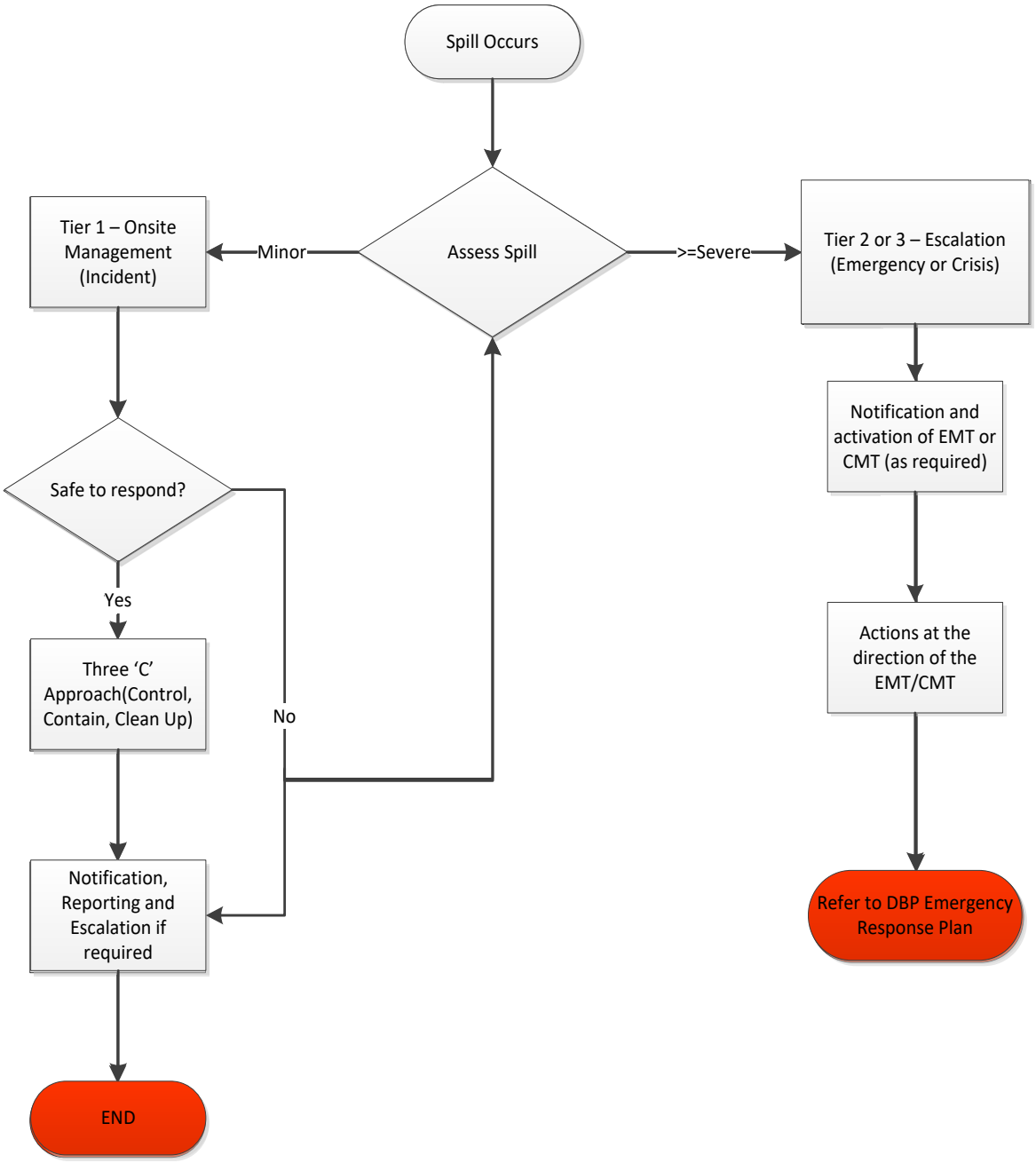
Operations

Oil Spill Contingency Plan

Rev #	Date	Prepared By	Reviewed By	Approved By	Description
0	13/03/2017	Mark Brown		Mark Brown	Document created

CONTENTS

Spill Response – Immediate Response Process



1. PURPOSE

The purpose of this Oil Spill Contingency Plan (OSCP) is to establish the roles, responsibilities and procedure required to be implemented in the event of a significant oil spill to the environment during operation of the Tubridgi Gas Storage Project (TGSP).

2. SCOPE

DDG Tubridgi Pty Limited is the nominated operator of PL 20 under which the TGSP operations shall be undertaken.

The scope of this procedure applies to all significant oil spills that impact the environment and occur during operation of the Tubridgi Gas Storage Project (TGSP). A significant oil spill includes any loss of containment event in which greater than 500 L of oil is released (or 80 L if surface water is the receiving medium).

This document should be read in conjunction with the DBP Emergency Response Plan (TEB-003-0021-01).

3. RISK CHARACTERISATION

Key sources and locations of bulk fuel storage and handling are discussed in Table 2 to identify the maximum credible spill scenario for each source.

It is noted that acknowledging the low relative risk associated with storage of minor volumes in locations with no proximity to any permanent surface water body, detailed oil spill modelling was not deemed warranted and has not been undertaken.

Table 5: Key sources and locations of bulk oil storage and handling

Source	Incident	Location	Oil	Volume
Bulk Storage Tank	Rupture	GEF	Diesel	Maximum 55kL – Operating volume capped at 35kL
Mobile Refuelling Truck	Rollover/collision	All	Diesel	Approximately 20 kL

Two scenarios considered in this document is the potential roll-over or collision of a refuelling truck for while undertaking bulk fuel delivery. One scenario is by a third party and one internal. This risk of collision internally is deemed to be low due the very low levels of traffic (project traffic only), traffic management plan and high visibility on the access tracks in the project area.

External deliveries shall include travel on Onslow Road, Twickham Rd and Old Onslow Road. These roads are inspected prior to authorisation of fuel truck travel for suitable condition. This also includes and river crossings or other issues.

Once on Twickham Road traffic concerns are minimal but fauna (mainly cattle concerns) continue. To reduce this risk all fuel related travel will only be in daylight hours and speed restrictions will be in place.

Dependant on the location of the spill DDG has considered impacts on the local area. For Tubridgi depth to groundwater is known to be fairly shallow (4m) but within the compound soil type is compacted fill which would minimise movement of hydrocarbons through the soil profile.

Topography and groundwater flow is towards the south west of the plant. Groundwater bores are available to use in case of spills and to detect leaks from the bulk storage tanks. In light of the topography of the area spill response would mobilise from the south to construct containment lines to prevent surface flow from moving downhill.

A third scenario which is the rupture of the 55kL tank includes the reliance on secondary containment in line with AS1940 to contain the majority of any spill from this tank. The operating volume of the tank is also capped at 35kL and requires General Manager approval to go over this level which reduces the potential impact.

4. EQUIPMENT

All bulk storage facilities, mobile refuelling trucks and hydraulic plant will be operated with spill response equipment available for use at all times. The spill kit shall be appropriate for the effective management and clean-up of the likely material type and reasonably likely volume spilled.

At a minimum this shall include:

- 12 (8cm x 3M) Absorbent Socks
- 180 (40 x 50cm) Absorbent Pads
- 4 (30 x 35cm) Absorbent Cushions
- 5 Disposal Sacks and Ties
- Minor PPE including chemical gloves
- Access to a shovel (either with spill kit or onsite)

Each spill kit shall have a dedicated Spill Kit Component List to detail the minimum equipment requirements within that kit. Concise and specific instructions for use (typically provided by the manufacturer) should be stored with the equipment.

Spill response equipment shall be stored within dedicated, labelled and mobile containers. Signage shall be installed to indicate the location of spill response equipment.

All personnel shall be responsible for ensuring replenishment of materials consumed. Additionally, the PLR shall be responsible for ensuring that housekeeping inspections are undertaken of all spill kits to ensure they contain all items identified on the Spill Kit Component List and are not damaged.

There is additional mechanical equipment (graders, dozers) available either through the station manager at Urala Homestead or through contractors at Onslow. These may be mobilised if a large level spill occurs.

5. TRAINING

All personnel shall be made of aware of the requirements of this OSCP through induction to the project.

Personnel shall at a minimum be trained in the use of PPE that is supplied with the spill kits to ensure knowledge of and effective use.

Drills shall be held on the OSCP to ensure suitability of the plan and preparedness to implement in an emergency. The OSCP shall be tested once in the first year and then at least once every two year during the operational phase.

6. SPILL CLASSIFICATION

Key parameters that determine spill classification include volume (actual spill and maximum possible spill), substance (i.e. diesel) and receiving environment (sealed, unsealed, surface water). All assessment assumptions must be qualified.

The location of the spill should be clearly understood, including distance to the closest Environmentally Sensitive Area and, in particular, proximity to the coast and potential for migration.

Section 10 details the specific levels of response that would be activated dependant the classification of the spill.

7. COMUNICATION AND COORDINATION

Once a significant spill is identified, it should be immediately reported in accordance with the Emergency Response Plan. Initial spill classification information should be communicated with any assumptions qualified for further follow up as required.

All Significant Incidents are to be reported immediately to the DDG Pipeline Licensee's Representative who will report to the DBP General Manager System Design and Operations (GM SDO) and the DBP Transportation Services Control Centre.

The GM SDO shall ensure all significant spills are communicated to the DMP verbally as soon as practicable and within 2 hrs of identification via the DMP 24 hr Emergency Reporting Line (0419 960 621).

All other key stakeholders (e.g. landowners) should be identified and notified as soon as practicable dependent upon the location and scale of the spill.

8. PROCEDURE

8.1 Control

Identify the source of the spill. If safe to do so, control the spill directly at the source to stop further ongoing release of the material. Appropriate spill control measures shall vary on a case by case basis (dependent upon the source) but may involve closing a valve, isolating a pump or temporarily plugging the point of rupture.

8.2 Contain

Spill containment should be undertaken to surround the spill and prevent further migration. Additionally, containment barriers should be established around areas of environmental significance such as drains or waterways to provide a second layer of protection.

For spills on hard stand areas, use absorbent booms to encapsulate the spill, ensuring that boom joins are overlapping to create a continuous barricade. Cable ties may be used where necessary

to fix joins in place. Alternatively, establish an earthen bund around the spill to mitigate lateral migration.

Truck rollovers may require external assistance. Earthmoving equipment shall be required for larger containment controls such as earth bunds and to protect waterways.

8.3 Clean Up

Once spilled material has been contained and the threat of environmental harm minimised, the contaminated material shall be removed for secure storage and offsite disposal by a licenced contractor. Recovery methods of free liquid may include:

- Absorbent pads to soak up large pools of spilled material on hardstand areas and surface layers on ponded material.
- Pumps installed at the low point in any spill containment area
- Mixing with particulate (such as Global Peat) to absorb residual liquid
- Collection of contaminated material shall be within dedicated impermeable containers such as storage drums.

A licenced contractor with a vacuum truck or alternative mechanical means may be required to excavate all contaminated material. All contaminated soils shall be removed to prevent further contamination or movement through soil.

All residual soils shall be sampled and analysed for total residual hydrocarbons to validate the retention of uncontaminated material only. If a substance other than hydrocarbons is known to have been involved in the spill, sampling range shall increase to ensure additional parameters are analysed and tested for.

All contaminated material shall be disposed of by a licenced contractor in accordance with the Waste Management Procedure (E-PRO-015).

Dependent upon the scale or duration of the clean-up effort, temporary fencing should be considered to prevent public and wildlife inadvertently accessing the area and becoming exposed to health risks.

9. ESCALATION

The severity and subsequent escalation of any spill will be governed by a range of factors including the agent spilled, volume lost, and environmental significance of the receiving medium.

In accordance with the DBP Emergency Response Plan (ERP), a spill can be escalated at any stage by the PLR.

9.1 Level 1 Emergency (Tier 1)

A Level 1 Emergency as an incident or event which occurs and is controlled and managed at the site. This includes Incidents which do not result in an emergency situation arising.

For Level 1 Emergencies a detailed incident report will be generated and where appropriate an incident investigation team will conduct a detailed investigation. The requirement for investigation is determined by the severity of the incident or event.

9.2 Level 2 Emergency (Tier 2)

A Level 2 Emergency is an event which has occurred and may require external assistance to manage, control or contain. Response to a Level 2 Emergency will be coordinated by the DDG Emergency Management Team with support from the Incident Controller onsite. On completion of the response a detailed investigation will be undertaken.

9.3 Level 3 Emergency (Tier 3)

A Level 3 Emergency is an event which has occurred at site which has the potential to escalate to a point of serious impact to DDG business continuity. Response to an emergency which escalates to Level 3 or has the potential to do so will be coordinated by the DDG Crisis Management Team with support from the DDG EMT.

10. REVIEW

Implementation of this OSCP should be tested within the first 4 weeks of bulk fuel storage on site and in response to any significant change in risk or controls. Such testing shall include the execution of drills to ensure adequacy, applicability and capability to respond to the likely maximum spill scenario. Testing of the TGS OSCP shall be the responsibility of the Project Manager.

This document shall be updated to reflect any necessary corrections identified through such testing and review. Any updates shall be submitted to DMP for approval including at least 14 days prior to the 2.5 year expiry of this plan.

11. OVERVIEW

1) Is the spill significant? (i.e. greater than 500 L to land or 80 L to surface water)
2) Emergency Response Plan enacted – DMP Alerted Emergency response co-ordinator to qualify key parameters including volume, medium and receiving environment
3) Emergency response co-ordinator to mobilise resources necessary to respond to spill (contain the spill and clean up impacted material)
4) Emergency response co-ordinator to investigate cause of spill
5) HSE Advisor to investigate suitability of site clean-up and requirement for remediation works

12. RESPONSIBILITIES

Role	Responsibilities
All Personnel	• Identify and respond to oil spills as required • Familiarity with escalation and notification procedures as set out in this plan and the emergency response plan
DDG PLR	• Act as Onsite Incident Controller • Support the enactment of the Emergency Response Plan in the provision of resources to respond to significant oils spills as necessary • Ensure implementation and adherence to DDG Emergency Response protocols as required • Notify the DBP General Manager System Design and Operations
DBP General Manager System Design and Operations	• Ensure regulatory notification as required • Ensure resources are made available to assist in response to spills • Act as Incident Commander
Transportation Services Control Centre (TSCC or Gas Control)	• Coordinate emergency notification process • Activate Emergency or Crisis Management Team as required • Manage gas systems as required

The Operator of the Tubridgi Gas Storage Project is responsible to manage any spill incidents and the associated clean up requirements.

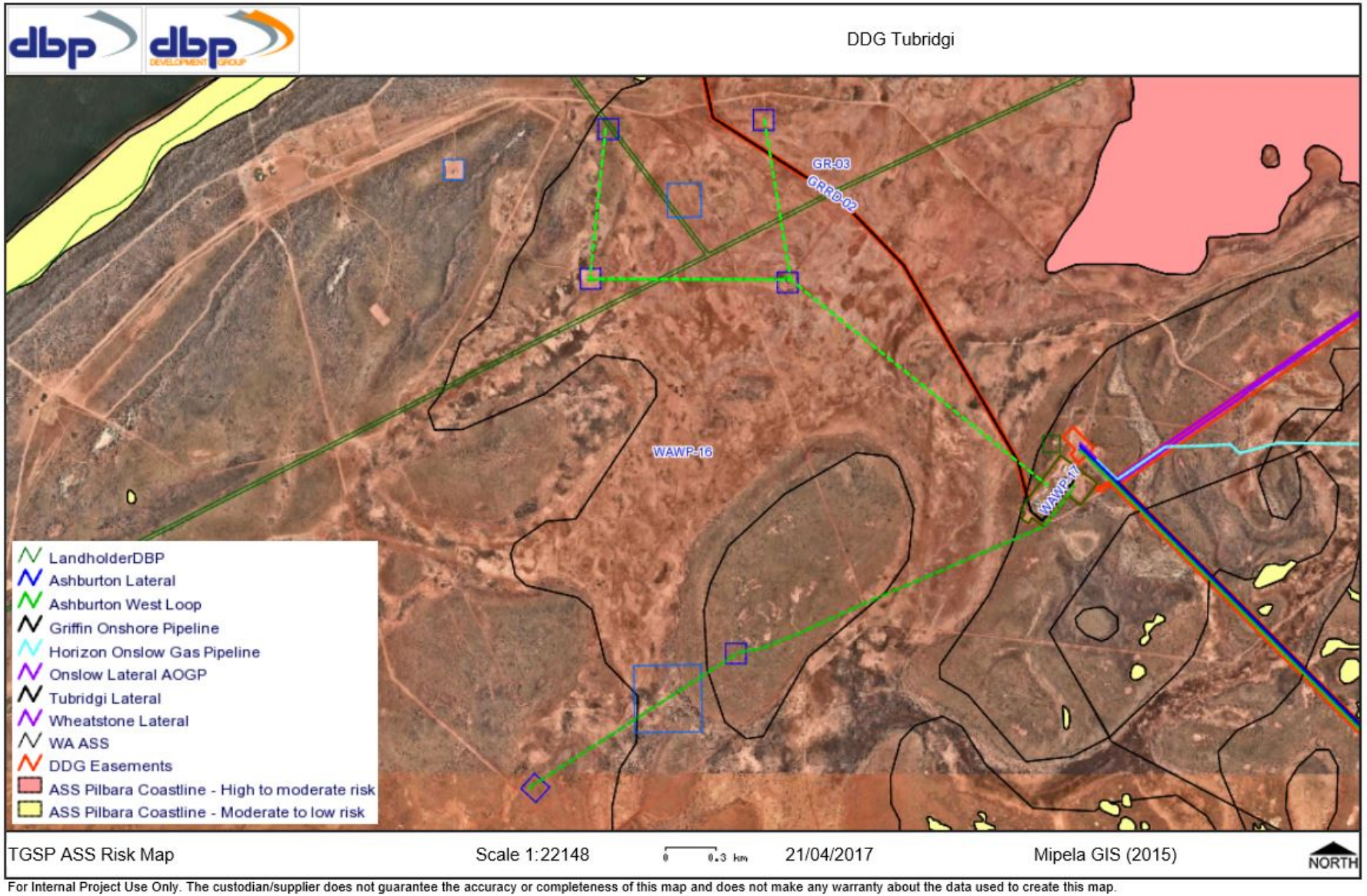
13. CONTACT DIRECTORY

Notification	Whom	Contact Details
Gas Control	TSCC	1800 019 919 in emergency
DMP	Petroleum Division / Environment	Petroleum.environment@dmp.wa.gov.au Or online submission 0419 960 621 – Office hours
DER	Pollution Hotline	DER Pollution Hotline 1300 784 782
Local Council	Shire of Ashburton	9184 6001 After hours 0408 086 789
DFES	Onslow Volunteer Emergency Service	000 in emergency 08 9184 6555
SES	Emergency number	132 500 in emergency
Police	Onslow Station	000 in emergency Onslow 08 9159 9100
Airport	Onslow Airport	9153 2000 A/H 0487 654 272
Waste Contractors	Toxfree	1300 869 373

	Veolia (North West Waste Alliance) Cleanaway	13 29 55 13 13 39
Equipment Contractor	Drilline (based in Onslow)	9248 9686 (Head office) A/H 0419 805 312

APPENDIX F

ASS Risk Map



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