






870-HSE-PL-1003 REV 1.2

**PARMELIA GAS PIPELINE SYSTEM
OPERATIONS ENVIRONMENT PLAN SUMMARY**

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1. Executive Summary

The Parmelia Gas Pipeline System (PGPS) comprises the Parmelia Pipeline (PL 1, 2 and 3), pipeline facilities and the following associated laterals: -

- PL 1, 2 and 3 – Parmelia Pipeline (mainline)
- PL 5 - Kwinana Nickel Refinery Lateral;
- PL 32 -Arrowsmith Lateral;
- PL 44 -Canningvale Lateral;
- PL 46 -Rocla Lateral;
- PL 52 -Chandala Lateral;
- PL 45 -(Decommissioned and abandoned)PI 53 -Kwinana Supply Lateral; and
- PL52 Chandala Lateral
- PL 53 -Kwinana Supply Lateral; and
- PL 61 - HiSmelt Lateral.

All of the above assets are both owned and operated by APT Parmelia Pty Ltd (a member of the APA Group) (APA).

The Parmelia mainline takes gas from Dongara to Pinjarra and has been operating since 1972. It is expected to remain operational for the foreseeable future.

Environmental aspects associated with the PGPS operational activities have been risk assessed and specific measures identified to ensure that the potential environmental impacts are mitigated to as low as reasonably practicable (ALARP). The overall objective of this EP is to minimise impacts to the environment and social values as a result of operation and maintenance of the pipelines.

Environmental aspects have been identified with reference to industry codes, standards and other guidelines. A summary of key environmental aspects identified for the operation of the PGPS includes, but is not limited to: -

- Waste management;
- Hydrocarbon emissions;
- Chemical transport, storage and handling;
- Soil erosion;
- Disturbance of native vegetation;
- Weed and disease management; and
- General disturbance to surrounding landholders and agricultural use.

The PGPS is located largely within previously disturbed land which has been extensively cleared of native vegetation for residential, agricultural, industrial and other commercial uses. The PGPS traverses a number of Environmentally Sensitive Areas (ESAs). However, work in these areas is minimised in order to reduce disturbance as much as possible.

2. Introduction

This Operations Environment Plan (OEP) Summary provides an overview of the environmental management requirements for the operation of the existing Parmelia Gas Pipeline System (PGPS) which is owned and operated by APA and comprises the following.

- PL1 Mainline from Dongara to Hill River, Moore River to Abercrombie Road, Thomas Road to Pinjarra
 - Midland Brick Lateral

- Perth Gas Lateral
- Alcoa and Energy Commission Kwinana lateral
- PL2 Mainline from Abercrombie Road to Thomas Road
- PL3 Mainline from Hill River to the Moore River
- PL5 Kwinana Nickel Refinery Lateral
- PL32 Arrowsmith (formerly Westlime) Lateral
- PL44 Canningvale Lateral, MLV 15 to Tip Top in Canningvale
- PL46 Rocla Lateral, KP300.5 to Rocla in Bullsbrook
- PL52 Chandala Lateral, KP275.6 to Alinta Lateral at Chandala
- PL53 Kwinana Supply Lateral, MLV 17 to BP/TiWest in Kwinana
- PL61 HiSmelt Lateral, KP 0.502 on KSS to HiSmelt

2.1 Purpose and Scope

The purpose of this OEP summary is to provide information to the general public regarding environmental considerations and management requirements.

The scope of this EP Summary is limited to operational works associated with PGPS as long as it remains operational.

2.2 Objectives

The overall environmental objectives of the EP are as follows:

- To minimise environmental impacts resulting from PGPS operations;
- To mitigate all identified environmental risks to a level that is As Low As Reasonably Practicable (ALARP);
- To comply with all relevant legal and regulatory environmental requirements; and
- To minimise disturbance to surrounding landholders.

2.3 Corporate Environmental Policy

APA is committed to responsible environmental management and believes that all environmental aspects associated with the operation of the PGPS can be effectively managed. In addition, APA is committed to reducing all environmental risks subsequent to site based operational activities to ALARP.

All works will be conducted in accordance with the APA Corporate Health Safety and Environment (HSE) Policy.

All contractors and sub-contractors must comply with this EP. This requirement is specifically addressed within contractual arrangements. Regardless of this, APA at all times takes full responsibility for the application and administration of this EP.

2.4 Definitions

Table 1: Definitions

AHIS	Aboriginal Heritage Information System	HAZOP	Hazard and Operability Study
ALARP	As Low as Reasonably Practicable	HSE	Health Safety and Environment
APA	APA Group	JHA	Job Hazard Analysis
APT	APT Parmelia Pty Ltd	OSCP	Oil Spill Contingency Plan
DPIRD	Department of Primary Industries and Regional Development	PGPS	Parmelia Gas Pipeline System
DWER	Department of Water and Environmental Regulation	PL	Pipeline Licence

DG	Dangerous Good	PTW	Permit to Work
DPLH	Department of Planning, Lands and Heritage	SDS	Safety Data Sheet
EP	Environment Plan	SWMS	Safe Work Method Statement
ERA	Environmental Risk Assessment	Tj/day	Terajoules per day
ERP	Emergency Response Plan	TPC	Third Party Contractor

3. Facility Area and Activity Description

The Parmelia mainline is 416 kilometres long and has a maximum throughput of 120 TJ / day. The pipeline runs from Dongara to Pinjarra via Eneabba, Badgingarra, Cataby and Caversham, through the Perth metropolitan area east of the central business district (Figure 1).

The facility area covered by the EP comprises all PGPS easements and specifically negotiated non-public access roads. Specific easements include those in association with the abovementioned pipeline licences (Section 2). All activities are confined within these areas.

Easement width varies between 12 and 18 metres for pipelines extending at facility sites to approximately 12,000 m² at compressor stations. A locality map showing the PGPS route is provided in Figure 1.

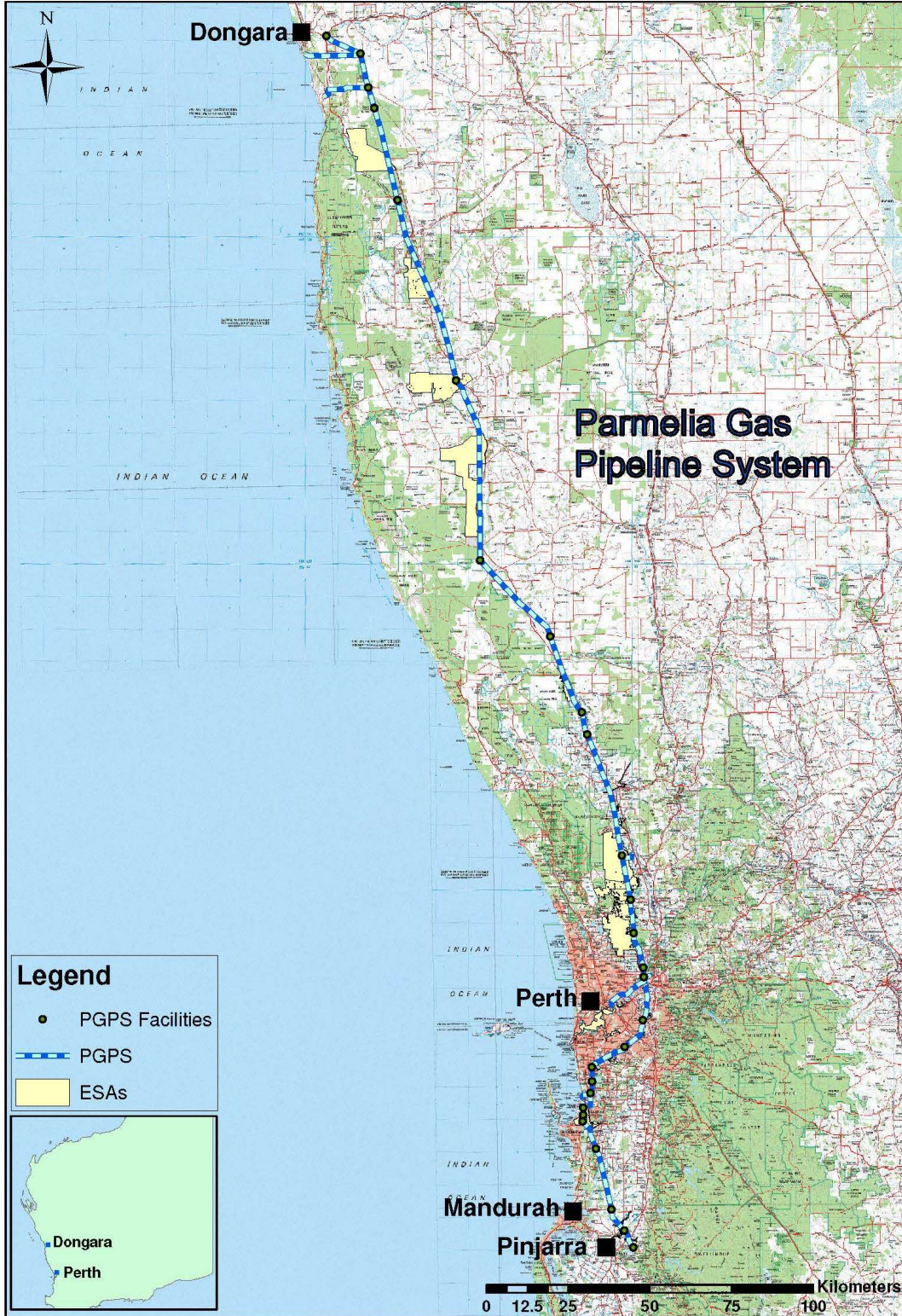
The Parmelia Pipeline traverses the following land tenures:

- Freehold land;
- Private leased properties;
- Crown reserves;
- Conservation reserves;
- Service Corridors; and
- Road and Rail reserves.

Approximate GIS latitude / longitude coordinates for the operational area of the PGPS are as follows:

- Parmelia mainline commencement point: -29.262803°, 115.009738°
- Parmelia mainline termination point: -32.616540°, 115.940314°

Figure 1 PGPS Locality map with Environmentally Sensitive Areas



3.1 Pipeline Operations and Maintenance

Due to practical issues associated with the distances involved, the PGPS is broken into 2 regions for operational purposes as follows: -

- Northern Operations: Parmelia Mainline KPO (pipeline start point) to CS3; and
- Southern Operations: CS3 to the Alcoa Pinjarra Delivery (pipeline end point).

Routine maintenance of the PGPS is undertaken as determined by the Operations Manager, Team Leaders and plans which are implemented via APA's dedicated maintenance management system (MAXIMO). Specific pipeline operations and maintenance activities to which the OEP applies are covered in the following sections.

3.1.1 General Equipment & Facility Maintenance

General equipment and facility maintenance typically includes but is not limited to the following: -

- Servicing and overhauls of machinery and equipment;
- Equipment inspections and testing;
- Monitoring;
- Safety inspections and follow up;
- Filter inspections and replacement;
- General housekeeping (i.e. as per safety requirements and the EP);

The above activities involve various mechanical and electrical tasks which are undertaken by appropriately qualified trade's people. Regular monitoring and safety inspections are also undertaken to identify unplanned maintenance requirements as they arise.

Filter inspections are undertaken at regular intervals and filters replaced as required. Filter replacement involves filter removal, wash down with water and transfer to a secure container for transfer to offsite disposal facilities.

General housekeeping includes numerous tasks typically associated with health, safety and / or environmental management. Specific items may include general tidying / cleaning, waste management, maintenance of fire breaks, spraying of weeds and numerous other duties.

3.1.2 Cathodic Protection Surveys

Cathodic protection (CP) refers to the use of electrical current to protect steel pipework against corrosion. CP surveys are undertaken on a regular basis to monitor pipeline integrity and ensure the CP system itself remains functional. CP surveys involve accessing CP test points at approximately 5 km intervals along the pipeline and connection to a meter which measures corrosion.

3.1.3 Pipeline Excavation

Pipeline excavations are undertaken periodically typically for pipeline repairs and crossing installations. Pipeline excavations are strictly controlled for safety reasons via risk assessment, work permits and procedures. The scale of excavations can vary from single defect dig-ups of a few metres³ to trenching of a kilometre or more in length to access multiple defects in close proximity. Dewatering is sometimes required where the water table is present at less than a few metres from the ground surface however this is rare and if required will be managed as per the OEP.

3.1.4 Venting

Venting of gas from the PGPS is undertaken to purge pipelines and / or facilities for maintenance or emergency response purposes. Venting for maintenance purposes varies depending on the procedure being performed; however, all expected quantities are minimal.

3.1.5 Pigging

Pipeline pigging is undertaken for the purposes of either pipeline cleaning or integrity assessment (intelligent pigging). Intelligent pigging is completed in accordance with the requirements of AS2885.3 Section 6 – Pipeline Structural Integrity. Pigging programs involve thorough planning involving specialist Engineering, Operations and Safety personnel.

Pigs are run between pipeline scraper stations containing pig launching and receiving facilities. Gas condensate and particulate matter separated from the gas stream are common by-products of pigging (removal of which is the ultimate goal in the case of a cleaning pig run), these are caught in the pig receiver trap along with the recovered pig and contained for offsite disposal.

3.1.6 Right of Way (ROW) patrols

The pipeline owner has a gazetted easement registered under the *Land Administration Act 1997* which allows for legal access for maintenance, operation and emergency response.

Pipeline ROW patrols of various sections of the PGPS are conducted as aerial or vehicle patrols as detailed below. Patrols may identify issues such as:

- Third Party encroachments;
- Vegetation growth;
- Line of sight;
- Presence of weeds;
- Erosion, subsidence or stability issues;
- Exposed pipe; and
- Condition of signage and aerial markers.

Aerial patrols are completed monthly and are undertaken through a contractor who records and reports any issues observed to APA to investigate and action. The contractors follow the APA Aerial Surveillance Procedure. Additional aerial patrols are carried out by helicopter, of the aspects of the PGPS located in the Perth metropolitan area.

4. Receiving Environment

The PGPS is located within the Geraldton Sandplains and the Swan Coastal Plain Region of WA. The Swan Coastal Plain is considered to have a typical Southern Mediterranean climate, experiencing warm wet winters and hot dry summers.

The Geraldton Sandplains consist predominantly of proteaceous scrub-heaths, rich in endemics, on the sandy earths of an extensive, undulating, lateritic sandplain mantling Permian to Cretaceous strata (CALM, 2003). Extensive York Gum and Jam woodlands also occur on outwash plains associated drainage.

The Sandplains Region consists almost entirely of laterite and lateritic duricrust covered with quaternary aeolian sand. Soils are dominated by sandy acidic yellow mottled soils containing much ironstone gravel and laterite. Erosion of the Victoria Plateau's upper surface between Dongara and Dandaragan has produced a region of laterite capped hills and sand covered plains. The PGPS route is largely confined to Sandplains.

The Swan Coastal plain is a low lying coastal area dominated by fixed dunes of quaternary sand with subordinate alluvium, peat and lacustrine deposits overlying Permian sediments, featuring a significant number of wetlands. Soils of the Swan Coastal Plain are dominated by sandy acidic yellow mottled soils with associated leached sands and clays. North of Gingin laterite and ironstone are also common. The plain is mainly covered with woodlands. It is dominated by Banksia or Tuart on sandy soils, Casuarina obesa on outwash plains, and in the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland (CALM, 2003).

The PGPS does traverse some Environmentally Sensitive Areas (ESA's) and Conservation Reserves. Works will be minimised within these areas and specific management measures implemented to minimise disturbance. In addition DEC will be consulted if any significant works are required within these areas.

5. Heritage

Liaison with the Department of Aboriginal Affairs was undertaken in October 2012. A search of the Department of Planning, Lands and Heritage (DPLH; formerly the Department of Aboriginal Affairs) Aboriginal Heritage Enquiry System (AHIS) was undertaken in June 2017. 60 sites were found to intersect the pipeline route (28 registered heritage sites and 32 'other' heritage places).

To date, operations have not caused damage to any sites. In addition, consultation with the DPLH has established that pipeline activities such as access through a site (excluding ground disturbing works or alike) does not constitute impact to heritage sites and therefore is unlikely to breach section 17 of the *Aboriginal Heritage Act 1972*.

This being the case, disruption to heritage areas and/or artefacts as a result of ongoing operational activities is not expected provided works do not extend beyond the previously disturbed easement boundary and vehicles remain within designated areas and access routes at all times. Should ground disturbing works be required, reference to the known DPLH database AHIS will be undertaken, if required - DPLH consulted, if advised, cultural heritage management plan will be implemented.

6. Implementation Strategy

Implementation of the EP is via the APA Safeguard Environmental Management System and in compliance with the Petroleum Pipelines (Environment) Regulations 2012 requirements, namely:

- communication of policies, objectives and roles and responsibilities
- inductions, training and competency of personnel
- monitoring, auditing, record keeping and reporting, including a dedicated hazard and incident reporting system
- management of non-conformances and corrective actions
- development, tracking and ongoing maintenance of documentation
- emergency preparedness and response
- toolbox talks

A risk based approach has been adopted to manage potential threats to the environment as a result of PGPS Operation. This process involved initial identification of environmental interactions (aspects) resulting from operational activities followed by an environmental risk assessment (ERA) workshop attended by personnel from a range of backgrounds. The ERA process involved:

- assessment of environmental risks in terms of likelihood and consequence
- identification of mitigating factors and management measures to reduce environmental risks to ALARP
- risk ranking according to severity

A summary of the primary environmental hazards, control measures and mitigating factors identified for the PGPS Operations has been provided in Table 2.

Note: Table 2 is intended to be indicative of major hazards and controls only and is not comprehensive of all commitments made by APA in the Operations EP.

Table 2: Primary Operations Environmental Hazards and Controls / Mitigating Factors

Environmental Hazard	Control Measures and Mitigation Factors
All hazards	<ul style="list-style-type: none"> • HSE inductions communicating Environment requirements • Competent personnel – training and procedures / guidance materials provided • Hazard and incident reporting via APA Incident and Hazard Management System • Management, PTW*, maintenance and emergency response systems in place • Regular audits, inspections and other EP compliance checks • TPC* compliance with EP commitments via contractual requirements • JHA's* for tasks presenting specific environmental hazards • Strict controls on vehicles and access implemented via Operations Manuals • Reporting as per Regulatory requirements • Compliance with all relevant legislation and regulatory requirements
Air emissions	<ul style="list-style-type: none"> • HAZOP* undertaken specifically addressing uncontrolled gas release • Assets designed as per standards of the day (failure prevention) • Physical protection (i.e. cordoning and signage) of live pipework
Chemical use	<p>ALL</p> <ul style="list-style-type: none"> • Procedures for chemical use • Chemical register and SDS* maintained for all hazardous substances onsite <p>Storage & handling</p> <ul style="list-style-type: none"> • Storage of hazardous substances as per SDS and safety specifications • Storage receptacle sizes and types defined and controlled • Use of bunds and drip trays • Capacity of bunds sufficient to contain quantity of largest stored container • Minimise onsite chemical storage and use via off-site storage where possible <p>Transport</p> <ul style="list-style-type: none"> • Use of licensed contractors for (large quantities) DG* Transport • Strict access controls and maintenance of road condition • Double skinned tank on diesel transport vehicles <p>Spill prevention and response</p> <ul style="list-style-type: none"> • Spill response equipment available at site • ERP* and OSCP* to ensure adequate preparedness for spill response • Regular checks and maintenance of machinery, plant and equipment • Use of self bunded equipment where practicable <p>Chemical waste</p> <ul style="list-style-type: none"> • Chemical waste treated as per other chemicals for management purposes • Waste chemicals clearly marked and disposed of in accordance with regulations
Weed introduction and / or spread	<ul style="list-style-type: none"> • Vegetation clearing and earthworks limited where possible (disturbed areas prone to weed proliferation) • Strict hygiene measures for digging equipment • Access and vehicle controls imposed; as per existing roads and tracks • Weed identification information available to personnel • Timely response to declared weed occurrences as per DAFWA* recommendations
Disturbance to local vegetation (both native and other	<ul style="list-style-type: none"> • Native vegetation clearing limited and in compliance with WA Environmental Protection (Native vegetation Clearing) Regulations 2004

Environmental Hazard	Control Measures and Mitigation Factors
desirable plants i.e. feedstock)	<ul style="list-style-type: none"> • Vegetative material from clearing retained for use during site remediation • Disturbed (by APA) areas to be remediated as follows: • Stockpiled topsoils re-spread evenly to a maximum depth of approx. 10 cm • Surfaces reprofiled and scarified to assist seed and water trapping • Stockpiled vegetative material spread over topsoils to aid vegetation re-establishment
Soil erosion	<ul style="list-style-type: none"> • Strict controls on vehicles and access imposed • Topsoil removal limited and controlled • Topsoils removed for construction reused during post construction remediation • Topsoil stockpiles maintained to minimise erosion • Remediation of disturbed areas as described above
Ignition source for Fire	<ul style="list-style-type: none"> • Fire response equipment maintained at site and in vehicles and machinery • Operations sites maintained to minimise fuel availability and fire risk • Localised fire emergency response covered in ERP • Emergency contact details available to all operations personnel • Dedicated containers for chemicals classed as flammable • Smoking within designated areas only • Fire awareness to be reinforced at toolbox meetings
Waste Generation (excluding chemicals – see above)	<ul style="list-style-type: none"> • All wastes to be removed from site and disposed of to the appropriate class landfill facility • Adequate waste receptacles maintained onsite and waste segregated as appropriate
Dust generation	<ul style="list-style-type: none"> • Strict controls on vehicles and access • Dust suppression assistance to be sought as required
Disturbance to local fauna	<ul style="list-style-type: none"> • Fauna movement not restricted – can move away from sources of disturbance • Trenching and excavation activities controlled • Escape ramps for fauna installed in open trenches and morning visual trench inspections undertaken • Trained and competent handlers engaged for fauna removal from site if required
Third party disturbance	<ul style="list-style-type: none"> • Regular landholder consultation undertaken • Lighting at site to be concentrated in required areas only • Strict controls on Operations vehicle movement imposed
Disturbance to heritage values	<ul style="list-style-type: none"> • Works to cease and DPLH to be notified immediately if suspected heritage artefacts identified • Strict controls on Operations vehicle movement imposed • All site works contained within easement boundary

*Definitions provided in Table 1

7. Stakeholder Consultation

A summary of Operations Stakeholders and consultation undertaken by APA is provided in Table 3.

Table 3: Stakeholder Consultation

Stakeholder	Consultation to date	Ongoing commitment
Shires and Local Governments	<ul style="list-style-type: none"> Regular contact with the Shire via third party works process 	<ul style="list-style-type: none"> Consultation as necessary as part of pipeline operations consultation program
Landholders	<ul style="list-style-type: none"> Ongoing liaison since prior to PGP construction Operations specific consultation ongoing 	<ul style="list-style-type: none"> Notification of activities planned for sites Kept updated throughout the course of the Operations
DBP	<ul style="list-style-type: none"> Ongoing liaison since Dampier to Bunbury Natural Gas Pipeline construction Commercial negotiations Operations specific consultation ongoing 	<ul style="list-style-type: none"> Notification of activities planned for the easement when in close proximity to Dampier to Bunbury Pipeline assets kept updated throughout the course of the Operations
DFES: Local emergency services provider	<ul style="list-style-type: none"> Liaison throughout ERP development and implementation 	<ul style="list-style-type: none"> Notification of risk activities as agreed (i.e. venting) Ongoing liaison throughout site operations
DMIRS (formerly DMP): Regulator	<ul style="list-style-type: none"> Liaison ongoing throughout Operations 	<ul style="list-style-type: none"> Reporting monthly, 3 monthly, annually and at Operations close out; General liaison as required i.e. due to Operations changes, audits etc.
DWER (formerly DER) Regulator	<ul style="list-style-type: none"> Liaison / advice ongoing throughout Operations 	<ul style="list-style-type: none"> DWER to be contacted prior to works being undertaken within managed reserves
DPLH (formerly DAA): Regulator	<ul style="list-style-type: none"> Liaison / advice ongoing throughout Operations 	<ul style="list-style-type: none"> DPLH to be contacted if heritage area's / artefacts encountered during Operations

8. APA Contact Details

For further queries regarding the PGPS Operations please contact Lisa McFarlane on:-

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