

**Plan**

**QSN.2373-PL-HSE-0001**

**QSN Link Pipeline, QSN  
Expansion Pipeline and  
Moomba Interconnect Pipeline  
Environmental Impact Report**

## Version Control and Authorisation

| Version                                                 | Date       | Status                                                                                                 | Originated /Custodian               | Checked                                     | Approved                                  | Approved                                    |
|---------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------|-------------------------------------------|---------------------------------------------|
| 4.0                                                     | 29/08/2025 | 5 Yearly Renewal<br>Revision based on DEM feedback.                                                    | David Geng, Alice Skipper, Senversa | Michelle Jennings                           | -                                         |                                             |
| 3.0                                                     | 16/04/2025 | 5 Yearly Renewal<br>For submission to DEM.                                                             | David Geng, Alice Skipper, Senversa | Michelle Jennings                           | -                                         | -                                           |
| 2.0                                                     | 11/05/2021 | Removal of weed and nature reserve singage mitigation requirements as a result from audit outcomes.    | Stephanie Franceschini              | Glenn Platt                                 | -                                         | Alice Rawlinson                             |
|                                                         |            | DEM regulatory approval not required for updating EIR.<br><br>Issued for Use.                          | Environment Advisor                 | Senior Regulatory Specialist                |                                           | Environment Manager                         |
| 1.0                                                     | 21/04/2020 | Issued for Use.                                                                                        | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Senior Regulatory Specialist | -                                         | Alice Rawlinson<br>Environment Manager      |
| 0.6                                                     | 21/04/20   | Finalisation following Stakeholder consultation and final DEM comments.                                | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Senior Regulatory Specialist | -                                         | Alice Rawlinson<br>Environment Manager      |
| 0.5                                                     | 04/03/20   | Update following DEM Stakeholder Consultation.                                                         | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Senior Regulatory Specialist | -                                         | Alice Rawlinson<br>Environment Manager      |
| 0.4                                                     | 13/12/19   | Updated following DEM feedback.                                                                        | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Senior Regulatory Specialist | -                                         | Alice Rawlinson<br>Environment Manager      |
| 0.3                                                     | 15/11/19   | Updated following DEM feedback.                                                                        | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Senior Regulatory Specialist | -                                         | Glenn Platt<br>Senior Regulatory Specialist |
| 0.2                                                     | 25/07/19   | Updated to incorporate DEM comments.                                                                   | Angela Gamble<br>Environment Lead   | Glenn Platt<br>Regulatory Specialist        | Paul Thorley<br>Manager<br>Operations QLD | Alicia Zillman<br>Environment Manager       |
| 0.1                                                     | 12/04/19   | Updated into current National APA Environment Plan template; Five yearly renewal; new document number. | Lisa Graham<br>Environment Advisor  | Glenn Platt<br>Regulatory Specialist        | Paul Thorley<br>Manager<br>Operations QLD | Alicia Zillman<br>Environment Manager       |
| 1 (Previous Document Control number: Q-02-102-LAE-G001) | 02/11/17   | Final.                                                                                                 | Z.Bowen / S.Milne                   | R.Brooks                                    | -                                         | R.Brooks                                    |

**Distribution Record**

| Version No | Name / Location       | Date       |
|------------|-----------------------|------------|
| 1.0        | Issued for Use.       | 22/05/2020 |
| 2.0        | Issued for Use.       | 11/05/2021 |
| 3.0        | Draft for DEM Review. | 16/04/2025 |
| 4.0        | Final for DEM Review. | 29/08/2025 |

**Revision History**

| Version No | Summary of Amendment                                                                                                    | Date       |
|------------|-------------------------------------------------------------------------------------------------------------------------|------------|
| 0.1        | Updated inline with APA National Environment Management Template; Construction activities removed; Five-yearly renewal. | 12/04/2019 |
| 0.2        | Incorporation of Department for Energy and Mining comments                                                              | 25/07/2019 |
| 0.3        | Update following Department for Energy and Mining comments.                                                             | 15/11/2019 |
| 0.4        | Update following Department for Energy and Mining comments.                                                             | 13/12/2019 |
| 0.5        | Update following Department for Energy and Mining stakeholder consultation.                                             | 03/04/2020 |
| 0.6        | Update following Department for Energy and Mining stakeholder consultation.                                             | 21/04/2020 |
| 1.0        | Issued for Use.                                                                                                         | 21/04/2020 |
| 2.0        | Issued for Use.                                                                                                         | 11/05/2021 |
| 3.0        | Draft for DEM Review.                                                                                                   | 16/04/2025 |
| 4.0        | Final for DEM Review.                                                                                                   | 29/08/2025 |

## Table of Contents

|          |                                                      |           |
|----------|------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction.....</b>                             | <b>7</b>  |
| 1.1      | Background.....                                      | 7         |
| 1.2      | Location .....                                       | 7         |
| 1.3      | Timeframe.....                                       | 7         |
| 1.4      | Purpose.....                                         | 12        |
| 1.5      | Environmental Commitment .....                       | 12        |
| <b>2</b> | <b>Legislative and Regulatory Context.....</b>       | <b>13</b> |
| 2.1      | Energy Resources Act 2000 .....                      | 13        |
| 2.2      | Commonwealth Legislation.....                        | 13        |
| 2.3      | State Legislation .....                              | 14        |
| 2.4      | Guidelines and Australian Standards .....            | 17        |
| <b>3</b> | <b>Facility Area and Activity Description.....</b>   | <b>18</b> |
| 3.1      | Pipeline Route .....                                 | 18        |
| 3.2      | Design and Engineering .....                         | 18        |
| 3.3      | Pipeline Operations and Maintenance Activities ..... | 19        |
| 3.4      | Decommissioning .....                                | 21        |
| <b>4</b> | <b>Description of the Environment .....</b>          | <b>23</b> |
| 4.1      | Climate.....                                         | 23        |
| 4.2      | Physical Environment .....                           | 23        |
| 4.3      | Biological Environment .....                         | 26        |
| 4.4      | Social Environment.....                              | 31        |
| <b>5</b> | <b>Methodology .....</b>                             | <b>36</b> |
| 5.1      | Environmental Risk Assessment .....                  | 36        |
| 5.2      | Assessment of Significance.....                      | 37        |
| <b>6</b> | <b>Environmental Elements .....</b>                  | <b>38</b> |
| 6.1      | Native Vegetation and Fauna .....                    | 38        |
| 6.2      | Pests, Disease and Weed .....                        | 39        |
| 6.3      | Noise, Dust and Odour Emissions.....                 | 39        |
| 6.4      | Chemical Spills and Contamination.....               | 39        |
| 6.5      | Waste.....                                           | 40        |
| 6.6      | Soil and Water .....                                 | 40        |
| 6.7      | Heritage .....                                       | 41        |
| 6.8      | Fire.....                                            | 41        |
| 6.9      | Third Party and Public Safety .....                  | 41        |
| <b>7</b> | <b>Environmental Risk Assessment .....</b>           | <b>42</b> |
| <b>8</b> | <b>Control and Management Strategies.....</b>        | <b>46</b> |
| 8.1      | Vegetation and Fauna Management .....                | 47        |
| 8.2      | Pest, Weeds and Disease Management .....             | 49        |
| 8.3      | Noise, Dust and Odour Emission Management .....      | 50        |
| 8.4      | Chemical and Contamination Management .....          | 51        |
| 8.5      | Waste Management.....                                | 52        |
| 8.6      | Soil and Water Management .....                      | 53        |
| 8.7      | Heritage Management .....                            | 54        |
| 8.8      | Fire Management.....                                 | 55        |
| 8.9      | Third Party and Public Safety .....                  | 56        |
| 8.10     | Security of Gas Supply .....                         | 57        |

|           |                                                                              |           |
|-----------|------------------------------------------------------------------------------|-----------|
| <b>9</b>  | <b>Environmental Significance Assessment</b>                                 | <b>58</b> |
| <b>10</b> | <b>Implementation</b>                                                        | <b>63</b> |
| 10.1      | Environmental Framework                                                      | 63        |
| 10.2      | Competency Controls                                                          | 63        |
| 10.3      | Assurance Controls                                                           | 66        |
| <b>11</b> | <b>Stakeholder Consultation</b>                                              | <b>68</b> |
| <b>12</b> | <b>Reporting</b>                                                             | <b>69</b> |
| 12.1      | Data Capture, Storage Systems and Sources                                    | 69        |
| 12.2      | Internal Reporting                                                           | 69        |
| 12.3      | External Reporting                                                           | 70        |
| <b>13</b> | <b>Definitions &amp; Acronyms</b>                                            | <b>74</b> |
| <b>14</b> | <b>References</b>                                                            | <b>75</b> |
|           | <b>Appendix 1 – Health, Safety, Environmental and Heritage (HSEH) Policy</b> | <b>77</b> |
|           | <b>Appendix 2 – Environmental Risk Assessment (ERA)</b>                      | <b>78</b> |
|           | <b>Appendix 3 – APA Risk Matrix Definitions</b>                              | <b>79</b> |
|           | <b>Appendix 4 – Heritage Management Protocol</b>                             | <b>80</b> |
|           | <b>Appendix 5 – Pests, Weeds and Disease Management Protocol</b>             | <b>81</b> |
|           | <b>Appendix 6 – Native Vegetation and Fauna Management Protocol</b>          | <b>82</b> |
|           | <b>Appendix 7 – Soil and Water Management Protocol</b>                       | <b>83</b> |
|           | <b>Appendix 8 – Excavation and Trenching Fatal Risk Protocol</b>             | <b>84</b> |
|           | <b>Appendix 9 – Key Environmental Requirements</b>                           | <b>85</b> |
|           | <b>Appendix 10 – EPA Environmental Authorisation 45002</b>                   | <b>86</b> |
|           | <b>Appendix 11 – Stakeholder Consultation</b>                                | <b>87</b> |

#### List of Figures

|                                        |           |
|----------------------------------------|-----------|
| <b>Figure 1 Pipeline Locality Maps</b> | <b>11</b> |
|----------------------------------------|-----------|

#### List of Tables

|                                                                                                          |           |
|----------------------------------------------------------------------------------------------------------|-----------|
| <b>Table 1 Pipeline Licence Details</b>                                                                  | <b>8</b>  |
| <b>Table 2 Commonwealth Legislation</b>                                                                  | <b>13</b> |
| <b>Table 3 State Legislation</b>                                                                         | <b>14</b> |
| <b>Table 4 Pipeline Engineering and Design Features</b>                                                  | <b>19</b> |
| <b>Table 5 Summary of Pipeline Operational Activities</b>                                                | <b>20</b> |
| <b>Table 6 Climate Record summaries for Moomba Airport (1995- 2025) (Station 017123; BOM 2025)</b>       | <b>23</b> |
| <b>Table 7 Landforms along the Pipeline Route</b>                                                        | <b>24</b> |
| <b>Table 8 Dominant soil types occurring along The Pipeline</b>                                          | <b>25</b> |
| <b>Table 9 Monthly Flows of Cooper Creek at Nappa Merrie (Gauge# 003103A) ('000 of ML) (DLGWV, 2025)</b> | <b>25</b> |
| <b>Table 10 Vegetation Communities Identified on the Pipeline Route</b>                                  | <b>27</b> |
| <b>Table 11 Rare or Threatened Fauna Identified from Database Searches</b>                               | <b>29</b> |
| <b>Table 12 Fauna Habitats Present Within the Proposed Corridor</b>                                      | <b>30</b> |
| <b>Table 13 Historic Heritage Sites within the Vicinity of the Pipeline Corridor</b>                     | <b>32</b> |
| <b>Table 14 Land Owners on the South Australian Section of the QSN Pipeline</b>                          | <b>34</b> |
| <b>Table 15: Environmental Significance Assessment</b>                                                   | <b>37</b> |

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| <b>Table 16 Environmental Risk Assessment .....</b>                    | <b>42</b> |
| <b>Table 17 Vegetation and Fauna Management Measures.....</b>          | <b>47</b> |
| <b>Table 18 Pest, Weeds and Disease Management Measures .....</b>      | <b>49</b> |
| <b>Table 19 Noise, Dust and Odour Management Measures .....</b>        | <b>50</b> |
| <b>Table 20 Chemical and Contamination Management Measures .....</b>   | <b>51</b> |
| <b>Table 21 Waste Management Measures .....</b>                        | <b>52</b> |
| <b>Table 22 Soil and Water Management Measures .....</b>               | <b>53</b> |
| <b>Table 23 Heritage Management Measures .....</b>                     | <b>54</b> |
| <b>Table 24 Fire Management Measures.....</b>                          | <b>55</b> |
| <b>Table 25 Third Party and Public Safety Management Measures.....</b> | <b>56</b> |
| <b>Table 26 Security of Gas Supply Management Measures .....</b>       | <b>57</b> |
| <b>Table 27 Environmental Significance Assessment .....</b>            | <b>58</b> |
| <b>Table 28 Inductions.....</b>                                        | <b>64</b> |
| <b>Table 29 Training .....</b>                                         | <b>64</b> |
| <b>Table 30 Awareness .....</b>                                        | <b>65</b> |
| <b>Table 31 Inspections.....</b>                                       | <b>66</b> |
| <b>Table 32 Data capture, storage systems and sources.....</b>         | <b>69</b> |
| <b>Table 33 Internal Reporting.....</b>                                | <b>70</b> |
| <b>Table 34 External Periodic Reporting .....</b>                      | <b>71</b> |
| <b>Table 35 External Incident Reporting .....</b>                      | <b>73</b> |

# 1 Introduction

This Environmental Impact Report (EIR) is for the operation of:

- Pipeline Licence 18 (PL18) – QSN Link (Ballera Qld to Moomba SA).

This EIR has been prepared by APA Group in accordance with the requirements of Section 97 of the South Australian *Energy Resources Act 2000* (ER Act) and the *Energy Resources Regulations 2013* (ER Regs).

## 1.1 Background

APA (SWQP) Pty Limited (ABN 67 066 656 219), a wholly owned subsidiary of the APA Group, holds the licence for, and operates the Queensland, South Australia and New South Wales (QSN) Link and the QSN Expansion Gas Pipeline, covered by Pipeline Licence (PL) PL18.

The QSN Link and QSN Expansion Pipeline transport natural gas between APA's Moomba Compressor Station in South Australia (SA) and the South West Queensland Pipeline (SWQP) Ballera Gas Facility in Queensland (Qld). Both pipelines are bi-directional transporting sales quality natural gas between the SWQP at Ballera, the Moomba to Adelaide Pipeline (MAP) and the Moomba to Wilton Pipeline (MWP) at Moomba.

The QSN Link is approximately 182.7 km in length and has a nominal outside diameter of 400 mm. The QSN Expansion is approximately 182.7 km in length and has a nominal outside diameter of 450 mm. The pipelines are contained within a common easement. The pipelines traverse SA for 92.6 km (KP90.1 to KP182.7 measured from Ballera) and are subject to the conditions of SA Licence PL18.

Also included in PL18 is a section of the 660 mm nominal outside diameter Moomba Interconnect Pipeline (MIP), approximately 374 m long from the Moomba Compressor Station to the intersection of the PL7 easement. The remaining section of the MIP is within PL7.

The scope of this document covers the SA section of the QSN Link, the QSN Expansion Pipeline and the MIP, herein collectively referred to as 'The Pipeline'.

## 1.2 Location

The South West Queensland Pipeline System is located in rural, regional and remote areas of SA and Qld.

The SWQP traverses 65 Freehold and 43 Leasehold properties in Queensland. The pipeline passes through the Maranoa Regional Council, Murweh Shire Council, Quilpie Shire Council and Bulloo Shire Council areas.

Land use associated with the broader regional area is predominantly for agricultural and grazing purposes, oil and gas production as well as tourism and conservation. Most of the project area is sparsely populated and remote from residential communities with the nearest townships located between 13 km and 32 km north of the existing pipelines.

The QSN is located within the Shire of Bulloo (QLD) and the Pastoral Unincorporated Area (SA) which is managed and governed by the Outback Communities Authority (OCA).

The QSN Link crosses three active pastoral stations, two of which are in the SA section of the pipeline. The region is also used for oil and gas production, and there is significant oil and gas infrastructure crossing or paralleling the pipeline route in numerous locations.

The route passes through the Innamincka Regional Reserve in South Australia for approximately 55 km. This is a multiple use reserve, and is managed under a conservation framework while permitting the sustainable use of resources (i.e. oil and gas production and grazing). The South Australian Department for Environment and Water have specific requirements for operation in this reserve.

## 1.3 Timeframe

The SWQP was commissioned in 1996 with a design life of 50 years.

The QSN Link was commissioned in 2008 with a design life of 50 years.

The SWQPE and QSNE were commissioned in 2012 with design life of 50 years.

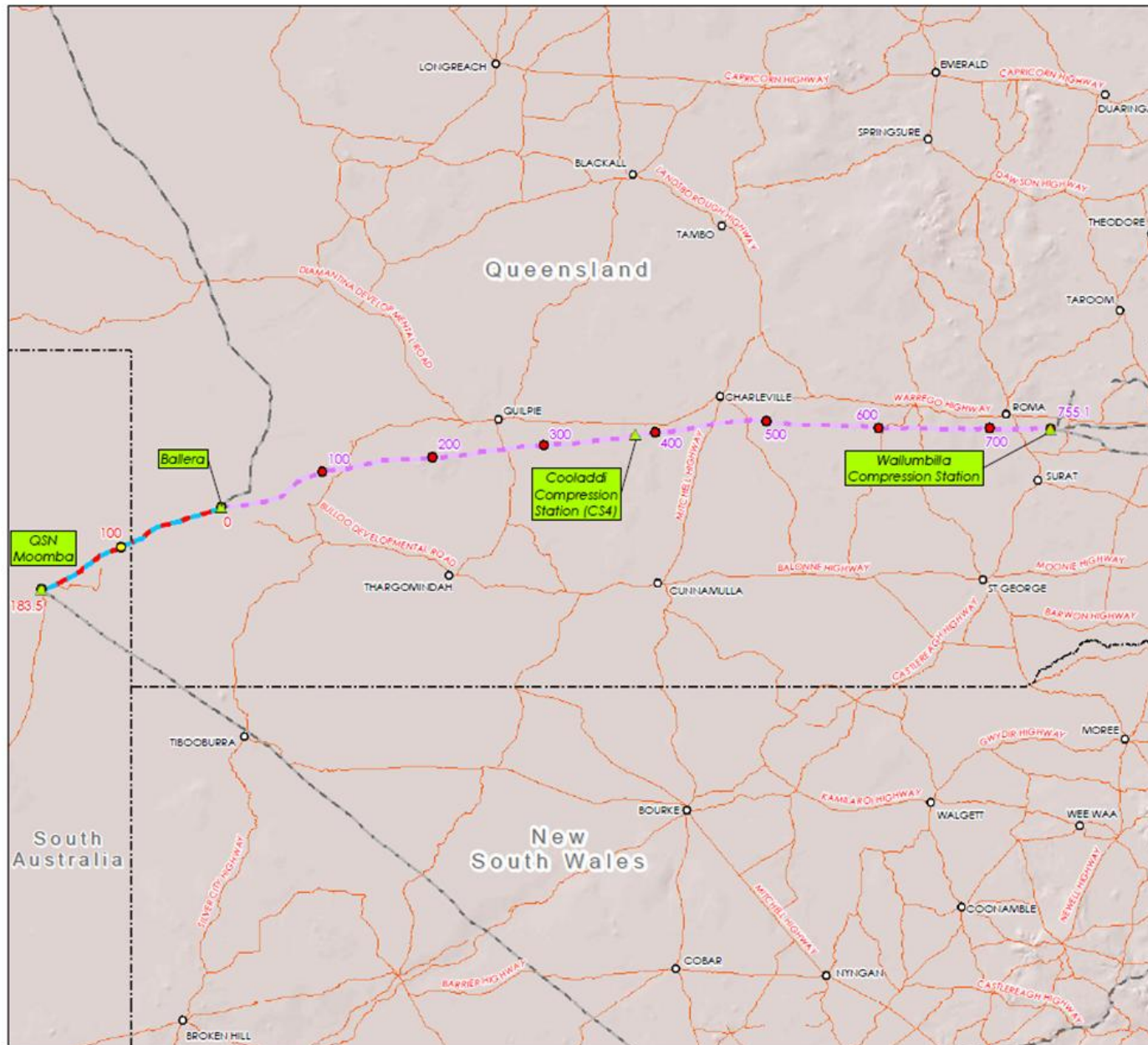
The pipelines were designed to AS 2885 as applicable at the time of design. The pipelines are operated to the current version of AS 2885 and the APA Group pipeline management system. Remaining life reviews are required to be carried out at typically 10-year intervals.

Please refer to Table 1 for The Pipeline Licence details.

Please refer to Figure 1 for The Pipeline Locality Maps.

Table 1 Pipeline Licence Details

| Pipeline Licence | Licensee               | Date of Issue | Expiry Date  |
|------------------|------------------------|---------------|--------------|
| PL 18            | APA (SWQP) Pty Limited | 7 April 2008  | 6 April 2029 |





APA Group  
 Phone: +61 1800 941 15  
 Web: www.apa.com.au

**PROJECT:** SWQP and QSN Pipeline O&M  
**TITLE:** Overview Map  
**SUBTITLE:** Revision 0.1  
**DATE:** 8/02/2019  
**DATA SOURCE:** Geoscience Australia 2016 - Locations

**LEGEND:**  
 ● SWQP Kilometre Points  
 ● QSN Kilometre Points  
 ▲ APA Site  
 ○ Town  
 — APA Asset  
 — QSN Link (Moomba - Ballera)  
 - - - South West Queensland Pipeline (Ballera - Wallumbilla)  
 — Primary Road  
 - - - State Border

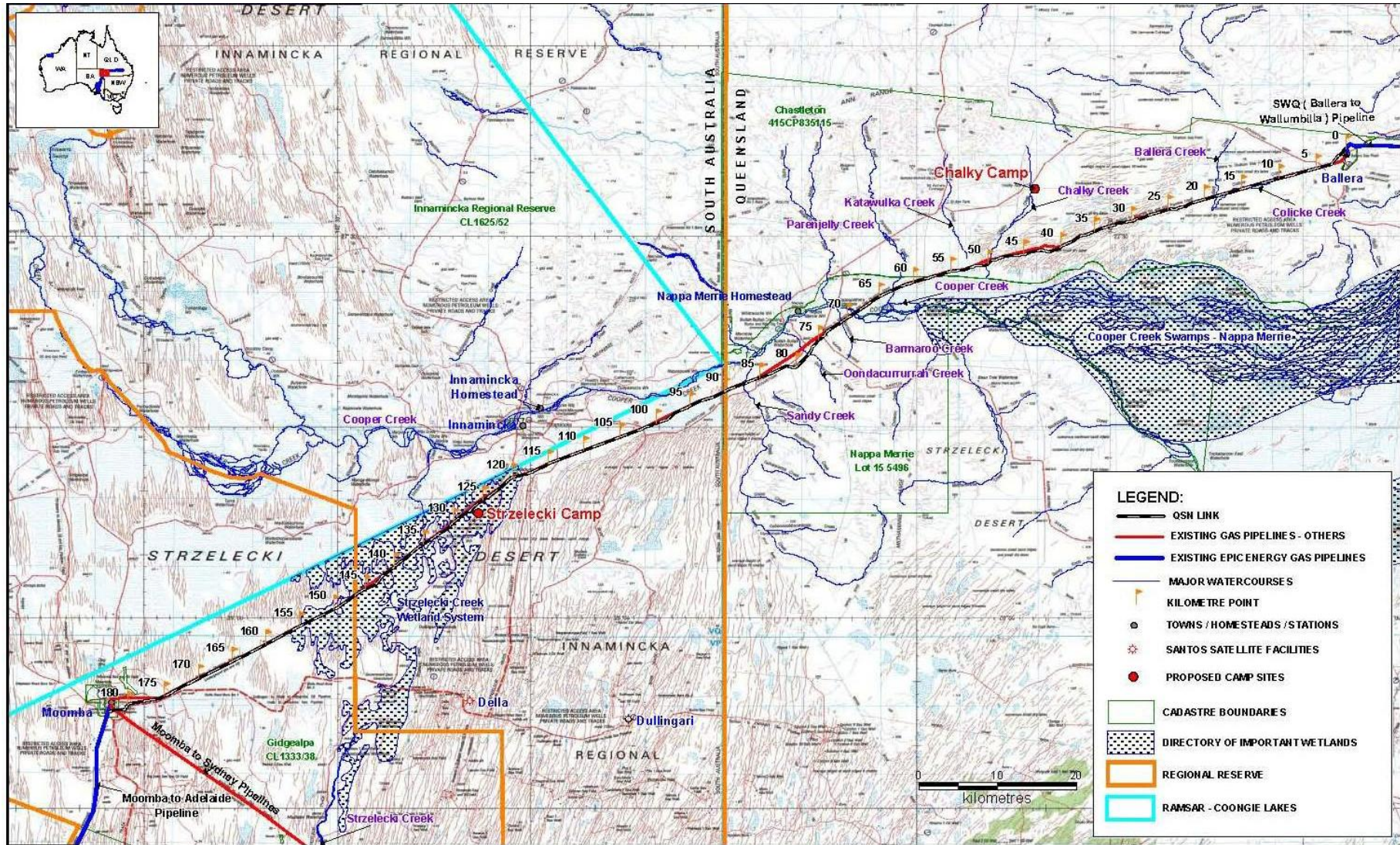
**DOCUMENT NUMBER:** 560-MAP-L-0590

| Revision | Description | Drawn | Checked/DOC | Approved | Date       |
|----------|-------------|-------|-------------|----------|------------|
| 0.1      | DRAFT       | MB    | BR          | PM       | 08/02/2019 |

**SCALE:** 1:3,750,000 @ A3 GCS GDA 1994  
 0 50 100 200 Kilometres

**LOCATION DIAGRAM**  


APA Group does not guarantee the accuracy or completeness of the map and does not warrant liability for any loss or damage resulting from the use of this map. This map is a preliminary illustration and should not be used for any other purpose. © 2019 APA Group



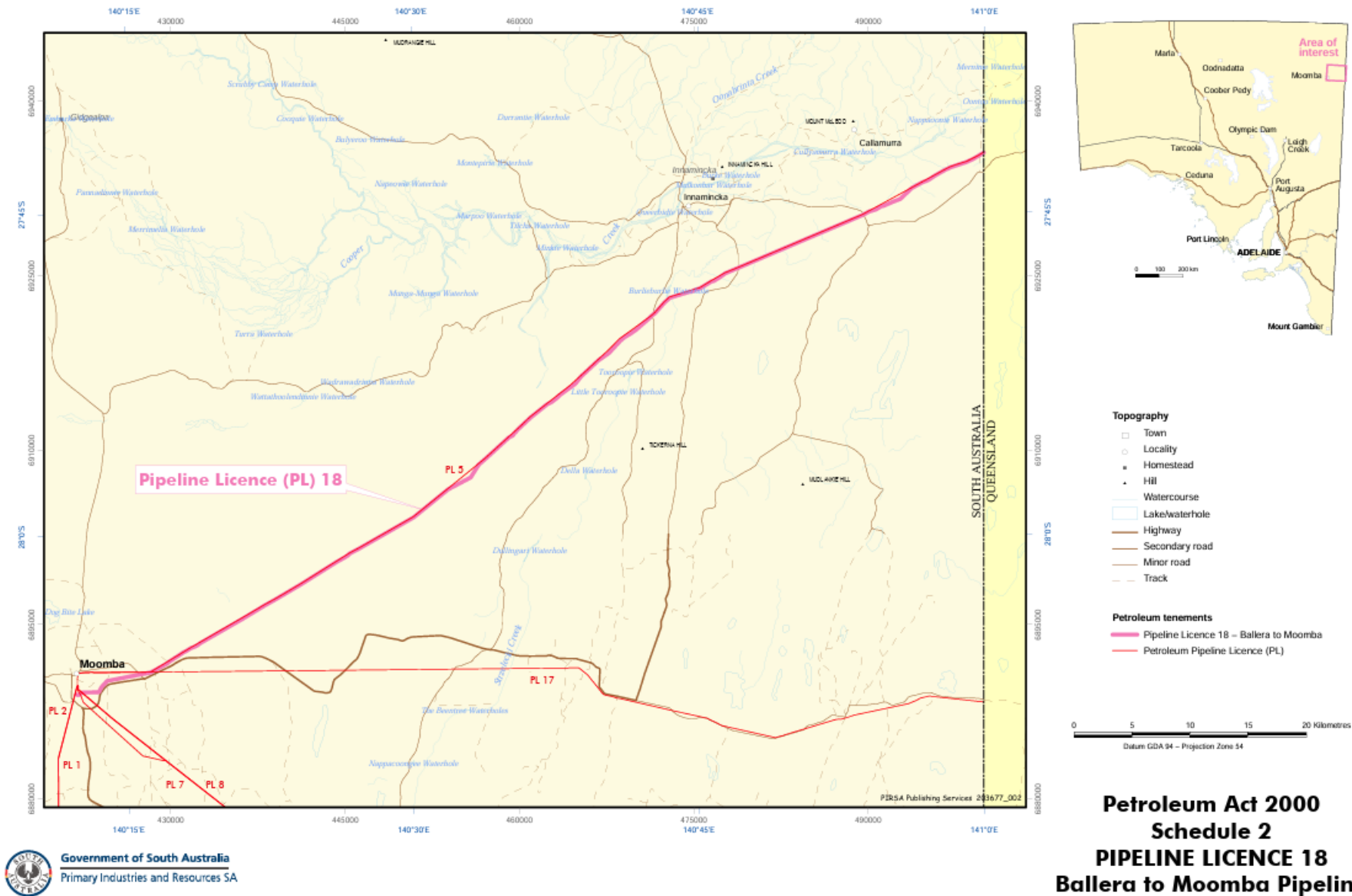


Figure 1 Pipeline Locality Maps

## 1.4 Purpose

This Environmental Impact Report (EIR) has been prepared to satisfy the requirements of the *Energy Resources Act 2000* (SA) with regard to the operation, maintenance and decommissioning of The Pipeline. This document:

- Outlines legislative approvals required for operations (Section 2);
- Provides a description of The Pipeline and associated pipeline infrastructure (Section 3);
- Describes the natural environment which The Pipeline intercepts (Section 0); and
- Describes the specific features of the environment that are reasonably expected to be affected by The Pipeline operation and the management strategies to mitigate potential aspects and impacts (Section 5).

A Statement of Environmental Objectives (SEO) has also been developed in conjunction with this EIR. It outlines the environmental objectives that will be achieved and the criteria upon which APA's performance against the objectives are to be measured. The SEO has been developed on the basis of the information provided in this EIR.

## 1.5 Environmental Commitment

APA is committed to responsible environmental management for the operation of The Pipeline and believes that any potential adverse environmental effects can be effectively managed in a manner that complies with the requirements of this document, as well as:

- All relevant State and Commonwealth laws and regulations;
- APA Group's Health, Safety, Environment and Heritage Policy (refer to Appendix 1);
- Relevant industry standards (e.g. Australian Standard AS2885: Pipelines – Gas and Liquid Petroleum); and
- The Australian Pipeline and Gas Association (APGA) Code of Environmental Practice – Onshore Pipelines (2022).

## 2 Legislative and Regulatory Context

### 2.1 Energy Resources Act 2000

The *Energy Resources Act 2000* (SA) (ER Act) requires all regulated activities, carried out under the Act, to be covered by an approved EIR and SEO. The requirements are set out in the following sections of the Act and the *Energy Resources Regulations 2013* (ER Regs):

- The EIR must be prepared in accordance with:
  - Section 97 of the Act, which requires the EIR to take into account cultural, amenity and other values of Aboriginal and other Australians relevant to the assessment, risks to public health and safety of regulated activities, and to contain sufficient information to make an informed assessment of the likely environmental impact of the activities possible. Section 97 of the Act also requires that the environmental impact report must include an assessment of the environmental impact of regulated activities to which the report applies against the environmental impact assessment criteria.
  - Regulation 10 of the Regulations, which requires the EIR to include descriptions of activities and environmental features which may be affected, assessment of possible effects on cultural values and public health and safety, identification and assessment of consequences of potential environmental hazards, and details of consultation.
  - The Environmental Impact Assessment Criteria (July 2024) as a requirement under Part 12 of the Act, which requires the EIR to include the following key elements:
    - Criteria 1 – Elements of the Environment;
    - Criteria 2 – Potential Impact Events;
    - Criteria 3 – Confirmation of Impact Events;
    - Criteria 4 – Control and Management Strategies and Uncertainty Assessment;
    - Criteria 5 – Environmental Significance Assessment; and
    - Criteria 6 - A Statement of Environmental Objectives.
- The SEO must be prepared in accordance with Sections 99 and 100 of the Act and Regulations 12 and 13.

### 2.2 Commonwealth Legislation

Please refer to Table 2 for relevant Commonwealth legislation.

**Table 2 Commonwealth Legislation**

| Legislation                                                                      | Administering Department                                         | Requirement                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i></b> | Department of Climate Change, Energy, the Environment and Water. | Requirements for notification of Aboriginal remains are found are also covered by State legislation.                                                                                                                                                                                                                                                                  |
| <b><i>Environment Protection and Biodiversity Conservation Act 1999</i></b>      | Department of Climate Change, Energy, the Environment and Water. | No requirement for operations, as all works contained within previously disturbed area.<br><br>New construction (outside of pre-disturbed area – in particular conservation area), should be assessed on a case by case basis to determine if the <i>Environment Protection and Biodiversity Conservation Act 1999</i> is triggered and whether approval is required. |

| Legislation                                                                        | Administering Department                                              | Requirement                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>National Environment Protection (National Pollutant Inventory) Measure 1998</b> | National Environment Protection Council.                              | South Australia is a participating State to this NEPM, and reporting requirements are also described in the State legislation.<br><br>Gas distribution and transmission is a reportable activity. APA reports for the Moomba Meter and Compressor Station are publicly available at the NPI website. |
| <b>National Greenhouse and Energy Reporting Act 2007</b>                           | Clean Energy Regulator.                                               | Annual reporting of fugitive emissions.<br>Retain fuel usage and gas release data.                                                                                                                                                                                                                   |
| <b>Native Title Act 1993</b>                                                       | Attorney-General's Department, Aboriginal Affairs and Reconciliation. | New construction (outside of pre-disturbed areas) should be assessed on a case-by-case basis to determine requirements regarding Cultural Heritage.                                                                                                                                                  |

## 2.3 State Legislation

Please refer to Table 3 for relevant State legislation.

**Table 3 State Legislation**

| Legislation                         | Administering Department                      | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Aboriginal Heritage Act 1988</b> | Department of the Premier and Cabinet.        | Provides for the protection of all Aboriginal sites, objects and remains, including recorded, reported or undiscovered heritage. This protection extends to sites that may have been disturbed in past, or subject to culture heritage surveys or clearance.<br><br>Do not contravene any Aboriginal heritage agreement.<br><br>Notify the minister upon discovery of any Aboriginal sites, objects or remains on land, giving the particulars of the nature and location of the discovery. Do not, without the authority of the minister:<br><ul style="list-style-type: none"> <li>• Damage, disturb, sell or dispose of any Aboriginal site, object or remains;</li> <li>• Remove the object or remains;</li> <li>• excavate land for the purpose of uncovering any Aboriginal site, object or remains;</li> <li>• Divulge information relating to an Aboriginal site, object, remains or tradition in contravention of Aboriginal tradition, except as required to notify the minister.</li> </ul> Should works be required outside the existing easement they will be assessed under the Act. |
| <b>Biosecurity Act 2025</b>         | Department of Primary Industries and Regions. | Introduces a general biosecurity duty to take, so far as is reasonably practicable, measures to prevent, eliminate, minimise, control, or manage a biosecurity matter, or a carrier, if the person knows or reasonable ought to know that the biosecurity matter, carrier or dealing poses a biosecurity risk.<br><br>This Act has not yet commenced. When this Act is in force, APA will adjust controls to ensure legislative requirements are met.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Legislation                                                    | Administering Department              | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Crown Land Management Act 2009</i></b>                   | Department for Environment and Water. | <p>On Crown land do not, without authority, among other things:</p> <ul style="list-style-type: none"> <li>• Occupy Crown land for longer than any period prescribed by regulation;</li> <li>• Cultivate Crown land or cause or permit animals (for which the person is responsible) to enter or remain on Crown land;</li> <li>• Drive a motor vehicle on Crown land, other than on an established road or track;</li> <li>• Damage or remove fossils from Crown land;</li> <li>• Excavate or otherwise damage or interfere with Crown land, or anything on Crown land;</li> <li>• Cut down, lop branches or otherwise damage, any tree or bush (whether alive or dead);</li> <li>• Erect any structure or fixture or carries out any works on Crown land;</li> <li>• Deposit litter or abandon property;</li> <li>• Close off or obstruct (whether by fences, gates or any means) a road or track on Crown land.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b><i>Environment Protection Act 1993</i></b>                  | Environment Protection Authority.     | <p>Outlines the general duty to ensure that all reasonable and practicable measures are taken to protect, restore and enhance the quality of the environment while having regard to the principles of ecologically sustainable development.</p> <p>Grant of environmental authorisations to undertake a prescribed activities of environmental significance.</p> <p>Moomba Compressor Station operates under Authorisation Licence Number 45002 (refer to Appendix 10):</p> <ul style="list-style-type: none"> <li>• The Licensee must appropriately complete a Waste Transfer Certificate (WTC) regarding any waste specified in the 'Controlled Waste' attachment to the Licence, before that waste is transported to a place outside South Australia.</li> <li>• The Licensee must obtain a Consignment Authorisation from the appropriate environmental agency in the state or territory of destination of that waste before that waste is transported to a place outside South Australia.</li> <li>• The Licensee must ensure that all chemicals or chemical products are stored, loaded or unloaded in an appropriately bunded area.</li> <li>• The Licensee must ensure that an appropriate emergency spill kit is kept on the Premises at all times and is used in the event of a spill.</li> </ul> <p>Disposal of wastewater (i.e. trench or hydro-test water) to inland waters may require approval under the Act.</p> <p>Protects water quality and waterways as per the <i>Environment Protection (Water Quality) Policy 2015</i>.</p> |
| <b><i>Environment Protection (Air Quality) Policy 2016</i></b> | Environment Protection Authority.     | <p>An occupier of premises (other than domestic premises), must take all reasonable measures to minimise pollution to air by ensuring that:</p> <ul style="list-style-type: none"> <li>• Fuel burning equipment, control equipment or any other plant or equipment is efficiently maintained, operated and serviced</li> <li>• All goods or materials are processed, handled and stored in a proper and efficient manner.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Legislation                                                                 | Administering Department              | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environment Protection (National Pollutant Inventory) Policy 2008</b>    | Environment Protection Authority.     | Submit annual National Pollutant Inventory (NPI) returns.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Environment Protection (Commercial and Industrial Noise) Policy 2023</b> | Environment Protection Authority.     | <p>If a premise emitting noise, ensure that the source noise level (continuous) at the at noise-affected premises does not exceed the:</p> <ul style="list-style-type: none"> <li>• Background noise level plus 5 dB(A), or</li> <li>• Indicative noise level for the noise source.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Environment Protection (Water Quality) Policy 2015</b>                   | Environment Protection Authority.     | <p>An operator of works must ensure that:</p> <ul style="list-style-type: none"> <li>• Waste generated at the premises is not discharge to any waters or land in a place from which it is reasonably likely to enter any waters;</li> <li>• The premises incorporate a wastewater management system that is effectively operating in respect of any wastewater generated at the premises while the premises is being used for the works.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Heritage Places Act 1993</b>                                             | Department for Environment and Water. | <p>Allows for the identification, recording and conservation of places and objects of non-Aboriginal heritage significance.</p> <p>Should works be required outside the existing easement they will be assessed under the <i>Heritage Places Act 1993</i>.</p> <p>If an archaeological artefact of possible heritage significance has been discovered or located (other than under a permit) ensure that:</p> <ul style="list-style-type: none"> <li>• The excavation or disturbance of the place where the object has been discovered ceases;</li> <li>• The South Australian Heritage Council is notified of the location of the object and furnish with any required such information within the time period specified by the regulations;</li> <li>• No further action is taken to recover the object without a permit;</li> <li>• The object is surrendered if required.</li> </ul> |
| <b>National Parks and Wildlife Act 1972</b>                                 | Department for Environment and Water. | <p>Do not without authority, take a native plant from:</p> <ul style="list-style-type: none"> <li>• Crown land or forest reserve;</li> <li>• Any reserve, wilderness protection area or wilderness protection zone;</li> <li>• Any land reserved for or dedicated to public purposes;</li> <li>• Private land (if the native plant of a prescribed species)</li> <li>• Import, export, sell or give away a native plant of a prescribed species;</li> <li>• Possess a native plant that has been illegally taken or acquired.</li> </ul> <p>Do not, without a permit interfere with or harass, or permit the interference or harassment of, a protected animal.</p>                                                                                                                                                                                                                      |
| <b>Native Title (South Australia) Act 1994</b>                              | Department for Environment and Water. | New works (and some maintenance activities) may require formal notification to Native Title Claimants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Legislation                                      | Administering Department             | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>Native Vegetation Act 1991</i></b>         | Department for Environment and Water | <p>Ensure clearing of native vegetation incidental to mining operations authorised under the <i>Energy Resources Act 2000</i> is in accordance with:</p> <ul style="list-style-type: none"> <li>• A management plan approved by the Native Vegetation Council;</li> <li>• A statement of environmental objectives under that Act.</li> </ul>                                                                                                   |
| <b><i>Landscape South Australia Act 2019</i></b> | Department for Environment and Water | <p>Take all reasonable steps to prevent damage to the bed or banks/shore of a watercourse or lake and to the dependent ecosystems. In areas covered by a Regional Landscape Plan, do not, without a permit, destroy vegetation growing in a watercourse, its floodplains or in a lake, nor excavate or remove rock, sand or soil from these places (including any areas near the banks of a lake which could cause damage to these banks).</p> |

## 2.4 Guidelines and Australian Standards

- Australian Pipelines and Gas Association (APGA) Code of Environmental Practice Onshore Pipelines (April 2022);
- AS 2885 Pipelines – Gas and Liquid Petroleum;
- AS 60079 Electrical Apparatus for explosive gas atmospheres - Hazardous Areas;
- EPA 080/16 Bunding and Spill Management Guideline (May 2016).

### 3 Facility Area and Activity Description

This Section and Section 6 seek to address Criteria 1 – Elements of the Environment of the Environmental Impact Assessment Criteria. This Section specifically addresses the requirement of Regulation 10(1)(a), which requires:

- Provision of a description of the regulated activities to be carried out under the licence (including their location).

#### 3.1 Pipeline Route

The Pipeline extends from the Ballera Gas Facility in Queensland and heads in a south- westerly direction. It passes approximately 7 km to the south of Innamincka in SA and terminates at the Moomba plant. The Pipeline is approximately 183 km in length, with approximately 90 km in Queensland and 93 km in South Australia. Please refer to **Table 4**.

For most of the route, The Pipeline is adjacent to the existing Santos pipeline, which carries gas and liquids between Moomba and Ballera. The Pipeline is approximately 50 m to the south of the Santos pipeline, however deviations of up to several hundred metres from the Santos pipeline occur in several locations, to achieve optimal alignment through areas of sand dunes and features such as Aboriginal heritage sites.

#### 3.2 Design and Engineering

The Pipeline consists of the following facilities and infrastructure:

- Two buried, bidirectional, high pressure, steel, natural gas pipelines, (DN400 QSN Link Pipeline and DN450 QSN Expansion Pipeline), over a route of approximately 93 km between the South Australia/Queensland border and Moomba;
- A midline mainline valve for both pipelines, located at KP 102.7, near the township of Innamincka;
- A Midline Pressure Regulating Station for both pipelines located at KP 102.7;
- Two hot tap connections located at KP 102.7 on the Mainline, connecting the Mainline to the Midline Pressure Regulating Station;
- A hot tap connection at KP180 on the Mainline, connecting the Mainline to the Loop line;
- A system for mitigating pipeline corrosion;
- A telemetry and communications system;
- A remote monitoring and control system for supervision and operation of the pipeline system;
- A compressor station comprising of scraper station, station inlet filtration, three Solar Turbines Mars 90 gas compressor sets, station piping, valving, instrumentation, control systems, station utilities and ancillaries;
- A buried high pressure, steel, natural gas pipeline for the conveyance of natural gas pipeline, (DN660 Moomba Interconnect Pipeline (MIP)), between the isolation valve at the Moomba Compressor Station and proceeding parallel with the QSN pipeline for approximately 374 m to the intersection of the PL 7 easement;
- A tie-in to the Santos-owned Moomba Southern Third Party Gas Treatment Pipeline (MSTPGT) (Petroleum Production Licence 8) located at the TIP 215 flange downstream of the valve VB-00804; and
- A steel pipeline for the conveyance of natural gas being an interconnect pipeline with pipes of a nominal diameter of 200mm from the Moomba Compressor Station discharge header proceeding for approximately 650m to a tie-in point at approximately KP0.825 on the Moomba to Sydney Ethane pipeline (Pipeline Licence 8).

The Pipeline is designed in accordance with the requirements of AS 2885 Pipelines – Gas and Liquid Petroleum. Key engineering and design features of the pipeline are provided in Table 4.

**Table 4 Pipeline Engineering and Design Features**

|                               | QSN Link                                                                                                                                                                                                                                                                                              | QSN Expansion                             | MIP                    |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------|
| <b>Commissioned</b>           | 2009                                                                                                                                                                                                                                                                                                  | 2011                                      | 2014                   |
| <b>Substance Conveyed</b>     | Natural Gas.                                                                                                                                                                                                                                                                                          | Natural Gas.                              | Natural Gas.           |
| <b>Length of Pipeline</b>     | 182.7km<br>(92.6km in SA).                                                                                                                                                                                                                                                                            | 182.7km<br>(92.6km in SA).                | 374m                   |
| <b>Nominal Diameter</b>       | DN400                                                                                                                                                                                                                                                                                                 | DN450                                     | DN660                  |
| <b>Outside Diameter</b>       | 406.4mm                                                                                                                                                                                                                                                                                               | 457mm                                     | 677mm                  |
| <b>Wall Thickness</b>         | 8.1mm (Normal), 9.7mm<br>(Heavy Wall).                                                                                                                                                                                                                                                                | 10.8 mm (Normal).<br>12.7mm (Heavy Wall). | 8.7mm                  |
| <b>Pipe Specification</b>     | API -5L X70                                                                                                                                                                                                                                                                                           | API 5L X70                                | API 5L X70             |
| <b>Pipe coating</b>           | 3LPE                                                                                                                                                                                                                                                                                                  | FBE                                       | 3LPE                   |
| <b>MAOP</b>                   | 15,300kPa                                                                                                                                                                                                                                                                                             | 15,300kPa                                 | 7,240KPa               |
| <b>MOP</b>                    | 14,920 kPa                                                                                                                                                                                                                                                                                            | 14,920 kPa                                | 7,240 kPa              |
| <b>Minimum Depth of Cover</b> | In accordance with AS 2885.1, typically: <ul style="list-style-type: none"> <li>• Cross country sections – 750 mm.</li> <li>• Beneath roads and watercourses – 1200 mm.</li> <li>• Heavy industrial location classifications – 1200 mm.</li> </ul>                                                    |                                           |                        |
| <b>Easement Width</b>         | Approx. 25m                                                                                                                                                                                                                                                                                           | Approx. 25m                               | Approx. 25m            |
| <b>Buried Marker Tape</b>     | Installed at crossings, throughout Heavy Industrial Secondary Land.<br>Classification adjacent to Moomba and Ballera.                                                                                                                                                                                 |                                           |                        |
| <b>Corrosion Protection</b>   | Impressed Current Cathodic Protection<br>Two cathodic protection (CP) units are located in SA;<br>at Moomba and at the MV102 site at KP102.7.                                                                                                                                                         |                                           | Cross-bonded to MWP.   |
| <b>Corrosion Test Points</b>  | CP test points are located approximately every 2 km.<br>The test posts are required to allow for monitoring of<br>the effectiveness of the corrosion protection system.                                                                                                                               |                                           | Refer MWP test points. |
| <b>Pipeline Markers</b>       | Pipeline marker signs are located at intervals along the pipeline easement in<br>accordance with AS 2885, so that a person can clearly see a marker sign in<br>either direction. The marker signs are placed closer at bends, on either side of<br>road and watercourse crossings and at fence lines. |                                           |                        |

### 3.3 Pipeline Operations and Maintenance Activities

A summary of The Pipeline operational activities is provided in Table 5 and discussed below.

A routine operation and maintenance program exists, which includes leak detection surveys, ground and aerial patrols, repair or replacement of faulty pipe or other equipment, pigging and cleaning of the pipeline, corrosion monitoring and remediation and easement and lease area maintenance. Aerial and/or ground inspections will include checking vegetation for discolouration, which can be an indicator of a gas leak, detection of erosion, monitoring of rehabilitation success and detection of weed species.

A light vehicle access track is maintained along the pipeline to allow inspection and maintenance.

More significant maintenance activities, such as dig-ups to address coating defects, are likely to be infrequently required. Dig-ups involve the excavation of material from around the pipeline (typically referred to as a bellhole), to allow sufficient room for Technicians to safely undertake any remedial works that may be required. Topsoil will be stockpiled separately from trench spoil and the site will be restored as soon as practical following completion of maintenance works.

Regular consultation is maintained with landowners whose properties are traversed by the pipeline. The Dial Before You Dig service will be promoted for use by third parties wishing to locate the pipeline prior to undertaking excavations. Operational pipelines generally have very little environmental or landholder impact.

**Table 5 Summary of Pipeline Operational Activities**

| Activity                                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Easement Maintenance</b>                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Weed Control                                                                                                           | Localised spraying of weeds is undertaken along the easement, as required.                                                                                                                                                                                                                                                                                                                                                |
| Line-of-sight clearance                                                                                                | Clearance of the right-of-way to maintain line-of-sight is generally not required as it is an arid region with predominantly low open grassland or shrubland.<br>Trees retained on the easement during construction will not be removed, however it may be necessary to remove trees that regenerate within 2 m of the pipeline as they pose a threat to pipeline integrity.                                              |
| Patrolling/ inspections - easement access                                                                              | These are undertaken by travelling along the right-of-way, on private/public roads or over paddocks and involve access to private property and use of private tracks. Frequency depends on whether particular issue(s) require monitoring; frequency can range from weekly to monthly or longer.                                                                                                                          |
| Aerial inspection of easement                                                                                          | Inspections are undertaken using low-flying aircraft and typically carried out every 1 to 3 months.                                                                                                                                                                                                                                                                                                                       |
| <b>Pipeline Operations</b>                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cathodic Protection Surveys                                                                                            | Surveys involve travelling the right-of-way and stopping to inspect Cathodic Protection points (above-ground post) on foot. Typically conducted twice per year.<br>Survey may also involve repairs - see "Excavations" below.                                                                                                                                                                                             |
| Testing & Inspection of Relief Valves                                                                                  | Controlled venting of minimal quantities of gas to atmosphere is involved. Typically occurs once per year with a duration of approximately 30 seconds.                                                                                                                                                                                                                                                                    |
| Erosion events                                                                                                         | Following major rainfall events creek lines or run-off areas on right-of-way can experience soil erosion. Repairs are effected following the erosion event and include the replacement of similar materials and re-profiling.                                                                                                                                                                                             |
| Emissions                                                                                                              | Methane gas is released to the atmosphere as a result of pipeline and facility maintenance operations (i.e. unit blow downs/ venting, valve opening/testing). Small volumes are released. Occurs for duration of operational life.                                                                                                                                                                                        |
| <b>Pipeline Maintenance</b>                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Pigging                                                                                                                | A pipeline 'pig' is placed in the pipe via a launch bay. The pig travels along inside the pipe before being removed at a pig exit site. Removal of a pig from the pipeline results in minor venting of gas to atmosphere and the collection of some oil sludge and debris. Major pigging programs are typically carried out very infrequently (e.g. every 10 years).                                                      |
| Excavations, including coating refurbishment, installation of anode beds, emergency response exercises and new tie-ins | Once vegetation and topsoil have been cleared and stockpiled, the excavation is performed and spoil stockpiled. The pipeline maintenance is then undertaken (this may include welding, painting, sand blasting). Once complete, the trench is then backfilled, the ground surface is re-contoured and the topsoil and vegetation respread. These activities are expected to be very rare during the life of The Pipeline. |

| Activity                                  | Description                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Replacement of pipeline section           | A section of the pipeline is isolated and a controlled release of gas is undertaken from the affected section. The affected area is then excavated, the old pipeline removed and replaced (includes welding, blasting, coating) and the site reinstated. This is expected to be very infrequent.                                                                                                          |
| Welding                                   | Welding is usually required when pipeline repairs or modifications are made to existing infrastructure. Pipeline welding usually occurs following the excavation of the pipeline.                                                                                                                                                                                                                         |
| Coating                                   | Sleeves or tape are expected to be used to coat welds or repair areas of pipeline or above ground pipeline. Epoxy painting (spray) may be used.                                                                                                                                                                                                                                                           |
| Hydro-Testing                             | Hydro-testing of any replacement pipeline section/s may be required. Water would likely be sourced from potable water sources and waste water will be disposed of appropriately onsite.                                                                                                                                                                                                                   |
| <b>Facility Operation and Maintenance</b> |                                                                                                                                                                                                                                                                                                                                                                                                           |
| Metering and gas delivery stations        | Metering stations consist of a valving, metering and gas analysis and scraper launch station. A gas delivery station consists of a station limit valve, scraper receiver, gas filters, gas heaters and pressure regulation. These operate continuously.                                                                                                                                                   |
| Weed Control                              | Localised spraying of weeds is undertaken in and around compounds, as required.                                                                                                                                                                                                                                                                                                                           |
| Production of Hazardous Waste             | Waste hydrocarbons are generated from maintenance/ pigging operations (ex pipeline/product).<br>Liquids and heavy metals (e.g. mercury) are not expected in the product, but if present they would be trapped in coalescing filters.<br>Contaminated filters are generated from maintenance change-overs.<br>Contaminated waste and oils will be removed from site for disposal by a licensed contractor. |
| Waste disposal                            | General waste generated during operations is collected on site and removed to licensed facilities for disposal.                                                                                                                                                                                                                                                                                           |
| Station blow downs                        | Uncontrolled venting which is a result of equipment failure e.g. regulator failure. Duration would depend on type and duration of failure.                                                                                                                                                                                                                                                                |
| Upgrades                                  | Upgrades to facilities for continual process improvement. Upgrades exclude major plant upgrades, e.g. new compressor units, or new pipelines. Scope of works remain within the current disturbance footprint.                                                                                                                                                                                             |

### 3.4 Decommissioning

Decommissioning of a pipeline or subsection may occur for a number of reasons, for example, exhaustion of supply, safety reasons, commercial due to reduced market demand, or change to facility operations. Decommissioning as defined in the Australian Pipeline and Gas Association (APGA) Code of Environmental Practice – Onshore Pipelines (2022) includes;

- Suspension: pipelines are not depressurised but are physically isolated from the pipeline system. The pipelines are maintained as per an operating pipeline, including relevant standards, the monitoring of the pressure, maintenance to the Cathodic Protection system and maintenance as determined in the Pipeline Management Plan;
- Abandonment in place: pipelines or a section of pipeline are physically disconnected from the pipe system, purged and cleaned with water or inert material and sealed (capped) at the ends. The pipelines are not pressurised and are not maintained, and cathodic protection systems disconnected, with pipelines left to corrode and biodegrade in situ. All above ground structures are removed, including marker signs, and the easement rehabilitated. Maintenance of the easement is discontinued after an agreed monitoring period and the easement is relinquished. Depending on state requirements, the pipeline may be required to be filled with concrete slurry to prevent subsidence when the pipeline corrodes;
- Removal: pipelines are entirely removed from the pipeline easement, (typically only applicable to above ground pipelines due to potential environmental disturbance with underground pipelines). The pipeline is depressurised and purged with inert material such as nitrogen. All above ground and below ground structures are removed and the pipeline easement is relinquished.

In the event that the pipeline is decommissioned, The Pipeline will be decommissioned in accordance with the regulatory requirements and accepted environmental best practices of the day inclusive of extensive risk assessment and management. Legislative and licence conditions will apply, and work will be undertaken based on the standards of the day and/or as directed by the relevant Minister. Currently decommissioning procedures require the removal of all above ground infrastructure and the restoration of associated disturbed areas.

At the time of decommissioning, a decision will be made regarding the opportunities for future use of The Pipeline. If no longer required, The Pipeline will be purged of gas and below ground facilities allowed to gradually degrade in-situ. However, if it is considered that The Pipeline may offer some future benefits, it will be filled with an inert material and the cathodic protection system maintained to prevent corrosion. All above ground facilities will be removed in any event.

Site remediation will be undertaken according to a site specific rehabilitation/remediation management plan which may be required as part of a decommissioning plan. This plan will be submitted to the appropriate Regulatory body for review and acceptance within one year of complete cessation of operational activities at the site.

## 4 Description of the Environment

### 4.1 Climate

The region has an arid climate, with low average rainfall and high evaporation. Seasons are generally characterised by hot dry summers and mild dry winters. Rainfall in the area is highly erratic, with the annual average being about 150 to 200 mm. There is no distinct seasonal rainfall pattern and rainfall is often associated with thunderstorm activity and as a consequence can be intense. For example, a rainfall event of 13 mm per hour for one hour can be expected to occur every year (SEA, 1989).

Evaporation is extremely high, with average annual evaporation ranging from 3,000 to 3,800 mm (Queensland Government 1974, Laut et al. 1977).

Temperatures vary from cool in winter to hot in summer, with diurnal variations also being high. In summer, the average maximum and minimum temperatures are approximately 39°C and 25°C respectively, and in winter 20°C and 6.0°C. The maximum recorded temperature is 49.6°C and the minimum -0.5°C (BOM 2025).

The most common wind direction throughout the year is from the south-east, with the wind direction becoming more easterly in the north of the project area. Light winds (<20 km/h) are most common from May to August, while the greatest frequencies of strong winds (>40 km/h) occur from September to January.

A summary of climate records for Moomba Airport (1995-2025) (Station 017123; BOM 2025) is provided in Table 6.

**Table 6 Climate Record summaries for Moomba Airport (1995- 2025) (Station 017123; BOM 2025)**

| Measurement          | J    | F    | M    | A    | M    | J    | J    | A    | S    | O    | N    | D    | Annual |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Mean Daily Max (°C)  | 39.0 | 37.1 | 34.2 | 29.2 | 23.7 | 19.9 | 19.8 | 22.7 | 27.2 | 30.9 | 34.3 | 37.0 | 29.6   |
| Mean Daily Min (°C)  | 24.9 | 23.6 | 20.7 | 15.7 | 10.6 | 7.3  | 6.4  | 8.1  | 12.1 | 15.9 | 19.6 | 22.6 | 15.6   |
| Mean Rainfall (mm)   | 19.2 | 26.2 | 25.7 | 8.6  | 10.3 | 10.6 | 11.6 | 5.1  | 14.2 | 9.9  | 18.8 | 15.9 | 175.4  |
| Median Rainfall (mm) | 3.6  | 4.0  | 3.0  | 1.0  | 3.2  | 6.0  | 0.8  | 1.0  | 1.3  | 3.8  | 7.5  | 7.0  | -      |

### 4.2 Physical Environment

#### 4.2.1 Geology and Landforms

The Pipeline overlies sediments which are over four kilometres thick and have been deposited over a period of more than 500 million years. These include the deeper sediments that contain the oil and gas reservoirs of the Cooper Basin and the shallower and widespread sediments of the Eromanga Basin, which form the Great Artesian Basin aquifers that support pastoral activity throughout much of the broader region. The Eromanga Basin sediments are overlain by the Lake Eyre Basin, a succession of Tertiary and Quaternary age sediments that occur extensively throughout central Australia.

Deposition in the Lake Eyre Basin began about 50 million years ago with extensive sand deposits of the Eyre Formation laid down by river systems in a warm and wet monsoonal climate. The silcretes in the Eyre Formation form hard, massive layers which result in the production of tablelands with hard caps. The gibbers that are a common feature of the soil surface in the region are predominantly the pebbles of silica cemented capping that has been left behind as subsequent erosion has slowly worn back these tablelands (Marree SCB, 2004).

The climate became drier about 25 million years ago, and the landscape was dominated by extensive and shallow brackish lakes surrounded by open forest and woodland, which led to the deposition of magnesium-rich limestones, dolomites and siltstones of units such as the Etadunna Formation (Marree SCB, 2004; Krieg *et al.*, 1990). Much of the current landscape was shaped by geological events over the last million years when a drier climate led to the formation of the present day salt lakes and dune fields. It was during this drier interval that red brown fluvial sands, yellow and red dune sands and saline lake sediments were deposited (Krieg *et al.*, 1990). Dry windy periods about 200,000 years ago commenced the creation of the current dunefields (Marree SCB, 2004).

The resulting landforms traversed by The Pipeline route include undulating gibber plain, dunefield, floodplain, river channel and sandplain. Dissected residual tableland, consisting of mesas, buttes and plateaux, occurs in adjoining areas but is not traversed by the pipeline route.

### Gibber Plains

The pipeline route traverses areas of undulating gibber plain south-east of Innamincka in South Australia. The silcrete stones that pave the surface of the gibber plains are usually embedded in a thin loamy surface layer, which overlies red to brown clayey subsoils. These clayey subsoils are moderately to strongly saline, easily dispersed and very susceptible to water erosion. The surface layer and subsoils are together known as red-duplex soils.

In their undisturbed state, gibber soils are highly resistant to erosion, as the gibber stones and loamy surface layer protect the unstable sub-soils from rainfall and runoff. When the protective crust and gibbers are removed severe erosion can occur, even on relatively gentle slopes (e.g. 2 to 3 degrees).

### Dunefields and Sandplains

The pipeline route traverses the northern edge of the vast dunefields of the Strzelecki Desert. These dunefields consist of generally parallel (but sometimes reticulate) dunes of red to yellow sand, 5 to 10 metres high. Interdune corridors often contain claypans or massive (non-cracking) red sandy clay loams.

The Pipeline traverses dunefields to the west (from KP 116 to Moomba). The dunes in this area are sparse, parallel and sparsely vegetated. Interdune corridors are wide and characterised by sandy clay loams or pale sandy clays (e.g. in the vicinity of Strzelecki Creek), and for much of this section, individual dunes are separated by broad areas of Cooper Creek floodplain.

### River Channels and Floodplains

The Pipeline route traverses the Strzelecki Creek approximately 10 km south-west of Innamincka. A number of smaller watercourses with narrower channels of sandy or clayey soils are also crossed.

The landforms present along the pipeline route and the approximate length of the pipeline within each landform are shown in Table 7.

**Table 7 Landforms along the Pipeline Route**

| KP                                   | Description                       | Gibber | Dunes | Sandplain | Channel | Floodplain |
|--------------------------------------|-----------------------------------|--------|-------|-----------|---------|------------|
| 0-5                                  | Gibber west of Ballera.           | ✓      |       |           | ✓       |            |
| 5-25                                 | Sandplain.                        |        |       | ✓         | ✓       |            |
| 25-52                                | Jumbled dune                      |        | ✓     |           | ✓       |            |
| 52-66                                | Floodplain.                       |        |       |           | ✓       | ✓          |
| 66-86                                | Gibber; includes Cooper crossing. | ✓      |       |           | ✓       |            |
| 86-90 (SA/QLD boarder)               | Floodplain.                       |        | ✓     |           | ✓       | ✓          |
| Approximate total length in SA (km). |                                   | 15     | 10    | 25        | 0.5     | 41         |

## 4.2.2 Soils

The characteristics of the soils traversed by the pipeline route are summarised in Table 8.

**Table 8 Dominant soil types occurring along The Pipeline**

|                          | Dunes                    | Sandplain           | Floodplain/dune swale              | Gibber               |
|--------------------------|--------------------------|---------------------|------------------------------------|----------------------|
| <b>Description</b>       | Whitish siliceous sands. | Red massive earths. | Grey self mulching cracking clays. | Crusty duplex soils. |
| <b>Symbol</b>            | Uc1.21                   | Gn2.12              | Ug5.24                             | Dr1.32               |
| <b>Surface Roughness</b> | None.                    | None.               | None.                              | Stones.              |
| <b>Depth</b>             | Deep.                    | Deep.               | Deep.                              | Moderately deep.     |
| <b>Drainage</b>          | Well drained.            | Well drained.       | Poorly drained.                    | Well drained.        |

## 4.2.3 Hydrology

### Surface Water

The Cooper Creek is the dominant surface water feature in the region. The main channel of the Cooper Creek is generally well defined and connects a series of ephemeral swamps and permanent and semi-permanent waterholes. During floods, the main channels overflow and floodwaters spill into the vast floodplain via numerous distributary channels.

During low flows, most water flows through the North West Branch of the Cooper (which is approximately 85 km downstream of the pipeline crossing of the creek) into the Coongie Lakes and Lake Goyder. If flows are large enough to fill these lakes, additional water flows down the main branch of the Cooper towards Lake Hope and, if flows are sufficient, eventually to Lake Eyre. The water in the Cooper Creek is of sufficient quality to support a diverse aquatic ecosystem.

Flow in the Creek is extremely variable. Flow occurs in one or more discrete pulses each year and several months may pass without flow (Puckridge et al. 1999). It has been estimated that there is a 98% chance that flow rates will exceed 1 m<sup>3</sup>/s at Innamincka each year (Kotwicki, 1986). There are, on average, three months per year where no flow occurs at Nappa Merrie.

Mean monthly flow volumes at Nappa Merrie for the period from 1949 to 2025 are shown in Table 9.

**Table 9 Monthly Flows of Cooper Creek at Nappa Merrie (Gauge# 003103A) ('000 of ML) (DLGWV, 2025)**

|             | Jan   | Feb    | Mar    | Apr    | May    | June   | July  | Aug   | Sept  | Oct  | Nov   | Dec   |
|-------------|-------|--------|--------|--------|--------|--------|-------|-------|-------|------|-------|-------|
| <b>Mean</b> | 48.02 | 284.79 | 399.18 | 236.56 | 109.11 | 106.15 | 36.60 | 17.64 | 13.27 | 9.39 | 12.46 | 13.46 |

During periods of high flow, floodwaters overtop the banks of the Cooper and flow south down the Strzelecki and Ooranie Creeks in South Australia. The Ooranie and Strzelecki Creeks flow when the level at Nappa Merrie reaches 4.6 m and 6.2 m respectively (SEA 1992). The average frequency of these events has been estimated as 1 in 2 to 5 years and 1 in 10 years, respectively (SEA 1992, Puckridge et al. 1999). Flow in Ooranie Creek terminates in various ephemeral lakes to the south east of Moomba. Strzelecki floodwaters however, flow much further south, terminating in Lakes Blanche, Callabonna, Frome and Gregory.

Local rainfall and run-off can result in flow in ephemeral watercourses in the region. Most of these watercourses drain into either the Cooper or Strzelecki Creeks. There is no flow data available for these watercourses, but it has been estimated that a rainfall of 15 mm over one hour would be required to cause flow, which is expected to occur once per year, based on Intensity-Frequency- Duration curves for rainfall at Innamincka (SEA 1992). Creeks typically flow for six to twelve hours after rainfall has ceased, before contracting to a series of waterholes.

Significant local rainfall events can also result in shallow inundation of floodplains, inter-dune claypans and other areas of poorly drained impermeable soil, which can persist for days to weeks or longer.

The QSN Link Pipeline crosses the Cooper Creek in Queensland, approximately 20 km upstream from the border with South Australia. The QSN Link Pipeline also crosses approximately 30 drainage lines and ephemeral watercourses marked on 1:250,000 topographic mapping, including Colicke Creek, Ballera Creek, Chalky Creek, Katawulka Creek, Parenjelly Creek, Barmaroo Creek, Oondacurrurrah Creek and Sandy Creek in Queensland and Strzelecki Creek in South Australia.

## **Groundwater**

Groundwater of suitable quality for use by stock is obtainable throughout the region from a number of formations, some of which are part of the Great Artesian Basin. The principal deep formations (e.g. the Hutton sandstone) are generally too deep for use and the most commonly used intermediate depth formations are the Wallumbilla and Winton formations (SEA 1992). Shallow (60m) sub-artesian supplies are obtained from the Tertiary and Quaternary sediments throughout the area. No natural artesian springs are known to occur in the region traversed by The Pipeline.

The alluvium along some of the major streams is a frequent source of sub-artesian water (Division of Land Utilisation, 1974). In particular, sandy sequences underlying the Cooper Creek provide a shallow aquifer, which provides baseflow to semi-permanent waterholes during extended dry periods. Water quality is good, although availability is inconsistent and reliant on infrequent flood recharge events.

## **4.3 Biological Environment**

### **4.3.1 Flora**

The QSN Link Pipeline (SA and QLD) alignment transects ten vegetation communities. Please refer to Table **10** for vegetation community description. These consist of:

- Two riparian woodland communities;
- Two Eucalypt woodland communities;
- Two shrubland communities;
- Four grassland / herbland communities.

None of the vegetation communities identified are listed as Critically Endangered, Endangered, Vulnerable or Of Concern under the Commonwealth *Environment Protection and Biodiversity and Conservation Act 1999* (EPBC Act).

**Table 10 Vegetation Communities Identified on the Pipeline Route**

| Vegetation Community                                                                                                                                           | Estimated area on 30m ROW (ha) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Low riparian Coolibah ( <i>Eucalyptus coolabah</i> ) woodland.                                                                                                 | 0.3                            |
| Very low open Coolibah woodland on floodplain.                                                                                                                 | 86.8                           |
| Low Coolibah woodland over Queensland Bluebush ( <i>Chenopodium auricomum</i> ) and Lignum ( <i>Muehlenbeckia florulenta</i> ) open shrubs on floodplain lake. | 0.9                            |
| Chenopod ( <i>Atriplex</i> and <i>Chenopodium</i> spp) and Lignum open shrubland on floodplain.                                                                | 31.1                           |
| Grass/herbland on floodplain.                                                                                                                                  | 53.5                           |
| Very low open <i>Acacia</i> woodland on drainage line through stony (gibber) plain.                                                                            | 0.3                            |
| Low open Mitchell Grass ( <i>Astrebla pectinata</i> ) tussock grass/herbland on stony (gibber) plain.                                                          | 51.0                           |
| Very open <i>Acacia</i> and <i>Senna</i> spp. shrubland over open grasses and herbs on low sand dunes and swales.                                              | 21.0                           |
| Sandhill Cane Grass ( <i>Zygochloa paradoxa</i> ) ± Spinifex ( <i>Triodia basedowii</i> ) open grassland on sand dunes.                                        | 11.1                           |
| Grass/herbland on low sand dunes.                                                                                                                              | 18.5                           |

Riparian Coolibah woodland occurs in the riparian zone of the Strzelecki Creek crossing. The tree line is discontinuous, with an open canopy and few shrubs. Very low open *Acacia* riparian woodland occurs in very narrow strips at the crossing of the Strzelecki Creek tributary that runs through stony gibber plains. This vegetation is very sparse and discontinuous with sections devoid of shrubs. These habitats represent significant value in linear vegetated wildlife corridors (although continuity is variable), protection of stream water quality, bank stability and provision of hollow-bearing “habitat” trees.

Very low open Coolibah woodland on floodplains is one of the major components of the pipeline route, with ten occurrences along the route. The Coolibah trees are less than 5 m in height and canopy coverage is 10 % or less. Shrub cover is sparse to non-existent as is the groundcover of herbs, grasses and low chenopods. This vegetation community provides shelter and shade for fauna.

A 300 m section of the alignment passes through a Coolibah woodland over Queensland Bluebush and Lignum open shrubs which surround a large floodplain lake at KP 153. This lake represents an important wetland for the area, providing habitat for an array of water birds and a watering point for cattle and other fauna. Extensive use of this watering point by cattle is evident with a high degree of grazing and trampling of the vegetation.

Chenopod and Lignum open shrubland occurs on floodplains at five locations, mostly as part of a mosaic with Coolibah woodland and Grass/herbland on floodplain and low sand dunes. The shrub coverage ranges from 10-35% and the groundcover is composed of low chenopod shrubs (*Sclerolaena* spp.) and a variety of grasses and herbs and would provide significant shelter and habitat for fauna.

The low sand dune and swales occurring along the alignment support very open *Acacia* and *Senna* shrubland over open grasses and herbs, while Sandhill Cane Grass and Spinifex open grassland are common to the taller dune systems. Whitewood (*Atalaya hemiglauca*) is sometimes present as a taller emergent shrub. These communities assist in the stabilisation of dune systems and provide fauna habitat.

Low open Mitchell Grass tussock grassland and herbland on stony (Gibber) plain occurs in numerous places along the proposed alignment. The conditions at the time of the field survey were dry and, as a result, many of the grasses had died back and the hardier low chenopod shrubs were dominating. It appeared that Button Grass (*Dactyloctenium radulans*) had been quite prominent prior to the grass dieback, which is regarded as an indication of disturbance, most likely from cattle grazing. However, it is likely that the composition of these habitats would alter significantly after periods of good rain. This vegetation community is very expansive and the distributions of the species present are scattered and widespread.

The grassland / herbland growing on floodplains occurs frequently along the proposed alignment and consists of low chenopod shrubs (*Atriplex* spp.), and a diverse array of herbs, such as Sago weed (*Plantago cunninghamii*) and Bogan Flea (*Calotis hispidula*). The grassland / herbland community growing on sand dunes is composed of low chenopod shrubs (*Salsola kali*), grasses (*Aristida* spp. and *Enneapogon* spp.), and herbs such as Wild Stock (*Blennodia pterosperma*), Poached-egg Daisy (*Polycalymma stuartii*) and Fleshy Groundsel (*Othonna gregorii*). The species composition of these communities is seasonally variable.

The conditions at the time of the field survey were dry and many of the ephemeral lakes and watercourses were without water. As a result, few aquatic plants were observed along the proposed alignment. Aquatic plants were recorded at Strzelecki Creek tributary, Strzelecki Creek, a floodplain lake and numerous drainage lines and depressions on floodplains. The plants recorded included *Cyperus* spp. and Nardoo (*Marsilea drummondii*).

### Significant Flora

A review of the Biological Database of South Australia (BDBSA) (for the SA section of the pipeline) was undertaken in February 2025 that identified 10 threatened plant species (i.e. species classified as Threatened, Vulnerable or Endangered), which have records within 10 km of the area. These species may have suitable habitat on the pipeline route, however no recent records are located within the Pipeline Right-of-Way (ROW) and no rare or threatened plant species were observed during the previous field survey carried out. Whilst the occurrence of such flora species cannot be completely ruled out, it is considered that if any are present, they would be in very low numbers.

### Weeds

The BDBSA search (2025) identified several records of weed species occurring within the surrounding area of the pipeline. There are several records of buffel grass (*Cenchrus ciliaris*) around the Moomba and Innaminka areas, and along the Strzelecki track. Buffel grass is a declared weed under the *Landscape South Australia Act 2019* (SA), and is a significant threat to biodiversity across the entire Australian arid zone.

No declared or non-declared environmental weed species were observed during the previous field survey carried out in South Australia.

## 4.3.2 Fauna

The initial desktop fauna assessment of The QSN Pipeline (SA and QLD) identified 256 fauna species that may potentially utilise habitat within the wider area. These comprised eight amphibians, 58 reptiles, 168 birds and 22 mammals. 21 of these species are listed as rare or threatened, all of which could potentially utilise habitats within The QSN Link (SA and QLD) corridor. These species are listed in

Table 11.

A review of the BDBSA database (for the SA section of the pipeline) was undertaken in February 2025 that identified additional fauna species that have records within 10 km of the area within the previous five years and

**Table 11** has been updated to reflect this. Of the 26 species, six are listed under the EPBC Act and all 26 are listed under the *National Parks and Wildlife Act 1972* (NPW Act).

**Table 11 Rare or Threatened Fauna Identified from Database Searches**

| Common Name               | Species Name                              | Conservation Status*           | Known Records** |
|---------------------------|-------------------------------------------|--------------------------------|-----------------|
| <b>Birds</b>              |                                           |                                |                 |
| Australian Painted Snipe  | <i>Rostratula australis.</i>              | E <sup>1</sup> /E <sup>2</sup> | 1               |
| Grey Grasswren (Bulloo)   | <i>Amytornis barbatus barbatus.</i>       | E <sup>1</sup> /R <sup>2</sup> | 1               |
| Australian Bustard        | <i>Ardeotis australis.</i>                | V <sup>2</sup>                 | 2               |
| Bush Stone-curlew         | <i>Burhinus grallarius.</i>               | R <sup>2</sup>                 | 2               |
| Brown Quail               | <i>Coturnix ypsilophora.</i>              | V <sup>2</sup>                 | 2               |
| Brolga                    | <i>Grus rubicunda.</i>                    | V <sup>2</sup>                 | 2               |
| Flock Bronzewing          | <i>Phaps histrionica.</i>                 | R <sup>2</sup>                 | 2, 3            |
| Freckled Duck             | <i>Stictonetta naevosa.</i>               | V <sup>2</sup>                 | 2               |
| Australasian Shoveler     | <i>Anas rhynchotis.</i>                   | R <sup>2</sup>                 | 2               |
| Red-winged Parrot         | <i>Aprosmictus erythropterus.</i>         | R <sup>2</sup>                 | 2               |
| Intermediate Egret        | <i>Ardea intermedia.</i>                  | R <sup>2</sup>                 | 2               |
| Musk Duck                 | <i>Biziura lobata.</i>                    | R <sup>2</sup>                 | 2               |
| Red-tailed Black-Cockatoo | <i>Calyptrorhynchus banksia.</i>          | E <sup>2</sup>                 | 2               |
| White-browed Treecreeper  | <i>Climacteris affinis.</i>               | R <sup>2</sup>                 | 2               |
| Grey Falcon               | <i>Falco hypoleucos.</i>                  | V <sup>1</sup> /R <sup>2</sup> | 2, 3            |
| Black-breasted Buzzard    | <i>Hamirostra melanosternon.</i>          | R <sup>2</sup>                 | 2, 3            |
| Barking Owl               | <i>Ninox connivens.</i>                   | R <sup>2</sup>                 | 2               |
| Blue-billed Duck          | <i>Oxyura australis.</i>                  | R <sup>2</sup>                 | 2, 3            |
| Glossy Ibis               | <i>Plegadis falcinellus.</i>              | R <sup>2</sup>                 | 2               |
| Great Crested Grebe       | <i>Podiceps cristatus.</i>                | R <sup>2</sup>                 | 2               |
| Southern Whiteface        | <i>Aphelocephala leucopsis leucopsis.</i> | V <sup>1</sup> /R <sup>2</sup> | 1               |
| Blue-winged Parrot        | <i>Neophema chrysostoma.</i>              | V <sup>1</sup> /N <sup>2</sup> | 4               |
| <b>Mammals</b>            |                                           |                                |                 |
| Dusky Hopping Mouse       | <i>Notomys fuscus.</i>                    | V <sup>1</sup> /N <sup>2</sup> | 45              |
| <b>Reptiles</b>           |                                           |                                |                 |
| Woma                      | <i>Aspidites ramsayi.</i>                 | R <sup>2</sup>                 | 21              |
| Blacksoil Skink           | <i>Austroablepharus kinghorni.</i>        | R <sup>2</sup>                 | 2               |
| Macquarie River Turtle    | <i>Emydura macquarii.</i>                 | V <sup>2</sup>                 | 7               |

\* Status: <sup>1</sup> Commonwealth (EPBC) listed – EN = Endangered, V = Vulnerable

<sup>2</sup> State (NPW Act) listed – EN = Endangered, V = Vulnerable, R = Rare

\*\* Records: 1 = EPBC Protected Matters Search, 2 = Biological Database of SA, 3 = HLA ENSR field survey.

During the previous field assessment carried out, 59 fauna species were recorded (one reptile, 45 birds and 13 mammals). Four rare or threatened species were observed: Black-breasted Buzzard (*Hamirostra melanosternon*); Grey Falcon (*Falco hypoleucos*), Flock Bronzewing (*Phaps histrionica*) and Blue-billed Duck (*Oxyura australis*).

An additional 63 bird species listed under the EPBC Act as Migratory and/or Marine protected species were identified as previously recorded from the study area. These include species listed under the Japan/Australia Migratory Bird Agreement (JAMBA), China/Australia Migratory Bird Agreement (CAMBA) and the Bonn Convention on the Conservation of Migratory Species. Whilst these are not listed as rare or threatened fauna, they are protected under the EPBC Act. Twenty of the 63 species identified from the desktop assessment were recorded during the field assessment.

### Introduced Fauna

Nine introduced species have been recorded within the wider area (1 bird and 8 mammals). Six of these species were recorded during the previous field assessment: Rabbit (*Oryctolagus cuniculus*), House Mouse (*Mus musculus*), Camel (*Camelius dromedarius*), Red Fox (*Vulpes vulpes*), Horse (*Equus caballus*) and Wild Dog/Dingo (*Canis lupus familiaris*/C. lupus dingo).

### Fauna Habitat

The SA section of the QSN Link Pipeline falls within the Channel Country (CHC) bioregion (EA 2000). This bioregion is dominated by low hills with forbfields and Mitchell Grass downs and intervening braided river systems of Coolibah woodlands and lignum / saltbush shrublands and it includes small areas of sand plains. The Channel Country is characterised by extensive river systems that have flood events on an irregular basis. These floods cover large areas and provide extensive habitats for bird and mammal reproductive cycles, resulting in "boom" and "bust" sequences (NLWRA 2002).

Seven broad fauna habitat types were identified on the pipeline route, based on the stratification of vegetation communities into habitats and on field habitat assessments. These habitats are listed in Table 12.

**Table 12 Fauna Habitats Present Within the Proposed Corridor**

| Fauna Habitat                            | Description                                                                                                                                                                                                                                              |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gibber Plain                             | Treeless plains with a dense surface stone pavement dominated by Barley Mitchell Grass, with range of short grasses and forbs.                                                                                                                           |
| Riparian Woodland                        | Creeks and rivers, from small ephemeral or seasonal drainage lines, through to larger creeks including waterholes. Open woodland on drainage lines, dominated by Coolibah.                                                                               |
| Floodplain Coolibah Open Woodland        | Coolibah open woodland on alluvial floodplains and braided channels. Trees are generally lower and sparser than in Riparian Woodland.                                                                                                                    |
| Floodplain Saltbush and Lignum Shrubland | Chenopod and Lignum open shrubland on floodplains.                                                                                                                                                                                                       |
| Floodplain Grassland/Herbland            | Sparse to open grassland and/or herbland on cracking clay soils of alluvial floodplains and braided channels.                                                                                                                                            |
| Dunefield                                | Low sand dunes and interdune swales. Orange dunes with Sandhill Canegrass and/or Spinifex hummock grasslands; pale dunes dominated by seasonally variable grasses and herbs.<br>Occasional claypans between dunes with sparse grassland and/or herbland. |
| Watercourses and waterholes              | Creeks and rivers, from small ephemeral or seasonal drainage lines, through to larger creeks, including waterholes.                                                                                                                                      |

Two key habitats were identified: Riparian Woodland / Floodplain Coolibah Open Woodland, and the Strzelecki Creek Floodplain. The proposed alignment transects approximately 0.1 km of Riparian Woodlands and 33.5 km of Floodplain Coolibah Open Woodland. Riparian Woodland is considered to be a key habitat due to its significance in forming wildlife corridors and refugia, the high levels of moisture and nutrients, and the relatively complex vegetation structure compared to surrounding areas.

The Strzelecki Creek Floodplain can support abundant fish, frogs and waterbirds during its very infrequent periods of inundation, when large flow pulses in the Cooper Creek or from heavy local runoff result in an explosion of biological productivity.

### **Significant Wetlands**

The alignment traverses one wetland listed on the Directory of Important Wetlands in Australia (Strzelecki Creek Wetland System, SA003) and passes close to the southern boundary of a Ramsar site (Coongie Lakes, SA001). The alignment is generally 5-10 km from the boundary of the Coongie Lakes wetland area, but approaches to approximately 1 km where the route crosses Strzelecki Creek downstream from the wetland area's boundary. The Coongie Lakes Ramsar wetland will not be impacted during operations and it is unlikely there will be any impact on the Strzelecki Creek wetland system value (when inundated) as waterbird habitat.

## **4.4 Social Environment**

### **4.4.1 Aboriginal Heritage**

An aboriginal heritage survey and work area clearance of the SA portion of the QSN Link corridor was undertaken in August 2007 by an archaeologist and representatives from the Yandruwandha/ Yawarrawarrka Native Title Claimant Group. The entire corridor was examined and given clearance for the proposed developments by those stakeholders present, with the exception of 70 areas that were recommended to be excluded from impact by the pipeline. Exclusion areas located within the proposed pipeline corridor were mapped and the pipeline alignment was modified to avoid these areas as far as possible.

The archaeological material found during the clearance consisted predominantly of flaked/ground stone artefacts and occasional charcoal staining from cooking hearths in eroded scald areas in the dunefields of the Strzelecki Desert; with silcrete quarry sites occurring on the gibber slopes and uplands and associated scatters of stone artefacts (Australian Heritage Services 2007).

A search of the central archive including the Register of Aboriginal Sites and Objects, maintained by the Aboriginal Affairs and Reconciliation Division of the SA Department of the Premier and Cabinet, was requested in September 2018, March 2020, and February 2025. One registered site was identified within 100m of the pipeline in the locality of Moomba.

Spatial data is available via the APA GIS System. Some areas do remain close to and directly adjacent to the pipeline and work should be assessed on a case by case basis. The Environment and Heritage Team should be contacted in the event that work is planned to be completed on the pipeline.

### **4.4.2 Historic Heritage**

Historic heritage in the region dates back to early exploration of the region in the mid to late 1800's and the expansion of pastoralism. Many of the historical sites in the region are associated with the failed Burke and Wills expedition of 1860-61 (including the Dig Tree and grave sites) and the subsequent settlement of inland SA and Queensland and the establishment of transport routes and pastoralism in the region.

Natural historical sites in the region (including the Innamincka, Cooper Creek and Nappa Merrie areas) contain a diverse range of arid land systems including floodplains, wetlands, lakes, dunefields and plateau country.

A search of the National Heritage List and the State Heritage Places Database has indicated that there are a number of listed sites present in the region. A summary of listed heritage sites (including natural and historic sites) located within or adjacent to the pipeline corridor and their location is provided in Table 13. Places listed within the Register of the National Estate (a non-statutory archive) are also included.

**Table 13 Historic Heritage Sites within the Vicinity of the Pipeline Corridor**

| Register Source                    | Site Type | Name                                                                                                                                                   | Place ID                 | Location                                                                                                                                      |
|------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Australian National Heritage List. | Historic. | The Burke, Wills, King and Yandruwandha National Heritage Place.                                                                                       | Place ID: 106061         | North of the pipeline route. Birdsville Tk, Innamincka, SA, Australia.                                                                        |
| SA Heritage Places Database.       | Natural.  | Innamincka/Cooper Creek State Heritage Area.                                                                                                           | State Heritage ID: 12836 | 1.5 km north of the pipeline. Located within Innamincka Regional Reserve.                                                                     |
| SA Heritage Places Database.       | Historic. | Australian Inland Mission Nursing Home (former) / Regional Reserve Headquarters.                                                                       | State Heritage ID: 12759 | Innamincka.                                                                                                                                   |
| SA Heritage Places Database.       | Historic. | (Grays) Tree, possibly marking the burial site of Charles Gray, member of Burke & Wills' 1861 expedition', Lake Massacre, Innamincka Regional Reserve. | State Heritage ID: 12754 | Off Strzelecki Track<br>INNAMINCKA VIA LEIGH CREEK<br>About 77km north-west of Innamincka at Lake Massacre off Gidgeala - Kudriemitchie Road. |
| RNE (non statutory archive).       | Natural.  | Cooper Creek Floodplain.                                                                                                                               | RNE Place ID: 16750      | Runs in parallel to the north of the pipeline route.                                                                                          |
| RNE (non statutory archive).       | Natural.  | Coongie Lake and Adjacent Area.                                                                                                                        | RNE Place ID: 5926       | 65km north-west of Innamincka off the Strzelecki Track.                                                                                       |
| RNE (non statutory archive).       | Historic. | Burke's Memorial.                                                                                                                                      | RNE Place ID: 5933       | North of the pipeline route.                                                                                                                  |
| RNE (non statutory archive).       | Historic. | Burke and Wills National Heritage Place.                                                                                                               | RNE Place ID: 105139     | North of the pipeline route.                                                                                                                  |
| RNE (non statutory archive).       | Historic. | Strzelecki Creek National Heritage Place.                                                                                                              | RNE Place ID: 105141     | Intercepted by the pipeline route at KP 116.4 to KP121.                                                                                       |

### 4.4.3 Visual Amenity

Buried pipelines, by their very nature, have a low level of impact on visual amenity. Generally, this is restricted to short term disturbances associated with construction earthworks and localised impacts associated with the presence of above ground facilities. There are unlikely to be any significant long-term impacts to the visual amenity of the project area.

The majority of the pipeline corridor is considered to have low visual sensitivity as it is removed from general viewing and there are few elevated vantage points where the pipeline would be visible. The pipeline is only likely to be visible at road crossings.

### 4.4.4 Socio-economic

The pipeline route is located in the unincorporated (i.e. out of councils) area of SA. Jurisdiction for the area falls under the responsibility of the Outback Areas Community Development Trust, which provides limited local government-type support.

The major regional industries are pastoralism, oil and gas production and tourism.

The only township in the region of the pipeline is Innamincka, which has a resident population of approximately 18 (Marree SCB, 2004). Innamincka is located 70 km north-east of Moomba and 7 km north of the pipeline route. Moomba, Ballera and the satellite production facilities have accommodation and recreation facilities that house the petroleum industry workforce, which operates on a 'fly-in, fly-out' basis.

During operations there is no significant adverse social impacts.

### 4.4.5 Land Use

The current land uses in the project area include pastoralism, oil and gas production and processing, conservation and tourism.

#### Pastoralism

Pastoralism, mainly in the form of cattle grazing, began in the region in the late 1800s and has continued despite dramatic seasonal and economic fluctuations. The floodplains surrounding the Cooper Creek (the channel country) in particular provide pasture and reliable water supplies in the form of permanent waterholes. The adjoining gibber plains and dunefields are also utilised for pasture but this use is dependent on the use of bores to supply water and these areas can generally only support stock on an opportunistic basis after rain. Stocking rates in the region are relatively low.

Pastoral operations in the region are certified under Quality Assurance systems such as the Livestock Production Assurance Program or Cattlecare, which places emphasis on minimising the risk of chemical contamination, bruising and hide damage and ensuring effective herd management and improvement. Several properties in the region are certified for organic beef production but at this stage the properties on the pipeline route do not have organic certification.

Pastoral lease intercepted by the pipeline is the Gidgealpa in South Australia. Crown lease intercepted by the pipeline is the Innamincka in South Australia.

Land owners on the South Australian section of the pipeline are listed in **Table 14**.

**Table 14 Land Owners on the South Australian Section of the QSN Pipeline**

| Name                       | Registered Proprietor/ Lessee                      | Tenure    |
|----------------------------|----------------------------------------------------|-----------|
| Gidgealpa                  | DOCE Pty Ltd                                       | Leasehold |
| Innaminka Regional Reserve | Landowner – Crown S Kidman & Co Ltd (Crown Lessee) | Leasehold |
| Moomba                     | Executor Trustee Australia Ltd                     | Freehold  |

### Oil and Gas Exploration and Production

Oil and gas exploration in the Cooper Basin commenced in 1954 and the Cooper Basin has become a major supplier of oil and gas in Australia since the discovery of gas reserves at Gidgealpa, near Moomba, in 1963.

Significant oil and gas infrastructure in the region includes:

- The Santos operated oil and gas production plants at Ballera and Moomba (located at the commencement and termination points of the QSN Link pipeline).
- Satellite production facilities including Della and Dullingari.
- Santos Ballera to Moomba pipeline (located adjacent to and north of the QSN Link pipeline).
- Moomba to Adelaide gas pipeline and the adjacent Santos Moomba to Port Bonython liquids pipeline.
- The Moomba to Sydney gas and ethane pipelines.

The pipeline route passes through a number of petroleum production and exploration licence areas. Numerous oil wells and gathering lines are located throughout the region, and drilling of new oil, gas and geothermal wells is ongoing.

### Conservation

The proposed pipeline traverses the Innamincka Regional Reserve for approximately 55 km. This is a multiple use reserve, with the regional reserve category designed to enable areas to be managed under a conservation framework while permitting the sustainable use of resources (i.e. oil and gas production and grazing). There are a number of sites within the Innamincka Regional Reserve that are listed on the State Heritage Register or Register of the National Estate Section.

The wetlands of the Cooper Creek, and the Coongie Lakes in particular, have been recognised as uniquely valuable due to their diverse, and in places unique, biota. The Coongie Lakes are now included in the Coongie Lakes National Park, which was proclaimed in 2005 and is located within Innamincka Regional Reserve. The Coongie Lakes are also listed under the Ramsar Convention as a Wetland of International Significance. The proposed pipeline passes to the south of the Ramsar area.

The pipeline also traverses the Strzelecki Creek wetland system, which is listed in the Directory of Important Wetlands in Australia (Environment Australia 2001). This system is predominantly dry and flows very intermittently from Cooper Creek south to Lake Blanche during large Cooper floods (Strzelecki Creek flows are thought to occur with an average frequency of 1 in 10 years; Puckridge *et al.* 1999). When flooded, it provides significant habitat for large numbers of waterbirds.

## **Tourism**

The Innamincka, Coongie Lakes and Cooper Creek regions in north-eastern South Australia and south-west Queensland have become increasingly popular as tourist destinations over the past 30 years. It is estimated that more than 45,000 people now visit the Innamincka region annually (Desert Channels Queensland, 2004). Cullyamurra Waterhole, Coongie Lake, the Dig Tree, Burke's grave and Wills' grave receive the greatest visitation particularly between May and September. Recreational opportunities in the region include outback camping, fishing, bird watching, canoeing, swimming, archaeology and general exploration.

The majority of the tourist traffic in the region is restricted to the Strzelecki Track and 'Adventure Way' roads which are used by tourists as an outback highway between South Australia and Queensland.

The pipeline passes to the south of a number of sites that receive high visitation, including Innamincka (located 7 km north), Cullyamurra Waterhole (8 km north) and the Dig Tree (5 km north).

## 5 Methodology

This EIR has been prepared in accordance with the requirements of Section 97 of the ER Act and ER Regs. This EIR also relies upon the Environmental Impact Assessment Criteria (EIAC) set out by DEM as required under Part 12 of the ER Act, dated July 2024 and the EIAC Guidelines (ERG 015) prepared by DEM (dated June 2024).

### 5.1 Environmental Risk Assessment

An original Environmental Risk Assessment (ERA) was undertaken for the operation of The Pipeline with the following APA personnel attended the ERA Workshop:

- Corridor Protection Lead
- Corridor Protection Officer
- Environment Advisor
- Regional Environment Advisor
- Regional Manager Western Queensland
- Senior Regulatory Specialist
- Team Leader Far West
- Team Leader Wallumbilla
- Technical Officer Civil
- Technical Officer Mechanical Operations.

This ERA was conducted on 18 September 2018 and reviewed again in June 2025 as part of updating this EIR. The pipeline context defined for the ERA workshop was:

- Operation, inspection and maintenance of the pipeline
- Normal and emergency scenarios
- Credible emergencies arising as part of maintenance works (e.g. vehicle collisions, major spill)
- No change to existing pipeline design, route, depth or surface features
- Excludes specific safety risks, assets managed by other parties, major works or construction of new pipelines
- Current status of the pipeline contains market-compliant sales gas
- No excess pressures from gas plant upsets
- At the time of decommissioning or major construction works, additional ERAs will be undertaken
- Decommissioning considered separately and is specifically discussed in Section 3.4.

The original ERA and APA's Risk Matrix is provided in Appendix 2 and Appendix 3. The ERA was carried out in accordance with ISO 31000 Risk Management Guidelines and the APA HSE ENV – Guideline 001 Environmental Risk Assessment Guideline. The Guideline focuses on assessing the risk in three areas: ENVFEAT (Environment Features), ASSETHAZ (Asset Hazards) and RISKACTIV (Risky Activities).

Under Part 12 of the ER Act and the EIAC, an impact assessment against the environmental impact criteria must be prepared by the licensee (APA) and included in the EIR. These criteria and the relevant sections of the report are included below:

- Criteria 1 – Elements of the Environment (addressed in Section 3 and Section 6 of this EIR);
- Criteria 2 – Potential Impact Events (Section 7);
- Criteria 3 – Confirmation of Impact Events (Section 7);
- Criteria 4 – Control and Management Strategies and Uncertainty Assessment (Section 7 and Section 8);
- Criteria 5 – Environmental Significance Assessment (Section 9);
- Criteria 6 – Statement of Environmental Objectives (addressed in a standalone document).

An updated ERA as part of the five-yearly review of this EIR (set out further below in this document) has assessed both the likelihood and consequences of events that may arise from activities that may have an environmental impact. Likelihood and consequence definitions, as well as the overall risk matrix, are provided in Appendix 3.

The likelihood and consequence definitions have been outlined in **Table 15** and **Table 16** respectively. A risk matrix provided in **Section 7** combines the likelihood and consequence assessments to form a risk rating.

## 5.2 Assessment of Significance

Potential impact events identified from the ERA have been assessed in terms of their significance. This assessment of environmental significance is outlined in Section 9 and considers the outcomes of the potential impact events and the environmental management measures identified for each impact event in Section 7.

The below table defines the criteria used to set out the environmental significance assessment, as per the EIAC.

**Table 15: Environmental Significance Assessment**

| Criteria                                     | Descriptor                                                                                   |
|----------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>Avoidance.</b>                            | Yes – Potential impacts may be avoided through implementation of controls.                   |
|                                              | No – Potential impacts may not be avoided through implementation of controls.                |
| <b>Frequency.</b>                            | Constant – Impacts occur constantly.                                                         |
|                                              | Frequent – Impacts occur regularly but not constantly.                                       |
|                                              | Infrequent – Impacts occur seldomly.                                                         |
|                                              | Rare – Impacts only occur in certain circumstances.                                          |
| <b>Duration.</b>                             | Permanent – Impacts to the environment are permanent and unable to be remediated.            |
|                                              | Long term – Impacts to the environment continue for a number of years but may be remediated. |
|                                              | Short term – Impacts to the environment last for less than 1 year and may be remediated.     |
| <b>Extent.</b>                               | Localised – Impacts are onsite or in the immediate vicinity offsite*.                        |
|                                              | Regional – Impacts are widespread offsite.                                                   |
| <b>Severity.</b>                             | High – Significant change to environmental conditions from existing conditions.              |
|                                              | Low – Minor change to environmental conditions from existing conditions.                     |
| <b>Cumulative Effects.</b>                   | Yes – Receptors are already impacted by similar activities.                                  |
|                                              | No – Receptors are not already impacted by similar activities.                               |
| <b>Sensitivity of Receiving Environment.</b> | High – Many receptors identified, or receptors are protected under certain legislation.      |
|                                              | Low – Few receptors identified, or significance of the receptor is low.                      |
|                                              | No – No receptors identified.                                                                |

\*A reference to 'offsite' means outside the Pipeline Licence Area.

## 6 Environmental Elements

This Section and Section 3 seek to address Criteria 1 – Elements of the Environment of the Environmental Impact Assessment Criteria. This Section specifically addresses the requirement of Regulation 10(1)(b)(i), which requires:

- Provision of a description of the specific elements of the environment that can reasonably be expected to be affected by the activities, with particular reference to the environment and existing land uses.

Consultation with external stakeholders was undertaken on XX/XX/XXXX with parties including XX, XX and XXX. Key issues that were brought up in relation to the proposed activity include:

- A

- B

- C

### 6.1 Native Vegetation and Fauna

Potential impacts to vegetation and fauna may include habitat destruction, fauna mortality and impacts to threatened species and communities as a result of pipeline operation and maintenance activities.

Critically Endangered, Endangered, and Vulnerable ecological communities (as listed under the EPBC Act) and Endangered, Vulnerable and Rare ecosystems (as provisionally listed by DEW) are not known or likely to occur within a 10 km buffer of the pipeline easement and therefore are very unlikely to be impacted by the pipeline operations. The flora assessment established that 10 rare or threatened plant species could potentially occur within the pipeline corridor. The field survey did not identify any of these species as being present and indicated that there is very limited potential for the pipeline to have adverse impacts on any rare or threatened species.

Permanent access along the easement is required for the operation and maintenance of the Pipeline. However, access along the entire length of the easement is only required when completing ground patrols or cathodic protection surveys. Should access tracks exist on the easement then vehicle activity will be confined to those tracks whenever practicable so as not to damage surrounding vegetation.

Under pipeline licence regulations, warning signs denoting the approximate location of buried high pressure pipelines must be installed and line of sight between these marker signs must be maintained. Therefore, vegetation on the easement must be maintained at low levels to enable line of sight. Ground cover and low lying vegetation (approximately < 300mm) will be encouraged as it assists with ground stability and reduces the development of erosion from wind and water and provides habitat for fauna. The level of ground cover should be consistent with surrounding areas. Remnant or retained vegetation at the edges of the easement is left in-situ where it does not interfere with line of sight or the Pipeline. This provides habitat and movement pathways for fauna, while low growing ground cover along the easement provides cover and interconnection for fauna movement.

Occasionally, earthworks will be required to complete operational activities, such as pipeline integrity digs or the installation of cathodic protection infrastructure. Clearing of the low-lying vegetation on the easement is isolated to the immediate project area and all efforts are made not to disturb remnant or retained vegetation. Excavations are fenced if left open overnight and ramps are constructed to allow fauna to exit the trench should they enter it. The loss of vegetation as a result of these activities is likely to be short-term and restricted to the existing easements that have previously been used for pipeline construction and maintenance activities.

Routine aerial or ground surveillance is used to monitor for excessive or poor vegetation growth. Fauna movement along and across the easement is not restricted except where existing agricultural or residential fencing is already in place.

Vehicle movement and pipeline facilities (line valves, end of line stations etc.) may cause noise or lighting disturbance to fauna. These impacts would be particularly isolated or infrequent.

## 6.2 Pests, Disease and Weed

Movement along easements of operational and maintenance personnel have the potential to spread weeds, pests and disease by transferring matter attached to vehicles, equipment or personnel. Soil disturbance and transfer during pipeline construction and maintenance has the potential to encourage weed growth.

Weeds reduce farm productivity; they invade crops, smother pastures and in some cases can harm livestock. They aggressively compete for water, nutrients and sunlight, resulting in reduced crop yield and poor crop quality.

Pest and Diseases may adversely affect plant and animal health or welfare; pose a serious threat to livestock, horticultural, and forestry industries, water catchments, nature reserves and national parks as well as general public amenity. In agricultural areas pests and diseases can have extremely detrimental effects on agricultural productivity and operations.

Routine ground patrols are used to monitor presence of weeds. The hygiene procedures include clean-in and clean-out requirements for known infested and non-infested areas. Areas of existing infestations will be avoided where possible and all vehicle movement will remain on the easement. Vehicles accessing the easement will be kept clean of debris and soil and washed down on an as needs or periodic basis to prevent the introduction of new weed, pest and diseases. Machinery and other earth moving equipment brought to site must be certified as being clean, particularly, if sourced from a third party.

## 6.3 Noise, Dust and Odour Emissions

The normal operation of the pipeline is silent along the right-of-way and will not generally involve significant noise impact. Some low level noise will be generated at the metering stations at each end of the pipeline at Ballera and Moomba, however given the industrial location of these sites, the noise will be insignificant compared to the background noise. In an emergency, high pressure gas venting may occur at valve sites or at the site of a pipeline rupture. The duration of the venting and the volume of gas vented would be dependent upon the nature of the emergency. As there are no residences in close proximity to the pipeline, no significant impacts are likely from noise.

The impact to air quality during operations is expected to be negligible. Minor dust generation from light vehicles and activities associated with the maintenance and monitoring of the pipeline will occur. Minor emissions from the pipelines may occur at above-ground facilities during maintenance operations. Remote operation of valves (in the event of damage or programmed maintenance) uses gas pressure to drive valve actuators and will result in the release of small amounts of gas. Minor emissions from scraper stations will occur during loading and removal of the pipe pig, which would normally occur every five to ten years during intelligent pigging.

Fugitive emissions are extremely low from pipeline operations. The risk of pipeline ruptures or leaks is also extremely low due to the implementation of protection measures and the routine monitoring, inspection and maintenance that will be carried out.

Given the isolated nature of potential emission generation, minor impacts on air quality associated with the pipeline are expected.

## 6.4 Chemical Spills and Contamination

Minor quantities of fuel and chemicals are required during operation of the pipeline, presenting a potential risk for minor land contamination.

## 6.5 Waste

Relatively small amounts of general and regulated wastes are generated during pipeline operations. Regulated wastes are high risk waste types that are subject to specific management requirements in relation to handling, storage, transport and disposal.

Typical wastes include;

- General putrescible and recyclables.
- Filters (non-oily).
- Sludge (pigging).
- Packaging (maintenance).
- Septic & greywater (at Compressor stations).

If stored and disposed incorrectly, the above waste may potentially cause land contamination.

## 6.6 Soil and Water

Potential localised impacts to the soil include erosion and sedimentation, inversion, compaction, and contamination. Potential impacts on ground and surface water resources include alteration to flow regimes, increased sediment load and turbidity, and contamination.

Pipeline projects involve relatively small quantities of chemicals and the risks to soil and water associated with minor spills are extremely low. Fuel and chemical handling and storage measures will be implemented to minimise the risk of contamination.

Due to the nature of pipeline operational activities, no impacts to deep aquifers are likely to occur and these are not considered further.

Occasionally, earthworks will be required to complete operational activities. This may include pipeline integrity digs, coating refurbishment work, installation of new anode beds and projects requiring new tie in facilities. This occurs infrequently, however, it is likely to increase as the Pipeline ages. Excavations usually occur on the pipeline easement or in designated compounds and are a short term, temporary event. Compaction of the backfilled excavation will occur to prevent the disturbed soil from subsiding. All excavations will be rehabilitated so that landforms and drainage patterns are restored, however due to the relatively shallow excavation depths significant impacts are unlikely.

Vehicle traffic on the easement can lead to soil compaction. Soil compaction may change local drainage patterns and prevent effective plant growth. Access to the Pipeline is restricted to access tracks and the right of way. The condition of soil and terrain will be monitored through regular ground and aerial surveillance programs. These programs will seek to identify areas of erosion, soil inversion, poor vegetation cover and suspected areas of soil contamination. Should an issue be identified then it will be reported so that rectification works can be determined and scheduled.

Very minimal quantities of water will be required for pipeline operations. The source of water will be accessed on a case-by-case basis and will be dependent on the availability and location of surrounding sources.

All efforts will be made to avoid discharge of wastewater, and it will be disposed of in a manner that minimises runoff. Should discharge potentially result in runoff to watercourses then all reasonable and practical measures (i.e. water testing) will be taken to ensure that the water quality guidelines associated with that waterway are met.

## 6.7 Heritage

Heritage includes both Aboriginal and European heritage sites and artefacts. Prior to the construction of the pipeline a cultural heritage and initial site clearance was undertaken. It is not considered likely that there will be significant adverse impacts to indigenous cultural heritage.

Routine maintenance activities are unlikely to disturb undiscovered cultural heritage as the easement was heavily disturbed during construction. However, some activities such as excavations and dig-ups, may have the potential to disturb archaeological material, should it be present. Impacts include:

- Damage to shallow artefact scatters.
- Damage to subsurface material.
- Damage to significant vegetation.

Such work is required infrequently and occurs within the easement. Pipeline personnel are made aware that they may uncover areas of undiscovered cultural heritage within the easement. If during operations evidence is discovered, the work is to stop and exclusion barrier is to be installed. Police will be contacted in the event a burial site is uncovered, and the appropriate government department will be contacted should a suspected heritage site be uncovered.

Provisions under the *Aboriginal Heritage Act 1988* make it an offence to damage, disturb or interfere with any Aboriginal site, object or remains. Aboriginal Affairs and Reconciliation with the Department of the Premier and Cabinet administers the *Aboriginal Heritage Act 1988* on behalf of the Premier, and should be contacted in the event of damage, disturbance or interference.

## 6.8 Fire

The potential for fire is highly unlikely and would be a result of maintenance activities described in Section 3.3.

Bushfires caused by operational activities are expected to be very rare. Fire Bans will be adhered to unless specific approval for the activity has been acquired from the relevant authorities. All hot work activities, such as welding, require appropriate site preparation to remove potential ignition sources and the use of a fire-spotter. A job specific SWMS will assess the level of risk the activity poses in the planning stage and should additional control measures be required they will be implemented. This may include having fire-fighting equipment on-site or postponing the work to a period of lower fire risk.

## 6.9 Third Party and Public Safety

Impacts to public safety as a result of pipeline operations will be rare and would likely be a result of bushfire, vehicle traffic, earthworks or pipeline rupture.

Unauthorised third party activity around the Pipeline poses the greatest risk with the potential to result in full-bore pipeline rupture. The Pipeline is buried at depth and physical protection controls, such as concrete slabbing, are installed at high-risk areas. Pipeline markers are installed in accordance with AS2885 requirements to identify the presence of a gas pipeline and warn of the dangers of excavations.

## 7 Environmental Risk Assessment

The following table summarises the original ERA in Appendix 2 and the updated ERA that has been undertaken as part of the five-yearly review of this Environmental Impact Report. The ERA below addresses Criteria 2 – Potential Impact Events and Criteria 3 - Confirmation of Impact Events of the EIAC.

Criteria 2 requires the licensee to identify potential impact events associated with its regulated activities during each phase of operations and how these relate to elements of the environment. Criteria 3 requires, for each potential impact event, an analysis of whether a source, pathway or receptor exists, information on the estimated frequency of the events and a description of the likely impact prior to engineering and/or administrative controls.

Note that the Impact ID numbers vary slightly from the ERA Reference numbers in the original ERA at Appendix 2, due to updating the ERA and certain impact IDs being merged together.

As the Pipeline has already been fully constructed, references to 'Construction' in the Project Phase are not included in the ERA. The ERA is therefore for the Pipeline's Maintenance and Operation as outlined below in Table 16.

**Table 16 Environmental Risk Assessment**

| Impact ID | Environmental Element        | Project Phase           | Impact Event                                                                                          | Environmental Impact                                                                  | Source                                          | Pathway                    | Environmental Receptor    | Uncertainty / Assumptions                                                                                                        | Sensitivity to Change                                                                                                                              | Confirmation of Source-Pathway-Receptor | Likelihood Rating | Consequence Rating | Inherent Risk Rating |
|-----------|------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|--------------------|----------------------|
| NV1       | Native Vegetation and Fauna. | Maintenance, Operation. | Clearing and / or works off easement. Scope not clearly defined, new contractor, overspray.           | Unauthorised clearing / clearing native vegetation / exceed easement clearing limits. | Earthworks. Erosion Repairs. Integrity Dig-ups. | Soil disturbance.          | Native vegetation.        | Prior site clearances have been undertaken with good understanding of vegetation clearing requirements.                          | Low sensitivity to change due to understanding of site from prior site clearances.                                                                 | Source, pathway and receptor confirmed. | 3                 | 2                  | Low                  |
| NV2       | Native Vegetation and Fauna. | Maintenance, Operation. | Vehicle strike (single), equipment or plant interaction and general activities.                       | Fauna injury or death.                                                                | Vehicle / Plant.                                | Vehicle / Plant movements. | Fauna.                    | Numbers of vehicles and their movements is not exactly known.                                                                    | Sensitive to change, dependent on factors such as density of vehicles and movements, depending on phase of project, extent of works required, etc. | Source, pathway and receptor confirmed. | 3                 | 1                  | Negligible           |
| NV3       | Native Vegetation and Fauna. | Maintenance, Operation. | Excavation / dig-up leading to impacts to fauna.                                                      | Ecological impacts / negative impacts to reputation / inadequate rehabilitation.      | Earthworks. Erosion Repairs. Integrity Dig-ups. | Soil disturbance.          | Native vegetation. Fauna. | Prior site clearances and excavations have been undertaken with good understanding of the vegetation considerations at the site. | Low sensitivity to change due to understanding of site from prior investigations.                                                                  | Source, pathway and receptor confirmed. | 3                 | 4                  | High.                |
| S1        | Soil and Water.              | Operation.              | Inadequate or poorly maintained erosion control devices / rehabilitation / general weathering.        | Sedimentation, loss of soil, landholder dissatisfaction.                              | Earthworks. Erosion Repairs. Integrity Dig-ups. | Soil disturbance.          | Land.                     | Erosion and weathering profile of the site is not well known. Weather conditions may determine impact of erosion.                | Sensitive to change, dependent on the frequency of site inspections and maintenance.                                                               | Source, pathway and receptor confirmed. | 3                 | 3                  | Moderate             |
| S2        | Soil and Water.              | Maintenance, Operation. | Excavation / dig-up leading to impacts to erosion, impacts to landholders, inadequate rehabilitation. | Ecological impacts / negative impacts to reputation.                                  | Earthworks. Erosion Repairs. Integrity Dig-ups. | Soil disturbance.          | Land.                     | Prior site clearances and excavations have been undertaken with good understanding of the vegetation considerations at the site. | Low sensitivity to change due to understanding of site from prior investigations.                                                                  | Source, pathway and receptor confirmed. | 3                 | 4                  | High.                |
| S3        | Soil and Water.              | Maintenance, Operation. | Spills and over-clearing of vegetation.                                                               | Soil contamination and clearing of native vegetation.                                 | Earthworks. Erosion Repairs. Integrity Dig-ups. | Soil disturbance.          | Native vegetation.        | Prior site clearances have been undertaken with good understanding of the vegetation considerations at the site.                 | Low sensitivity to change due to understanding of site from prior investigations.                                                                  | Source, pathway and receptor confirmed. | 3                 | 3                  | Moderate.            |

| Impact ID | Environmental Element   | Project Phase           | Impact Event                                                                                                                                       | Environmental Impact                                                          | Source                                                                    | Pathway                                                                   | Environmental Receptor               | Uncertainty / Assumptions                                                                                                                                       | Sensitivity to Change                                                                                                                              | Confirmation of Source-Pathway-Receptor | Likelihood Rating | Consequence Rating | Inherent Risk Rating |
|-----------|-------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|--------------------|----------------------|
| H1        | Heritage.               | Maintenance.            | Excavation / dig-up leading to disturbance of cultural heritage site / material.                                                                   | Loss of heritage value / negative impacts to reputation.                      | Earthworks.<br>Erosion Repairs.<br>Integrity Dig-ups.                     | Soil disturbance.                                                         | Aboriginal heritage and communities. | Prior cultural heritage investigations and site clearances have been undertaken with good understanding of the cultural heritage considerations at the site.    | Low sensitivity to change due to understanding of site from prior investigations.                                                                  | Source, pathway and receptor confirmed. | 3                 | 4                  | High                 |
| P1        | Pest, Disease and Weed. | Maintenance, Operation. | Spread of weeds on and off easement.<br>Breach of property biosecurity controls (sign in, clean down records, etc).<br>Weed infestations / spread. | Ecological impacts, spread of weeds / disease and landholder dissatisfaction. | Earthworks.<br>Erosion Repairs.<br>Integrity Dig-ups.<br>Vehicle / Plant. | Soil disturbance.<br>Weeds attaching to vehicle / plant wheels.           | Land.<br>Native vegetation.          | Numbers of vehicles and their movements is not exactly known.                                                                                                   | Sensitive to change, dependent on factors such as density of vehicles and movements, depending on phase of project, extent of works required, etc. | Source, pathway and receptor confirmed. | 5                 | 3                  | High                 |
| P2        | Pest, Disease and Weed. | Operation.              | Incorrect pest management.<br>Overspray of chemical - APA personnel generally only spraying within facilities.<br>Contractors utilised for ROW.    | Unintended poisoning non-target species.                                      | Use of chemicals to poison unwanted pests / weeds.                        | Spraying.                                                                 | Native vegetation.<br>Land.          | Contractors to be used for weed / pest management of outdoor weeds, under the assumption that they understand the appropriate chemicals and amounts to be used. | Sensitive to change, dependent on frequency of site inspections and the propagation rate of pests and weeds across the site.                       | Source, pathway and receptor confirmed. | 4                 | 3                  | Moderate.            |
| W1        | Waste.                  | Operation.              | Leaching to ground from compressor stations, septic systems and water treatment / drainage.                                                        | Soil contamination.                                                           | Water treatment systems.<br>Compressor stations.                          | Loss of containment from compressor stations and water treatment systems. | Land.                                | Amount of liquid released is not predictable and should be able to be captured with effective controls.                                                         | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| W2        | Waste.                  | Operation.              | Incorrect disposal of batteries.                                                                                                                   | Contamination of landfill.                                                    | Battery waste.                                                            | Waste disposal.                                                           | Land.                                | Amount of battery waste to be generated and frequency of use / disposal is not exactly known.                                                                   | Low sensitivity to change.                                                                                                                         | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| W3        | Waste.                  | Operation.              | Incorrect disposal of filter elements - covered in oil residue.                                                                                    | Contamination of landfill.                                                    | Oily waste.                                                               | Waste disposal.                                                           | Land.                                | Amount of filter waste to be generated and frequency of disposal is not exactly known.                                                                          | Low sensitivity to change.                                                                                                                         | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| W4        | Waste.                  | Maintenance, Operation. | Loss of containment / control of pigging waste potentially including NORMS.                                                                        | Soil contamination.                                                           | Pigging waste.                                                            | Waste disposal.                                                           | Land.                                | Amount of pigging waste to be generated is not exactly known, depending on whether pyrophoric dust is present and if there is a need for washdown.              | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 3                  | Moderate.            |
| W5        | Waste.                  | Operation.              | Chemical spill from insufficient maintenance / inspections or incorrect waste disposal.                                                            | Soil contamination.                                                           | Pipeline equipment / infrastructure.                                      | Loss of containment.                                                      | Land.                                | Extent of potential spills is not exactly known.                                                                                                                | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 1                  | Negligible.          |

| Impact ID | Environmental Element            | Project Phase           | Impact Event                                                                                                                  | Environmental Impact                                  | Source                                    | Pathway                                                | Environmental Receptor | Uncertainty / Assumptions                                                                                  | Sensitivity to Change                                                                                                                              | Confirmation of Source-Pathway-Receptor | Likelihood Rating | Consequence Rating | Inherent Risk Rating |
|-----------|----------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------|--------------------|----------------------|
| C1        | Chemical Spills.                 | Maintenance, Operation. | Uncontained chemical spill (hose, or oil < 10L) from light vehicles, heavy equipment, etc.                                    | Soil contamination.                                   | Vehicle / Plant.                          | Loss of containment from vehicles / plant.             | Land.                  | Numbers of vehicles and their movements is not exactly known.                                              | Sensitive to change, dependent on factors such as density of vehicles and movements, depending on phase of project, extent of works required, etc. | Source, pathway and receptor confirmed. | 4                 | 2                  | Low.                 |
| C2        | Chemical Spills.                 | Operation.              | Chemical spill, loss of containment of water from waterbath heaters.                                                          | Soil contamination.                                   | Waterbath heater units.                   | Loss of containment from waterbath heaters.            | Land.                  | Amount of chemicals released is not predictable and should be able to be captured with effective controls. | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| C3        | Chemical Spills.                 | Operation.              | Chemical spill from hazardous materials storage and facility fuel storage tanks.                                              | Soil contamination.                                   | Chemical storage.                         | Loss of containment from chemical storage.             | Land.                  | Amount of chemicals released is not predictable and should be able to be captured with effective controls. | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 3                  | Moderate.            |
| C4        | Chemical Spills.                 | Operation.              | Loss of containment / potential for release of coolant through the separator in oily water collection systems.                | Soil contamination.                                   | Oily water collection system.             | Loss of containment from oily water collection system. | Land.                  | Amount of chemicals released is not predictable and should be able to be captured with effective controls. | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| C5        | Chemical Spills.                 | Operation.              | Chemical release / uncontained chemical spill from compressor units and Gas Engine Alternators.                               | Soil contamination.                                   | Compressor units, Gas engine alternators. | Loss of containment from equipment.                    | Land.                  | Amount of chemicals released is not predictable and should be able to be captured with effective controls. | Low sensitivity to change with regular site inspections and maintenance.                                                                           | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| C6        | Chemical Spills.                 | Maintenance, Operation. | Transport of chemicals along ROW - generally less than 20L accepting fuel up to 400L.                                         | Soil contamination.                                   | Chemical transport – vehicles / plant.    | Loss of containment.                                   | Land.                  | Numbers of vehicles and their movements is not exactly known.                                              | Sensitive to change, dependent on factors such as density of vehicles and movements, depending on phase of project, extent of works required, etc. | Source, pathway and receptor confirmed. | 2                 | 2                  | Negligible.          |
| N1        | Noise, Dust and Odour Emissions. | Maintenance, Operation. | Release of gas emissions - NOx and CH4 from exhaust gases (SWQP), general plant operations, emergency shut downs and venting. | Contribution to greenhouse gases (GHG) in atmosphere. | Exhaust gas pipelines. Vehicle / Plant.   | Air.                                                   | Atmosphere.            | Amount of gases released to the atmosphere is not exactly known.                                           | Sensitive to change, depending on factors such as vehicle use, abnormal events requiring additional venting, etc.                                  | Source, pathway and receptor confirmed. | 3                 | 2                  | Low.                 |
| N2        | Noise, Dust and Odour Emissions. | Operation.              | Release of gas emissions – Methane from general venting.                                                                      | Contribution to GHG in atmosphere.                    | Gas venting.                              | Air.                                                   | Atmosphere.            | Amount of gas vented at any given time is not exactly known.                                               | Sensitive to change, depending on factors such as phase of project, abnormal events requiring additional venting, etc.                             | Source, pathway and receptor confirmed. | 5                 | 1                  | Low.                 |
| N3        | Noise, Dust and Odour Emissions. | Operation.              | Release of gas emissions - FM200 - fire suppression system.                                                                   | Contribution to GHG in atmosphere.                    | Fire suppression system.                  | Air.                                                   | Atmosphere.            | Use of fire suppression systems is only applicable during fire events.                                     | Low sensitivity to change.                                                                                                                         | Source, pathway and receptor confirmed. | 3                 | 1                  | Negligible.          |

| Impact ID | Environmental Element            | Project Phase           | Impact Event                                                                                                                                                                     | Environmental Impact                                             | Source                                           | Pathway                           | Environmental Receptor                        | Uncertainty / Assumptions                                                                                                                                                                               | Sensitivity to Change                                                                                                     | Confirmation of Source-Pathway-Receptor                                              | Likelihood Rating | Consequence Rating | Inherent Risk Rating |
|-----------|----------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------|-----------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| N4        | Noise, Dust and Odour Emissions. | Operation.              | Coating defect repairs could include buffing, sand/grit blasting, rewinding, use of epoxy resins resulting in dust, blasting material, coating removal media and chemical waste. | Contamination surrounding soils / landfill.                      | Maintenance activities generating fine material. | Air.                              | Land.<br>Third Parties.                       | Frequency of coating defect repairs is assumed to be at a similar frequency to pigging.                                                                                                                 | Sensitive to change, dependent on frequency of site inspections / maintenance and whether welding / grinding is required. | It is uncertain whether fine, airborne materials generated will reach third parties. | 3                 | 2                  | Low.                 |
| F1        | Fire.                            | Maintenance, Operation. | Welding and Grinding.                                                                                                                                                            | Potential for fire leading to loss of fauna, flora and habitats. | Maintenance activities.                          | Sparks from welding and grinding. | Native vegetation.<br>Land.<br>Third Parties. | Frequency of welding and grinding is not exactly known.                                                                                                                                                 | Sensitive to change, dependent on frequency of site inspections / maintenance and whether welding / grinding is required. | Source, pathway and receptor confirmed.                                              | 2                 | 3                  | Low.                 |
| TP1       | Third Party and Public Safety.   | Maintenance, Operation. | Pipeline rupture.                                                                                                                                                                | Injury to public and damage to third party infrastructure.       | Pipeline.                                        | Damage to pipeline.               | Third party infrastructure.<br>Third Parties. | Frequent maintenance will aid in monitoring pipeline integrity, however locations of and specific activities of third parties around the pipeline during the pipeline's lifetime are not exactly known. | Low sensitivity to change.                                                                                                | Source, pathway and receptor confirmed.                                              | 1                 | 4                  | Low.                 |

## 8 Control and Management Strategies

This Section seeks to address Criteria 4 – Control and Management Strategies and Uncertainty Assessment of the Environmental Impact Assessment Criteria.

Environmental aspects associated with the operation and maintenance of the pipeline and their risks are identified during the ERA process. The following section provides an overview of the potential environmental risks, impacts and management methods employed to address those risks. Residual likelihood, consequence and risk ratings have been provided.

In accordance with the EIAC, “Assessment Criteria” and “Leading Performance Criteria” have been detailed to outline the criteria used by APA to inform the effectiveness of their management measures. Assessment criteria for each item have been developed in line with one of the following:

- Defined conditions – objectives for activities that can only be managed through the prevention of unacceptable actions (e.g. “No new outbreak or spread of weeds or pathogens as a result of pipeline activities”); and
- Defined requirements – the achievement of an objective can be assessed against the implementation of specific procedures or actions required for an activity (e.g. “Demonstrated compliance with AS2885”).

The ER Act defines Leading Performance Criteria as “criteria used to give an early warning that a control or other strategy necessary for compliance with a statement of environmental objectives— (a) is absent; or (b) may fail or be failing.”

The Original APA ERA and Risk Matrix are found in Appendix 2 and Appendix 3.

APA incorporate various protocols into management of their environmental aspects, including a Heritage Management Protocol (May 2025) (Appendix 4), Pests, Weeds and Disease Management Protocol (June 2022) (Appendix 5), Native Vegetation and Fauna Management Protocol (May 2025) (Appendix 6), Soil and Water Management Protocol (September 2024) (Appendix 7) and Excavation and Trenching Fatal Risk Protocol (May 2024) (Appendix 8).

## 8.1 Vegetation and Fauna Management

The potential impacts and management and control measures that will be applied to manage the risks posed to vegetation and fauna, along with APA's integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 17.

**Table 17 Vegetation and Fauna Management Measures**

| Objective                                           | ID  | Impact Event                                                                                | Potential Impacts                                                                       | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | APA System    | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|-----------------------------------------------------|-----|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| To minimise adverse impacts to vegetation and fauna | NV1 | Clearing and / or works off easement. Scope not clearly defined, new contractor, overspray. | Un- authorised clearing / clearing native vegetation / exceed easement clearing limits. | <ul style="list-style-type: none"> <li>Compliance with Native Vegetation and Fauna Management Protocol (Appendix 6).</li> <li>Spotter / guide engaged during line-of-sight (LOS) clearing.</li> <li>Pre-activity assessments completed prior to undertaking ground disturbing works and clearing.</li> <li>Mulching shall be used in preference to ground disturbing methods.</li> <li>Environment awareness sheet (includes environmentally sensitive areas).</li> <li>Dedicated Scope of Works for contractors working within environmentally sensitive areas.</li> <li>GIS / mapping of environmentally sensitive areas is available to all field personnel and contractors (to be implemented during 24-month Improvement Program).</li> <li>Provision of environmental line list is noted on JHA / Permit to Work (PTW).</li> <li>PTW training.</li> <li>No works to occur outside of easement during normal operation and maintenance without prior approval.</li> </ul>                                                                                        | Maximo, ARGO. | <ul style="list-style-type: none"> <li>Vegetation / fauna surveys must be carried out by suitably qualified person and in accordance with relevant regulatory survey standards / guidelines.</li> <li>Vegetation clearing is in accordance with the <i>Native Vegetation Act 1991</i> (NV Act).</li> <li>Vegetation clearance minimised.</li> <li>No unauthorised vegetation clearing.</li> <li>No reasonable complaints received from landholders in relation to regrowth of vegetation on the easement.</li> <li>Significant Environmental Benefit (SEB) approved by DEM (where delegated authority applies) or Native Vegetation Council (NVC).</li> <li>SEB obligation satisfied / implemented.</li> </ul> | <ul style="list-style-type: none"> <li>Vegetation clearing within the easement or on land adjacent to the easement is limited to previously disturbed areas, unless prior regulatory approval obtained under the NV Act.</li> <li>Prior to commencing an activity that will impact native vegetation / fauna, relevant project / operational manager must ensure necessary statutory approvals, exemptions or agreements obtained and relevant requirements communicated to party responsible for undertaking the works.</li> <li>Work supervisor must ensure that during clearing and land disturbance activities a regular check of compliance with the authorised disturbance boundaries is completed and recorded.</li> <li>Work supervisor must ensure relevant vegetation and fauna management requirements and responsibilities are communicated to relevant workers as part of job prestart / site induction.</li> <li>Potential impacts to protected vegetation and fauna must be assessed in accordance with <i>APA HSE GP 40.00 Environment and Heritage Approvals</i>.</li> </ul> | 2                 | 2                  | Negligible.          |
|                                                     | NV3 | Excavation / dig-up leading to impacts to fauna.                                            | Ecological impacts / negative impacts to reputation / inadequate rehabilitation.        | <ul style="list-style-type: none"> <li>Compliance with Excavation and Trenching Fatal Risk Protocol (Appendix 8).</li> <li>Fencing and fauna ramps (45 degrees) for excavations left overnight.</li> <li>Fauna inspections undertaken in excavations and trenches that are left open overnight prior to work commencing.</li> </ul> <p>Dig ups / excavations:</p> <ul style="list-style-type: none"> <li>Dig up works managed as Stay in Business (SIB) projects.</li> <li>Additional assessment of dig up locations and any potential additional work space required prior to works.</li> <li>Notification of landholders prior to works.</li> <li>Ongoing monitoring of dig up locations via ground and aerial patrol.</li> <li>Daily site reports / check sheets / log of works.</li> <li>The location of protected vegetation and fauna, where relevant to ongoing operations, must be added to the Enterprise Environment and Heritage GIS database in accordance with <i>APA HSEH GD 40.02 Environment and Heritage - Spatial Data Process Flow</i>.</li> </ul> | Maximo, ARGO. | <ul style="list-style-type: none"> <li>Vegetation and fauna surveys must be carried out by a suitably qualified person(s) and in accordance with relevant regulatory survey standards or guidelines.</li> <li>Vegetation on the easement is reasonably consistent with the surrounding areas. Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process.</li> </ul>                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Prior to commencing an activity that will impact native vegetation / fauna, relevant project / operational manager must ensure necessary statutory approvals, exemptions or agreements obtained and relevant requirements communicated to party responsible for undertaking the works.</li> <li>Work supervisor must ensure that during clearing and land disturbance activities a regular check of compliance with authorised disturbance boundaries is completed and recorded.</li> <li>Work supervisor must ensure relevant vegetation and fauna management requirements and responsibilities are communicated to relevant workers as part of the job prestart, site induction or equivalent.</li> </ul>                                                                                                                                                                                                                                                                                                                                            | 2                 | 3                  | Low.                 |

| Objective | ID  | Impact Event                                                                    | Potential Impacts                                                | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | APA System        | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                       | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|-----------|-----|---------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
|           | NV2 | Vehicle strike (single), equipment or plant interaction and general activities. | Fauna injury or death.                                           | <ul style="list-style-type: none"> <li>Driving in accordance with <i>APA Fatal Risk Protocol - Driving (APA HSE FRP 030 Driving)</i>.</li> <li>Vehicles to remain on existing roads and tracks.</li> <li>Fauna handling must be carried out by a suitably qualified and licenced fauna handler.</li> <li>Fauna injuries / fatalities reported in Safeguard (SG+).</li> <li>Adequate first response spill materials and equipment must be available for the spill hazards and risks associated with a particular location or task.</li> <li>Refueling trailers are bunded and contain drip trays.</li> <li>Refueling on the right-of-way (ROW) is avoided in nature reserves.</li> <li>All plant and equipment have spill kits in environmentally sensitive areas.</li> </ul> <p>Within key fauna habitats and protected areas;</p> <ul style="list-style-type: none"> <li>Accessing the ROW is kept to a minimum.</li> <li>Driving occurs during the day and inactive periods, driving at dusk and dawn is avoided.</li> <li>Vehicles travel at low speeds.</li> <li>No access outside the easement or approved access.</li> </ul> | Maximo, ARGO, SG+ | <ul style="list-style-type: none"> <li>Species abundance and distribution on the easement is reasonably consistent with surrounding areas. Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process.</li> <li>Native fauna casualties associated with operations restricted to as low as reasonably practical.</li> </ul> | <ul style="list-style-type: none"> <li>Prior to commencing an activity that will impact protected vegetation and fauna, the relevant project or operational manager must ensure necessary statutory approvals, exemptions or agreements have been obtained and relevant requirements communicated to the party responsible for undertaking the works.</li> <li>Work supervisor must ensure relevant vegetation and fauna management requirements and responsibilities are communicated to relevant workers as part of the job prestart, site induction or equivalent.</li> <li>Work supervisor must ensure any exclusion or restricted zones are physically demarcated or otherwise defined prior to and during work.</li> <li>Work supervisor must ensure control measures are implemented to minimise fauna entrapment and / or injury in open excavations and pipework.</li> </ul> | 2                 | 1                  | Negligible.          |
|           | F1  | Welding and Grinding.                                                           | Potential for fire leading to loss of fauna, flora and habitats. | <ul style="list-style-type: none"> <li>Prior to commencing work fire ban requirements for the day are reviewed.</li> <li>Fire response training.</li> </ul> <p>Welding and grinding:</p> <ul style="list-style-type: none"> <li>Fire breaks around compound</li> <li>Designated areas for welding and grinding – within facilities only.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Maximo, ARGO.     | <ul style="list-style-type: none"> <li>No fires related to pipeline activities.</li> </ul>                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Fire ban requirements are checked and documented daily.</li> <li>Fire response equipment is within service life.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1                 | 3                  | Negligible.          |

## 8.2 Pest, Weeds and Disease Management

The potential impacts and management and control measures that will be applied to manage the risks posed by pests, weeds and diseases, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 18.

**Table 18 Pest, Weeds and Disease Management Measures**

| Objective                                  | ID | Impact Event                                                                                                                                    | Potential Impacts                                                            | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | APA System | Assessment Criteria                                                                                                                                                                                                                   | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                          | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|--------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| To avoid the spread of weeds and pathogens | P1 | Spread of weeds on and off easement. Breach of property biosecurity controls (sign in, clean down records, etc). Weed infestations / spread.    | Ecological impacts, spread of weeds / disease and landholder dissatisfaction | <ul style="list-style-type: none"> <li>Compliance with the Pest, Weeds and Disease Management Protocol (Appendix 5).</li> <li>Vehicles and equipment kept clean and free of weeds and seeds.</li> <li>Clearing and excavation: equipment clean upon arrival.</li> </ul> Pest control: <ul style="list-style-type: none"> <li>Licensed contractor used for pest control.</li> <li>Only undertaken within fenced facilities (not located near threatened species).</li> <li>Baits are secured as advised by contractor.</li> <li>Housekeeping inspection includes looking for infestations and ensuring baits are secured.</li> <li>If sourcing fill potentially contaminated with PWD the source location must be inspected for the presence of Declared Weeds or alternatively, written verification obtained from the supplier that the material is free of Declared Weeds.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | XIC, ARGO. | <ul style="list-style-type: none"> <li>The presence of weeds on the easement is consistent with or better than adjacent land.</li> <li>No new outbreak or spread of weeds or pathogens as a result of pipeline activities.</li> </ul> | <ul style="list-style-type: none"> <li>A register of known and potential pests, weeds and diseases (PWD risks) must be established for locations (e.g. operational regions, project areas) within which APA undertakes activities.</li> <li>Individual PWD must be risk assessed to identify priority PWD applicable to the activity area.</li> </ul> | 2                 | 3                  | Low.                 |
|                                            | P2 | Incorrect pest management<br><br>Overspray of chemical - APA personnel generally only spraying within facilities. Contractors utilised for ROW. | Unintended poisoning of non-target species.                                  | <ul style="list-style-type: none"> <li>Weed spraying along the easement conducted by contractors.</li> <li>The Environmental Line List is referenced on the JHA/Permit to Work.</li> <li>Known parthenium infested properties are captured in ARGO.</li> <li>ARGO and XIC to be consulted for weed washdown and biosecurity requirements prior to accessing ROW.</li> <li>Consultation with landholders on works.</li> <li>Weed ID books and weeds in the region are communicated to APA staff and contractors accessing / working on APA assets.</li> <li>Weed washdowns are conducted for properties identified in XIC as requiring clean vehicles, equipment and machinery.</li> <li>Weed washdown records retained and stapled to the back of work order.</li> <li>SDS for all chemicals.</li> <li>Spraying weeds including base inspections:</li> <li>Check ARGO/XIC connect for property with the chemical restrictions.</li> <li>Specific awareness of properties with biosecurity requirements and instructions for APA staff and contractors (to be implemented during 24-month Improvement Program).</li> <li>Agricultural Chemicals Distribution Control (ACDC) License held by those applying chemicals.</li> <li>Spraying only within compound by APA.</li> <li>Contractor used on ROW for large scale treatments, APA staff conduct spot spraying only.</li> <li>Location of weeds treated along the ROW is captured.</li> <li>Management of declared weeds in accordance with controls recommended by SA Department of Primary Industries and Regions.</li> </ul> | XIC, ARGO. |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                       | 2                 | 2                  | Negligible           |

### 8.3 Noise, Dust and Odour Emission Management

The potential impacts and management and control measures that will be applied to manage the risks posed by noise, dust and odour emissions, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 19.

**Table 19 Noise, Dust and Odour Management Measures**

| Objectives                                                                                                           | ID | Impact Event                                                                                                                                                                     | Potential Impacts                               | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | APA System     | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Leading Performance Criteria                                                                                                                                        | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|----------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <b>To minimise noise due to operation and maintenance activities</b><br><br><b>To minimise atmospheric emissions</b> | N1 | Release of gas emissions - NOx and CH4 from exhaust gases (SWQP), general plant operations, emergency shut downs and venting.                                                    | Gas release, contribution of GHG in atmosphere. | <ul style="list-style-type: none"> <li>Exhaust gases, general plant operations, emergency shut downs and venting must be undertaken by competent maintenance personnel.</li> <li>Venting is minimised via work practices (automatic vents are stopped or prevented).</li> </ul>                                                                                                                                                                                                                                                              | Maximo, SCADA. | <ul style="list-style-type: none"> <li>Activities comply with noise regulations under the <i>Environment Protection (Noise) Policy 2007</i>.</li> <li>No reasonable complaints received.</li> <li>Compliance with <i>Environment Protection Act 1993</i> or to the satisfaction of the EPA.</li> <li>No uncontrolled atmospheric emissions (e.g. due to malfunction or mis-operation).</li> <li>Compliance with <i>Environment Protection (Air Quality) Policy 1994</i>.</li> </ul> | <ul style="list-style-type: none"> <li>Infrastructure, plant and equipment are operated and maintained in accordance with manufacturer's specifications.</li> </ul> | 2                 | 2                  | Negligible           |
|                                                                                                                      | N2 | Release of gas emissions – Methane from general venting.                                                                                                                         | Gas release, contribution of GHG in atmosphere. | <ul style="list-style-type: none"> <li>Maintenance of plant and equipment to minimise release.</li> <li>Monitoring systems are installed on all units.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     | 3                 | 1                  | Negligible           |
|                                                                                                                      | N3 | Release of gas emissions - FM200 - fire suppression system.                                                                                                                      | Gas release, contribution of GHG in atmosphere. | <ul style="list-style-type: none"> <li>Control buildings – FM200 – fire suppression system:</li> <li>Managed by third party contractor.</li> <li>Monthly system testing without release.</li> <li>Monthly inspection.</li> <li>System maintenance.</li> </ul>                                                                                                                                                                                                                                                                                | Maximo.        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     | 2                 | 1                  | Negligible           |
|                                                                                                                      | N4 | Coating defect repairs could include buffing, sand/grit blasting, rewinding, use of epoxy resins resulting in dust, blasting material, coating removal media and chemical waste. | Contamination surrounding soils / landfill.     | <ul style="list-style-type: none"> <li>Coating defect repairs (including buffing, sand/grit blasting, rewinding, use of epoxy resins):</li> <li>National Paint Coating Procedure.</li> <li>Refer to SIB procedures if outside normal operations.</li> <li>Competent maintenance personnel undertake activities.</li> <li>Drip trays / containment used to capture coating.</li> <li>Waste material is captured and licensed third party contractor used for disposal.</li> <li>Waste tracking certificates obtained and retained.</li> </ul> |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                     | 2                 | 2                  | Negligible           |

## 8.4 Chemical and Contamination Management

The potential impacts and management and control measures that will be applied to manage the risks posed by chemicals and contamination, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 20.

**Table 20 Chemical and Contamination Management Measures**

| Objective                                                                                       | ID       | Impact Event                                                                                                                                                                       | Potential Impacts   | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | APA System                              | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Leading Performance Criteria                                                                                                                                                                                                                                                                                                     | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|-------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| To avoid land or water contamination and minimise impacts to terrestrial and aquatic ecosystems | C1<br>C3 | Uncontained chemical spill (hose, or oil < 10L) from light vehicles, heavy equipment, etc.<br><br>Chemical spill from hazardous materials storage and facility fuel storage tanks. | Soil contamination. | <ul style="list-style-type: none"> <li>Spill Kit E-Learning – safeguard protocol, toolboxes and pre-starts include hazardous chemicals.</li> <li>Emergency Response Plan and Exercises.</li> <li>SDS and chemical register in Chemwatch.</li> <li>Chemicals stored undercover in bunded areas (shed area) that drains to the oily water system.</li> <li>Vehicles, plant and equipment parked in dedicated areas.</li> <li>Regular maintenance and scheduled servicing undertaken on all vehicles, plant and equipment.</li> <li>Spill response equipment available in all plant and equipment and inspected yearly and during housekeeping then replenished if used.</li> <li>Emergency response exercises including spill response.</li> <li>No refueling in sensitive areas or near surface water.</li> <li>Refueling is undertaken within facilities or on hard stand areas, where possible.</li> <li>If soil is contaminated it is cleaned up and stored in a regulated waste bin until contractor collection.</li> <li>Contaminated soil and regulated waste is disposed of by a licensed contractor.</li> <li>Waste Tracking Certificates are obtained and retained.</li> </ul> | Maximo, SG+, Workday Learning Chemwatch | <ul style="list-style-type: none"> <li>No soil or water contamination as a result of spills during pipeline activities.</li> <li>Compliance with <i>Environment Protection Act 1993</i>.</li> <li>Any escape of petroleum, processed substance, chemical or fuel is either immediately contained and removed or assessed in accordance with the National Environmental Protection Measure (NEPM) guidelines and remediated in accordance with relevant SA EPA guidelines in a timely manner.</li> </ul> | <ul style="list-style-type: none"> <li>Stored chemicals are segregated in accordance with the Australian Dangerous Goods (ADG) Code, and the requirements of their SDSs.</li> <li>Flammable and combustible liquids are stored in accordance with AS1940 (Storage and handling of flammable and combustible liquids).</li> </ul> | 2                 | 2                  | Negligible           |
|                                                                                                 | C2       | Chemical spill, loss of containment of water from waterbath heaters.                                                                                                               | Soil contamination. | Waterbath Heaters: <ul style="list-style-type: none"> <li>Concrete and hard stand pad at Moomba.</li> <li>Specific contractor for large scale Waterbath Heater activities.</li> <li>Pump and lay flat hose available.</li> <li>Daily and weekly visual inspections.</li> <li>6 yearly vessel inspections and water testing by contractor.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Maximo                                  | <ul style="list-style-type: none"> <li>Pipeline integrity actions as defined in the Pipeline Integrity Management Plan, are completed in line defined timeframes / frequencies.</li> </ul>                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Secondary containment bunding and the control and management of chemical (including flammable and combustible liquid) spills in accordance with EPA Guideline EPA 080/16 and <i>APA HSE EP 13.04.01 Spill Preparedness and Response</i>.</li> </ul>                                       | 2                 | 2                  | Negligible           |
|                                                                                                 | C4       | Loss of containment / potential for release of coolant through the separator in oily water collection systems.                                                                     | Soil contamination. | Oil water collection systems including waste oil tanks (WCS): <ul style="list-style-type: none"> <li>The amount of oil entering the system is minimized.</li> <li>Inspections in accordance with Maximo.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Maximo                                  | <ul style="list-style-type: none"> <li>No pipeline related rubbish or litter on easement or at facilities or on surrounding land.</li> <li>Compliance with the <i>Environment Protection (Water Quality) Policy</i>.</li> <li>Discharge water meets appropriate ANZECC and EPA criteria for point of disposal.</li> </ul>                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                  | 2                 | 2                  | Negligible           |
|                                                                                                 | C5       | Chemical release / uncontained chemical spill from compressor units and Gas Engine Alternators.                                                                                    | Soil contamination. | Compressor units and Gas Engine Alternators: <ul style="list-style-type: none"> <li>Remote from sensitive areas.</li> <li>Located on hard stand / compacted areas.</li> <li>Compressor units bunded excluding after coolers for recips and oil coolers for the turbines.</li> <li>Maintenance regime.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Maximo                                  | <ul style="list-style-type: none"> <li>No un-authorised discharge of waste water (or other liquids) to waterways.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                  | 2                 | 2                  | Negligible           |
|                                                                                                 | C6       | Transport of chemicals along ROW - generally less than 20L accepting fuel up to 400L.                                                                                              | Soil contamination. | Hazardous materials storage, handling and transfers (including at facility and transport of chemicals along ROW generally less than 20L and 400L of fuel): <ul style="list-style-type: none"> <li>All storage facilities located on hard stand / compacted areas remote from sensitive areas.</li> <li>Double skinned tanks and bunds for bulk storage.</li> <li>Bunded storage for minor storage.</li> <li>Use of specialised contractors for refueling bulk storage.</li> <li>Materials contained within truck / toolbox.</li> <li>Routine inspections in line with Maximo.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Maximo                                  | <ul style="list-style-type: none"> <li>No evidence of impacts to soil, water and vegetation as a result of water disposal (e.g. soil erosion, dead vegetation, water discoloration).</li> </ul>                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Waste material is contained and disposed of at an EPA licenced facility or via an approved process under <i>Environment Protection Act 1993</i>.</li> </ul>                                                                                                                               | 2                 | 2                  | Negligible           |

## 8.5 Waste Management

The potential impacts and management and control measures that will be applied to manage the risks posed by waste, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following **Table 20** Table 21.

**Table 21 Waste Management Measures**

| Objectives                                                                                                                                                                 | ID | Impact Event                                                                                | Potential impacts          | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | APA System | Assessment Criteria                                                                                                                                                                                                              | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                                                                               | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <p><b>To avoid land or water contamination and minimise impacts to terrestrial and aquatic ecosystems</b></p> <p><b>To minimise risk to the public from wastewater</b></p> | W1 | Leaching to ground from compressor stations, septic systems and water treatment / drainage. | Soil Contamination.        | Compressors stations – septic systems and associated water treatment and drainage: <ul style="list-style-type: none"> <li>Licensed plumber / competent contractor maintains septic systems.</li> <li>Systems are alarmed and alerts occur prior to issues.</li> <li>Moomba holding tank is pumped out fortnightly and waste tracking certificates retained (inclusive of greywater).</li> <li>General waste disposed of at base.</li> <li>Grey water is released to ground (evaporation) / transportation trenches at compressor station.</li> </ul> | Maximo.    | <ul style="list-style-type: none"> <li>No pipeline related rubbish or litter on easement or at facilities or on surrounding land.</li> <li>No un-authorised discharge of waste water (or other liquids) to waterways.</li> </ul> | <ul style="list-style-type: none"> <li>Waste water disposal system must comply with the <i>South Australian Public Health (Wastewater) Regulations 2013</i> or be to the satisfaction of the Department for Health and Wellbeing.</li> <li>Waste material is contained and disposed of at an EPA licenced facility or via an approved process under the <i>Environment Protection Act 1993</i>.</li> </ul> | 2                 | 2                  | Negligible           |
|                                                                                                                                                                            | W2 | Incorrect disposal of batteries.                                                            | Contamination of Landfill. | Battery building: <ul style="list-style-type: none"> <li>Long life, gel batteries replaced every 5 years except MLV and truck batteries (lead acid).</li> <li>Undercover, hardstand, bunded area.</li> <li>Licensed third party contractor used for regulated waste disposal (Veolia or Cleanaway for QSN via Moomba) and waste tracking certificates obtained and retained.</li> </ul>                                                                                                                                                              |            |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                            | 1                 | 2                  | Negligible           |
|                                                                                                                                                                            | W3 | Incorrect disposal of filter elements - covered in oil residue.                             | Contamination of Landfill. | Filtration skid, discharge coalesce: <ul style="list-style-type: none"> <li>Competent maintenance personnel.</li> <li>Designated bin for filters (WCS).</li> <li>Change outs every 6-12 months or as required.</li> <li>Licensed third party contractor used for regulated waste disposal (WCS and Moomba) and waste tracking certificates obtained and retained.</li> </ul>                                                                                                                                                                         |            |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                            | 2                 | 2                  | Negligible           |
|                                                                                                                                                                            | W5 | Chemical spill from insufficient maintenance / inspections or incorrect waste disposal.     | Soil Contamination.        | Inspections: <ul style="list-style-type: none"> <li>Ensure spill response equipment is available prior to commencing.</li> <li>Licensed third party contractor used for regulated waste disposal and waste tracking certificates obtained and retained.</li> </ul>                                                                                                                                                                                                                                                                                   |            |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                            | 3                 | 1                  | Negligible           |
|                                                                                                                                                                            | W4 | Loss of containment / control of pigging waste potentially including NORMS.                 | Soil contamination.        | Cleaning Pigging: <ul style="list-style-type: none"> <li>Pigging risk assessments are conducted and pigging activities planned.</li> <li>Liquid waste is captured and disposed of by a licensed contractor.</li> <li>Spill response equipment in vehicle is checked prior to commencing.</li> </ul>                                                                                                                                                                                                                                                  |            |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                            | 2                 | 3                  | Low                  |

## 8.6 Soil and Water Management

The potential impacts and management and control measures that will be applied to manage the risks posed to soil and water, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 22.

**Table 22 Soil and Water Management Measures**

| Objective                                                                                                                                                                                                                                                  | ID | Impact Event                                                                                          | Potential Impacts                                                            | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | APA System   | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <b>To avoid or minimise adverse impacts on soils and terrain during operation and maintenance and to maintain soil stability / integrity on the easement</b><br><br><b>To minimise and manage impacts to water resources, including aquatic ecosystems</b> | S1 | Inadequate or poorly maintained erosion control devices / rehabilitation / general weathering.        | Sedimentation, loss of soil, landholder dissatisfaction.                     | Compliance with the Soil and Water Management Protocol (Appendix 7). <ul style="list-style-type: none"> <li>Environment toolbox talks.</li> <li>Clear Scope of Works for erosion repair works linked in with Contractor HSE Assessment Tool (CHAT).</li> <li>Water affecting activities permits to be obtained where required, including for erosion rectification works.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Maximo, ARGO | <ul style="list-style-type: none"> <li>The extent of soil erosion on the easement is consistent with surrounding land</li> <li>0, +1 or +2 GAS criteria are obtained for borrow pit construction and restoration</li> <li>No evidence of subsoil on surface (colour). Vegetation cover consistent with surrounding land</li> <li>No reasonable landholder complaints</li> <li>Vegetation cover is consistent with surrounding land</li> <li>No evidence of subsoil on surface (colour)</li> <li>No un-remediated subsidence</li> <li>No excessive erosion on areas adjacent to corridor as a result of easement</li> <li>No new water affecting activities as defined under the <i>Landscape South Australia Act 2019</i> (without prior approval).</li> </ul> | <ul style="list-style-type: none"> <li>An erosion hazard assessment must be completed prior to undertaking soil disturbance that:               <ul style="list-style-type: none"> <li>Will disturb more than &gt;1000m<sup>2</sup> of land at any one time;</li> <li>Is within or adjacent to a watercourse; or</li> <li>Is on a slope &gt;10% gradient and &gt;30m in length.</li> </ul>               The assessment must be completed using <i>APA HSE EP 13.06 T3 Erosion Hazard Assessment Template</i> or equivalent regulatory or industry accepted framework.             </li> <li>When undertaking soil disturbance, reasonable and practical measures must be implemented to control erosion and protect watercourses from sediment runoff and pollution. This includes both during and following the works, until such time as the site has been stabilised.</li> <li>When undertaking soil disturbance, sufficient topsoil must be preserved for reuse as part site reinstatement and stabilisation.</li> <li>Erosion and sediment controls must be periodically inspected to validate their effectiveness, and to identify maintenance requirements.</li> </ul> | 2                 | 3                  | Low.                 |
|                                                                                                                                                                                                                                                            | S2 | Excavation / dig-up leading to impacts to erosion, impacts to landholders, inadequate rehabilitation. | Ecological impacts / negative impacts to reputation.                         | <ul style="list-style-type: none"> <li>Provision of environmental line list is noted on JHA / Permit to Work.</li> <li>Erosion identification and remediation (information available in guideline or toolbox).</li> <li>GIS / mapping of erosive areas is available to all field personnel and contractors.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                 | 3                  | Low.                 |
|                                                                                                                                                                                                                                                            | S3 | Spills and over-clearing of vegetation.                                                               | Soil contamination.                                                          | <ul style="list-style-type: none"> <li>Installation of erosion and sediment controls including berms, matting, repair or existing controls and engineering controls as required, particularly in areas of surface water.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                 | 3                  | Low.                 |
|                                                                                                                                                                                                                                                            | S3 |                                                                                                       | Soil contamination. Sedimentation, loss of soil, landholder dissatisfaction. | <ul style="list-style-type: none"> <li>Work is restricted during wet periods.</li> <li>Specialist civil works as required.</li> <li>Reseeding after disturbance were required– seed mix as required by landholder.</li> <li>Material erosions shall be rectified as soon as practicable.</li> </ul> Compliance with the Excavation and Trenching Fatal Risk Protocol (Appendix 8).<br>Dig ups / excavations: <ul style="list-style-type: none"> <li>Dig up works managed as SIB projects.</li> <li>Additional assessment of dig up locations and any potential additional work space required prior to works.</li> <li>Notification of landholders prior to works.</li> <li>Ongoing monitoring of dig up locations via ground and aerial patrol.</li> <li>Daily site reports / check sheets / log of works.</li> <li>Maintenance and repair activities to be conducted during dry spells where possible. If not possible, appropriate erosion and soil management plan will be developed.</li> <li>Topsoil must be stripped and stockpiled prior to, or at the commencement of, land disturbance activities.</li> <li>Vegetation/mulch to be respread following reinstatement.</li> </ul> |              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2                 | 3                  | Low.                 |

## 8.7 Heritage Management

The potential impacts and management and control measures that will be applied to manage the risks posed to heritage, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 23.

**Table 23 Heritage Management Measures**

| Objective                                                                                     | ID | Impact Event                                                                     | Potential Impacts                                        | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | APA System    | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Leading Performance Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|-----------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| To minimise and manage impacts to heritage sites and values during operations and maintenance | H1 | Excavation / dig-up leading to disturbance of cultural heritage site / material. | Loss of heritage value / negative impacts to reputation. | <p>Compliance with Heritage Management Protocol (Appendix 4).</p> <ul style="list-style-type: none"> <li>Specific awareness regarding heritage sites along the easement and process for accidental finds (as per Heritage Management Protocol Appendix 4).</li> <li>Knowledge holders contacted prior to any ground disturbing works inside heritage areas.</li> <li>Pre-activity assessments completed prior to undertaking ground disturbing works and clearing.</li> <li>Heritage surveys to identify, document and assess heritage values must be undertaken by a suitably qualified person and, where related to First Nations heritage, in consultation with relevant First Nations stakeholders.</li> <li>Spotter / guide during LOS clearing.</li> <li>If heritage values or suspected human remains are unexpectedly discovered, or suspected to exist in the activity area, the activity must immediately cease in the vicinity (10m from extent) of the heritage discovery and be reported as per <i>APA HSE GP 07.01 Incident Reporting</i>.</li> <li>Refer to SIB procedures if outside normal operations.</li> <li>Provision of environmental line list is noted on JHA / Permit to Work.</li> <li>Ensure access / driving are without ground disturbance.</li> <li>Operation and maintenance activities are undertaken in previously cleared areas.</li> <li>Ground disturbing works require further assessment prior to commencement.</li> <li>GIS / mapping of environmentally and culturally sensitive areas is available to field personnel and contractors via the Environment and Heritage Team.</li> <li>Consult with Traditional Owners (Yandruwandha Yawarrawarrka) where appropriate.</li> </ul> <p>Compliance with Excavation and Trenching Fatal Risk Protocol (Appendix 8).<br/>Dig ups / excavations:</p> <ul style="list-style-type: none"> <li>Dig up works managed as SIB projects.</li> <li>Additional assessment of dig up locations and any potential additional work space required prior to works.</li> <li>Notification of landholders prior to works.</li> <li>Ongoing monitoring of dig up locations via ground and aerial patrol.</li> <li>Daily site reports / check sheets / log of works.</li> <li>Maintenance and repair activities to be conducted during dry spells where possible. If not possible, appropriate erosion and soil management plan will be developed.</li> <li>Topsoil must be stripped and stockpiled prior to, or at the commencement of, land disturbance activities.</li> <li>Vegetation / mulch to be respread following reinstatement.</li> </ul> | Maximo, ARGO. | <ul style="list-style-type: none"> <li>No impact to non-Aboriginal heritage places and related objects protected under the <i>Heritage Places Act 1993</i> unless approval has been obtained.</li> <li>Any breaches (damage, disturbance or interference) to Aboriginal sites, objects and remains (as defined under the <i>Aboriginal Heritage Act 1988</i>) are appropriately reported, investigated and remediated in consultation with the relevant Aboriginal heritage group.</li> <li>If sites, remains or objects are discovered during operations, the discovery is reported to appropriate authority and recorded, consistent with the <i>Aboriginal Heritage Act 1988</i>.</li> <li>If suspected remains are discovered, the SA Police will be notified immediately.</li> </ul> | <ul style="list-style-type: none"> <li>The potential for an activity to impact on heritage must be assessed prior to activity commencement in accordance with <i>APA HSEH GP 47.00 T04 Heritage Management Flow Chart</i>, with a record of the assessment retained by the relevant business area.</li> <li>Control measures to mitigate heritage impacts must be developed in consultation with external heritage stakeholders unless the activity is subject to a statutory exemption that does not require consultation.</li> <li>Prior to work, the work supervisor must be provided with a copy of, and complete a review of, the heritage obligations applicable to the work.</li> <li>The work supervisor must ensure any relevant heritage obligations are communicated to relevant workers as part of the job prestart, site induction or equivalent.</li> <li>The work supervisor must ensure any exclusion or restricted zones are appropriately marked out or otherwise defined prior to and during work.</li> <li>A record of completed heritage management actions and controls must be maintained.</li> </ul> | 2                 | 4                  | Moderate             |

8.8 Fire Management

The potential impacts and management and control measures that will be applied to manage the risks posed by fire, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 23.

Table 24 Fire Management Measures

| Objectives                                                                                                                                     | ID | Impact Event          | Potential Impacts                                                | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                  | APA System    | Assessment Criteria                                                                      | Leading Performance Criteria                                                                                                                                     | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <p>To minimise the risk to public health and safety</p> <p>To minimise disturbance to third party infrastructure, landholders and land use</p> | F1 | Welding and Grinding. | Potential for fire leading to loss of fauna, flora and habitats. | <ul style="list-style-type: none"><li>Check fire ban requirements each day prior to commencement of works.</li><li>Fire response training.</li><li>Permit to work.</li><li>Fire breaks around compounds.</li><li>Designated areas for welding and grinding, within facilities only.</li><li>Emergency response procedure.</li><li>Fire response equipment (fire extinguishers, sprinklers).</li><li>Fire prevention and control procedure.</li></ul> | Maximo, ARGO. | <ul style="list-style-type: none"><li>No fires related to pipeline activities.</li></ul> | <ul style="list-style-type: none"><li>Fire ban requirements are checked and documented daily.</li><li>Fire response equipment are within service life.</li></ul> | 1                 | 3                  | Negligible.          |

## 8.9 Third Party and Public Safety

The potential impacts and management and control measures that will be applied to manage the risks posed to third parties and public safety, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 25.

**Table 25 Third Party and Public Safety Management Measures**

| Objective                                                                                                                                                    | ID  | Impact Event      | Potential Impacts                                          | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | APA System | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Leading Performance Criteria                                                                                                                                                                                                                                                  | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <p><b>To minimise the risk to public health and safety</b></p> <p><b>To minimise disturbance to third party infrastructure, landholders and land use</b></p> | TP1 | Pipeline rupture. | Injury to public and damage to third party infrastructure. | <ul style="list-style-type: none"> <li>Landholders, residents within proximity and any relevant third parties are notified in advance of any non-routine activities likely to cause a hazard.</li> <li>SWMS to include hazards to third parties and outline mitigation. All work sites compliant with Safe Work requirements.</li> <li>Earthworks to be rehabilitated to a condition the same or better than current condition.</li> <li>Fencing with security fencing to prevent unauthorized access.</li> <li>Spill response equipment to be available.</li> <li>Ensure emergency preparedness (equipment, machinery, pressure tested pipe).</li> <li>Emergency Response Training.</li> <li>Compliance with design and operations requirements of <i>AS2885 – Pipeline Integrity Management Plan, Emergency Response Procedure</i>.</li> <li>24-hour Gas Controller incorporating monitoring and control systems that continuously receive and analyse pipeline operating reports.</li> <li>Regular ground and aerial patrols to identify third party activity.</li> <li>Implement pipeline awareness program with all land owners and stakeholders.</li> <li>Provision of 24 hour 'Dial Before you Dig' contact number and free pipeline location service.</li> <li>Installation and maintenance of pipeline warning signs along the pipeline route.</li> <li>Fencing with security fencing to prevent unauthorized access.</li> </ul> | Maximo.    | <ul style="list-style-type: none"> <li>Where disturbance is unavoidable or accidental, infrastructure or land use is restored to the satisfaction of the landholder/owner or as near as practicable to undisturbed condition.</li> <li>Duration of disturbance does not exceed agreed timeframe.</li> <li>No disturbance outside the easement and approved access and work areas.</li> <li>No reasonable complaints received.</li> <li>Adverse impacts to Innamincka Regional Reserve operations or conservation values are minimised.</li> <li>Landholder activities not restricted or disturbed as a result of pipeline activities unless by prior arrangement.</li> <li>Species abundance and distribution on the easement is reasonably consistent with surrounding areas. Note: assessment of the consistency with surrounding areas will take into account that regrowth is a time and rainfall dependent process.</li> <li>No injuries or incidents involving the public.</li> <li>No unauthorised activity on the easement that has the potential to impact on the pipeline integrity.</li> </ul> | <ul style="list-style-type: none"> <li>APA's third party consultation and engagement procedures are up to date and documented.</li> <li>Emergency response training has been conducted and logged.</li> <li>Regular site inspections are conducted and documented.</li> </ul> | 1                 | 3                  | Negligible.          |

## 8.10 Security of Gas Supply

The primary potential impact of a compromised gas security is the loss of gas supply via an emergency event such as a full-bore rupture. The potential impacts and management and control measures that will be applied to manage the risks posed to security of gas supply, along with the integration system, the assessment criteria and the leading performance criteria, is outlined in the following Table 26.

**Table 26 Security of Gas Supply Management Measures**

| Objectives                                                                                                                                                                                                                                                 | ID  | Impact Event      | Potential Impacts                                          | Management Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | APA System | Assessment Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Leading Performance Criteria                                                                                                                                                 | Likelihood Rating | Consequence Rating | Residual Risk Rating |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------|----------------------|
| <p><b>To minimise the risk to public health and safety</b></p> <p><b>To minimise disturbance to third party infrastructure, landholders and land use</b></p> <p><b>To ensure that security of natural gas supplies are maintained to gas consumers</b></p> | TP1 | Pipeline rupture. | Injury to public and damage to third party infrastructure. | <ul style="list-style-type: none"> <li>Ensure emergency preparedness (equipment, machinery, pressure tested pipe).</li> <li>Emergency Response Training.</li> <li>Compliance with design and operations requirements of AS2885 – Pipeline Integrity Management Plan, Emergency Response Procedure.</li> <li>24 hour System Controller incorporating monitoring and control systems that continuously receive and analyse pipeline operating reports.</li> <li>Regular ground and aerial patrols to identify third party activity.</li> <li>Implement pipeline awareness program with all land owners and stakeholders.</li> <li>Provision of 24 hour 'Dial Before you Dig' contact number and free pipeline location service.</li> <li>Installation and maintenance of pipeline warning signs along the pipeline route.</li> </ul> | Maximo.    | <ul style="list-style-type: none"> <li>No unplanned interruption to gas supply that impacts the public.</li> <li>Achieve compliance with Energy Resources Act 2000 requirements for Fitness-for-purpose assessments.</li> <li>Pipeline repaired in a timeframe that represents good industry practice.</li> <li>Emergency response procedures are effectively implemented in the event of an emergency to reinstate gas supply in a timeframe consistent with good industry practice, as assessed by post incident debrief.</li> </ul> | <ul style="list-style-type: none"> <li>Emergency response training has been conducted and logged.</li> <li>Regular site inspections are conducted and documented.</li> </ul> | 1                 | 3                  | Negligible           |

## 9 Environmental Significance Assessment

This Section seeks to address Criteria 5 – Environmental Significance Assessment of the Environmental Impact Assessment Criteria.

An environmental significance assessment has been prepared, outlined below in Table 27.

**Table 27 Environmental Significance Assessment**

| ID  | Potential Impact Event                                                                        | Avoidance                                                                                                | Frequency                            | Duration    | Extent     | Severity | Cumulative Effects | Sensitivity of Receiving Environment                                                                                                 | Outcome                          |
|-----|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------|-------------|------------|----------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| NV1 | Clearing and / or works off easement. Scope not clearly defined, new contractor, overspray.   | No – maintenance activities, including movement of maintenance personnel and excavations required.       | Infrequent – during earthworks only. | Short term. | Localised. | Low.     | Unlikely.          | Low – a majority of activities will occur within the pipeline easement, which has already been modified from its original condition. | Potential impacts managed ALARP. |
| NV2 | Vehicle strike (single), equipment or plant interaction and general activities.               | No - movement of vehicles and plant is necessary for construction, operation and maintenance activities. | Frequent.                            | Short term. | Localised. | Low.     | Unlikely.          | High – impacted fauna may include protected species.                                                                                 | Potential impacts managed ALARP. |
| NV3 | Excavation / dig-up leading to impacts to fauna.                                              | No – ground-breaking activities are required to complete this project.                                   | Rare.                                | Short term. | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low.                                                                                      | Potential impacts managed ALARP. |
| S1  | Inadequate or poorly maintained erosion control devices/ rehabilitation / general weathering. | Yes – may be avoided through implementation of controls and monitoring.                                  | N/A.                                 | N/A.        | N/A.       | N/A.     | Unlikely.          | Low – the number of potential receptors is low.                                                                                      | Potential impacts managed ALARP. |

| ID | Potential Impact Event                                                                                                                           | Avoidance                                                                                                                    | Frequency | Duration    | Extent     | Severity | Cumulative Effects | Sensitivity of Receiving Environment            | Outcome                          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|------------|----------|--------------------|-------------------------------------------------|----------------------------------|
| S2 | Excavation / dig-up leading to erosion, impacts to landholders, inadequate rehabilitation.                                                       | No – ground-breaking activities are required to complete this project.                                                       | Rare.     | Short term. | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low. | Potential impacts managed ALARP. |
| S3 | Spills and over clearing vegetation.                                                                                                             | Yes – impacts may be avoided through effective implementation of chemical management controls and land clearing preparation. | N/A.      | N/A.        | N/A.       | N/A.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| H1 | Excavation / dig-up leading to disturbance of cultural heritage site / material                                                                  | No – ground-breaking activities are required to complete this project.                                                       | Rare.     | Short term. | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low. | Potential impacts managed ALARP. |
| P1 | Spread of weeds on and off easement.<br>Breach of property biosecurity controls (sign in, washdown records, etc);<br>Weed infestations / spread. | No – movement of vehicles and plant is necessary for construction, operation and maintenance activities.                     | Frequent. | Long term.  | Localised. | Low.     | Unlikely.          | Low – significance of receptor is low.          | Potential impacts managed ALARP. |
| P2 | Incorrect pest management.<br>Overspray of chemical - APA personnel generally only spraying within facilities. Contractors utilised for ROW.     | Yes – impacts may be avoided through effective implementation of controls and training of APA personnel.                     | N/A       | N/A         | N/A        | N/A      | Unlikely           | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |

| ID | Potential Impact Event                                                                      | Avoidance                                                                                                              | Frequency   | Duration                                                         | Extent     | Severity | Cumulative Effects | Sensitivity of Receiving Environment            | Outcome                          |
|----|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------|------------|----------|--------------------|-------------------------------------------------|----------------------------------|
| W1 | Leaching to ground from compressor stations, septic systems and water treatment / drainage. | No - compressor stations, septic systems and water treatment are required to operate the pipeline.                     | Rare.       | Short term – availability of spill kits and clean up procedures. | Localised. | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| W2 | Incorrect disposal of batteries.                                                            | Yes – impacts may be avoided through effective implementation of controls and waste management processes.              | N/A.        | N/A.                                                             | N/A.       | N/A.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| W3 | Incorrect disposal of filter elements - covered in oil residue.                             | Yes – impacts may be avoided through effective implementation of controls and waste management processes.              | N/A         | N/A                                                              | N/A        | N/A      | Unlikely           | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| W4 | Loss of containment / control of pigging waste potentially including NORMS.                 | Yes – impacts may be avoided through effective implementation of controls and waste management processes.              | N/A         | N/A                                                              | N/A        | N/A      | Unlikely           | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| W5 | Chemical spill from insufficient maintenance / inspections or incorrect waste disposal.     | Yes – impacts may be avoided through effective implementation of maintenance schedules and waste management processes. | N/A         | N/A                                                              | N/A        | N/A      | Unlikely           | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| C1 | Uncontained chemical spill (hose, or oil < 10L) from light vehicles, heavy equipment, etc.  | No – use of vehicles and plant is necessary for construction, operation and maintenance activities.                    | Infrequent. | Short term – availability of spill kits and clean up procedures. | Localised. | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| C2 | Chemical spill, loss of containment of water from waterbath heaters.                        | No – waterbath heaters are required to operate the pipeline.                                                           | Rare.       | Short term – availability of spill kits and clean up procedures. | Localised  | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |

| ID | Potential Impact Event                                                                                                        | Avoidance                                                                                                                             | Frequency   | Duration                                                                                            | Extent     | Severity | Cumulative Effects | Sensitivity of Receiving Environment            | Outcome                          |
|----|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------|------------|----------|--------------------|-------------------------------------------------|----------------------------------|
| C3 | Chemical Spill from hazardous materials storage and facility fuel storage tanks.                                              | No – use and storage of hazardous materials and fuel are required for operation of the pipeline and refuelling of vehicles and plant. | Infrequent. | Short term – availability of spill kits and clean up procedures.                                    | Localised. | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| C4 | Loss of containment / potential for release of coolant through the separator in oily water collection systems.                | No – oily water collection system is required to operate the pipeline.                                                                | Rare.       | Short term – availability of spill kits and clean up procedures.                                    | Localised. | Low.     | Unlikely           | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| C5 | Chemical release / uncontained chemical spill from compressor units and Gas Engine Alternators.                               | No – use and storage of hazardous materials and fuel are required for operation of the pipeline.                                      | Infrequent. | Short term – availability of spill kits and clean up procedures.                                    | Localised. | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| C6 | Transport of Chemicals along ROW - generally less than 20L accepting fuel up to 400L                                          | No – use and storage of hazardous materials and fuel are required for operation of the pipeline.                                      | Infrequent. | Short term.                                                                                         | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low. | Potential impacts managed ALARP. |
| N1 | Release of gas emissions - NOx and CH4 from exhaust gases (SWQP), general plant operations, emergency shut downs and venting. | No - generation and release of these gases cannot be avoided.                                                                         | Constant.   | Long term – greenhouse gas emissions remain in the atmosphere and cannot be immediately remediated. | Regional.  | Low.     | Potential.         | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| N2 | Release of gas emissions – Methane from general venting.                                                                      | No - generation and release of these gases cannot be avoided.                                                                         | Constant.   | Long term – greenhouse gas emissions remain in the atmosphere and cannot be immediately remediated. | Regional.  | Low.     | Potential.         | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |

| ID  | Potential Impact Event                                                                                                                                                           | Avoidance                                                                                                | Frequency   | Duration                                                                                            | Extent     | Severity | Cumulative Effects | Sensitivity of Receiving Environment            | Outcome                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------|------------|----------|--------------------|-------------------------------------------------|----------------------------------|
| N3  | Release of gas emissions - FM200 - fire suppression system.                                                                                                                      | No - generation and release of these gases cannot be avoided when used in the event of a fire.           | Rare.       | Long term – greenhouse gas emissions remain in the atmosphere and cannot be immediately remediated. | Regional.  | Low.     | Potential.         | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |
| N4  | Coating defect repairs could include buffing, sand/grit blasting, rewinding, use of epoxy resins resulting in dust, blasting material, coating removal media and chemical waste. | No – repair works will require these activities to be done, which will generate fine airborne particles. | Infrequent. | Short term.                                                                                         | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low. | Potential impacts managed ALARP. |
| F1  | Welding and Grinding                                                                                                                                                             | No – maintenance and repair works will require these activities to be done, which will generate sparks.  | Infrequent. | Short term.                                                                                         | Localised. | Low.     | Unlikely.          | Low – the number of potential receptors is low. | Potential impacts managed ALARP. |
| TP1 | Pipeline rupture.                                                                                                                                                                | No – maintenance activities and excavations cannot be avoided.                                           | Infrequent. | Short term.                                                                                         | Localised. | Low.     | Unlikely.          | Low - the number of potential receptors is low. | Potential impacts managed ALARP. |

# 10 Implementation

## 10.1 Environmental Framework

The APA HSE Management System is called 'Safeguard' and provides a framework by which the processes relating to the company's Health, Safety and Environment (HSE) activities are defined, implemented and controlled. Additionally, local business unit processes and procedures provide instruction to workers on performing activities. APA business tools and systems used to manage and maintain all information relating to asset operations include:

- Maximo – Asset maintenance system (Work Order/Job Plan/Work Instruction);
- Safeguard+ (SG+) - Risk, auditing and reporting system;
- Inspections;
- Workday Learning (Workday) – APA's Enterprise Resource Platform. APA's primary system for tracking and managing APA staff training and inductions, supported by the Skill Pass and Birch platforms for external contractors and personnel; and
- APA GIS – ARGO and NetMap mapping systems used to store, display and analyse information on planned and operational assets and associated environmental, heritage and land features. Information on environment, heritage and land features is sourced from external government and public sources and APA commissioned surveys and studies. Information on sitespecific environmental management requirements is recorded for against individual sensitive features. Information on sensitive features will be sourced from the GIS to support implementation of the EMP. Information is made available via a range of methods, including static maps and drawings, tabulated reports / environmental line lists, desktop and mobile (field) mapping.

### 10.1.1 Environmental Procedures

As part of Safeguard, APA has a suite of procedures for environmental management.. These procedures provide guidance to all APA staff and contractors for applying management process and considerations to minimise harm to the environment.

## 10.2 Competency Controls

APA has a dedicated procedure in place (APA HSE GP 04.01 HSE Education and Training) to identify the training requirements for all personnel working on its behalf. All Managers are responsible for identifying training and competency requirements for personnel under their control, and for ensuring that personnel have the requisite competencies, skills and training to carry out their assigned tasks. Managers are also responsible for ensuring training records are maintained. Training may include formal external courses, inductions, and toolbox meetings.

### 10.2.1 Induction

#### National Induction

As a minimum, all personnel are required to complete the APA HSE and Environmental Induction covering the standard requirements for HSE management prior to accessing APA sites. This includes generic environmental aspects and management.

#### Local Induction

Key Environmental Requirements have been summarised in Appendix 4 highlighting key environmental management measures to address, specific environmental risks. All operators and contractors working on the asset will be required to understand these requirements prior to undertaking any works.

Should any small-scale construction works be undertaken, site-specific induction may be developed, commensurate with the size of works.

Please refer to Table 28 for summary of inductions.

**Table 28 Inductions**

| ERA ID | Who Trained                                | Management Method / Control                                                                                                          | Integration System / Method |
|--------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| ALL    | All staff and contractors conducting work. | Complete the APA HSE and Environmental Induction covering the standard requirements for HSE management prior to accessing APA sites. | Workday.                    |
| ALL    | All staff and contractors conducting work. | Appendix 4 – Key Environmental Features including Environmentally Sensitive Areas.                                                   | Workday.                    |
| C1     | All staff and contractors conducting work. | Chemical E-Learning – safeguard protocol. Toolboxes on hazardous chemicals. Toolbox - chemical management /refueling.                | E-Learning / Toolbox.       |

### 10.2.2 Training

Please refer to Table 29 for summary of training.

**Table 29 Training**

| ERA ID | Who Trained                                | Management Method / Control                                                                                              | Integration System / Method |
|--------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| W1     | Contractors conducting work.               | Licensed plumber / competent contractor maintains septic system.                                                         |                             |
| C3     | All staff and contractors conducting work. | Forklift tickets.                                                                                                        | Workday.                    |
| N3     | Contractors conducting work.               | FM200 - fire suppression system.                                                                                         |                             |
| P2     | Contractors conducting work.               | Pest Control – Licensed contractor.                                                                                      |                             |
| P2     | All staff and contractors conducting work. | Weed Control – ACDC Licenses*.                                                                                           | Workday.                    |
| N4     | Contractors conducting work.               | Coating defect repairs could including buffing, sand/grit blasting, rewinding, use of epoxy resins – competent operator. |                             |
| F1     | All staff and contractors conducting work. | Fire response training and PTW training.                                                                                 | Workday.                    |

\*To be implemented during 24-month Improvement Program

### 10.2.3 Awareness

Please refer to Table 30 for summary of awareness packages.

**Table 30 Awareness**

| <b>ERA ID</b>                  | <b>Who Trained</b>                         | <b>Management Method / Control</b>                                                                                                          | <b>Integration System / Method</b> |
|--------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| <b>S1</b>                      | All staff and contractors conducting work. | Erosion identification and remediation.                                                                                                     | Guideline / Toolbox.               |
| <b>H1</b>                      | All staff and contractors conducting work. | Specific awareness regarding heritage sites along the easement and process for accidental finds (as per APA HSE EP 13.07.02 and 13.07.01).* | Guideline / Toolbox.               |
| <b>P1</b>                      | All staff and contractors conducting work. | Weed ID books and weeds in the region*.                                                                                                     | Guideline / Toolbox.               |
| <b>P1<br/>P2</b>               | All staff and contractors conducting work. | Specific awareness of properties with biosecurity requirements and what APA staff / contractors have to do - linked with IPP*               | Guideline / Toolbox.               |
| <b>C1</b>                      | All staff and contractors conducting work. | Chemical E-Learning - safe guard protocol. Toolboxes on hazardous chemicals.*.                                                              | Workday / Toolbox.                 |
| <b>C3<br/>C6</b>               | All staff and contractors conducting work. | Emergency response exercises including spill response.                                                                                      | Workday.                           |
| <b>N1<br/>N2<br/>C5<br/>W3</b> | All staff and contractors conducting work. | Competent maintenance personnel.                                                                                                            | Workday.                           |
| <b>H2/<br/>NV3/<br/>S2</b>     | All staff and contractors conducting work. |                                                                                                                                             | Workday.                           |

\*To be implemented during 24-month Improvement Program.

## 10.3 Assurance Controls

### 10.3.1 Inspections

Please refer to Table 31 for summary of inspections.

**Table 31 Inspections**

| ERA ID                                              | Inspection / Monitoring / Compliance Record or Evidence Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Integration System / Method |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| -                                                   | Purchase orders for licensed contractor and maintenance records.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Maintenance.                |
| -                                                   | All spills are reported through SG+.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SG+.                        |
| -                                                   | Any testing undertaken is to be at NATA accredited laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |
| NV1<br>S1<br>C1<br>C2<br>C3<br>N2<br>W3<br>P2<br>S3 | <p>Inspections</p> <ul style="list-style-type: none"> <li>Monthly aerial patrols and 6 monthly ground patrols including: <ul style="list-style-type: none"> <li>Weeds.</li> <li>Erosion.</li> </ul> </li> <li>Yearly inspection of spill response equipment.</li> <li>Monthly housekeeping including checking for pest infestations.</li> <li>Monthly inspections of Control Buildings.</li> <li>Daily and weekly inspection of waterbath heaters (by contractors).</li> <li>Inspection of hazardous materials storage as per Maximo.</li> <li>Inspection of plant and equipment as part of maintenance including Compressor Units and Gas Engine Alternators.</li> </ul> <p>Evidence</p> <ul style="list-style-type: none"> <li>Patrol Reports / Sightings.</li> <li>Work orders.</li> <li>Pre-starts.</li> <li>Maintenance Records.</li> <li>Incident Reporting.</li> <li>Waste Tracking Certificates.</li> <li>Consignment notes.</li> <li>NGERS and NPI Reporting.</li> <li>Inspection records in Maximo.</li> <li>Contractor Records / Reports.</li> <li>Housekeeping inspection checklist.</li> <li>Location of weeds sprayed along the ROW.</li> </ul> | Maximo, SCADA.              |
| NV1<br>S1<br>F1                                     | <p>Permit to Work / JHA</p> <ul style="list-style-type: none"> <li>Permit Issuing Officer / APA monitors contractor works.</li> <li>Welding and Grinding.</li> </ul> <p>Evidence</p> <ul style="list-style-type: none"> <li>Sectional sign off of works.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Maximo.                     |

| ERA ID                                                                       | Inspection / Monitoring / Compliance Record or Evidence Type                                                                                                                                                                                                                                                                                                                                                                                                   | Integration System / Method |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>P1</b><br><b>C2</b><br><b>N1</b><br><b>P2</b><br><b>NV3/</b><br><b>S2</b> | Monitoring <ul style="list-style-type: none"> <li>• Weeds are monitored against baseline.</li> <li>• Compressors stations – septic systems and associated water treatment and drainage.</li> <li>• Daily checks – Excavations / Dig ups.</li> </ul> Evidence <ul style="list-style-type: none"> <li>• NGRS and NPI Reporting.</li> <li>• Landholder requirements in XIC.</li> <li>• Washdown Records.</li> <li>• Daily check sheets / log of works.</li> </ul> | Work Orders, XIC.           |

### 10.3.2 Audit

All environmental auditing on the asset will be undertaken in line with the APA Line 2 Assurance Schedule, this EMP will be audited at a minimum once every three years. Suitably qualified and experienced environmental professionals undertake the EMP audits. The Audit will be undertaken using the APA Environment Audit tool and focus on the risk identified in this EMP.

Following an environmental audit, the audit report is circulated to relevant personnel detailing the audit findings, including any non-conformances, corrective actions or opportunities for improvement. A timeframe for addressing audit actions will be agreed to by management, and audit actions are to be reviewed by the Environment Advisor to ensure they have been adequately addressed and closed out.

Following an EMP audit, the EMP may be reviewed, updated and re-issued to reflect any findings, including regulatory and organisational changes. Dependent on the type of non-conformances, additional environmental training will be scheduled. Non-conformances may also be entered into SG+.

Additional auditing may be undertaken commensurate with the level of works being undertaken on the pipeline.

# 11 Stakeholder Consultation

APA maintains regular contact with the landholders and other directly affected stakeholders (e.g. local government) as a standard part of the pipeline operations.

Key stakeholders include, but are not limited to:

- Department for Energy and Mining (DEM);
- Department for Environment and Water (DEW);
- Environment Protection Authority (EPA);
- Department for Infrastructure and Transport (DIT)
- Department of Primary Industries and Regions (PIRSA); and
- Landholders.

Consultation with relevant stakeholders regarding environmental objectives for operations was carried out during the review of the SEO and EIR, as per Regulation 11 of the *Energy Resources Regulations 2013*. Refer to Appendix 11 for key stakeholders consulted, a summary of feedback received and updates made to the SEO and EIR.

APA maintains landholder information and access arrangements in X-info Connect (managed by the Infrastructure Protection team). X-info Connect (XIC) contains property access details specific to each property requiring access by APA. All landholders are identified and recorded in XIC along with details of the Landholder Contact Program. Interaction records with registered owners and occupiers are recorded in XIC, including attachment of any communication materials provided or received, where relevant.

The EIR and SEO were revised and submitted to the Department for Energy and Mining and consultation was sought from relevant government agencies. Comments were received from various agencies. The consultation comments received and the APA responses are also provided in Appendix 11.

# 12 Reporting

## 12.1 Data Capture, Storage Systems and Sources

Please refer to Table 32 for data capture, storage systems and sources.

**Table 32 Data capture, storage systems and sources**

| <b>Data Type</b>                              | <b>System Name and Access Info</b>         | <b>Data Owner</b> |
|-----------------------------------------------|--------------------------------------------|-------------------|
| <b>Worker Induction.</b>                      | Hard copy at base and scanned copy in LMS. | Regional Manager. |
| <b>Toolbox attendance.</b>                    | Hard copy at base.                         | Regional Manager. |
| <b>Complaints response records.</b>           | XIC and/or SG+.                            | Regional Manager. |
| <b>Patrol records.</b>                        | Maximo.                                    | Regional Manager. |
| <b>Landholder communication record.</b>       | XIC.                                       | Regional Manager. |
| <b>Landholder approval record.</b>            | XIC.                                       | Regional Manager. |
| <b>Incident reporting.</b>                    | SG+.                                       | Regional Manager. |
| <b>Weed Hygiene Declarations and records.</b> | In triplicate book, scanned to XIC.        | Regional Manager. |
| <b>Regulated Waste certificates.</b>          | Hard copy at base.                         | Regional Manager. |
| <b>Excavation permits.</b>                    | Hard copy at base and in Maximo.           | Regional Manager. |
| <b>Agricultural chemical usage.</b>           | Hard copy at base and scanned copy.        | Regional Manager. |

## 12.2 Internal Reporting

### 12.2.1 Environmental Incident Reporting

Environmental Incident Reporting occurs in line with APA HSE GP 07.01 Incident, Near Miss and Hazard Management Protocol All incidents which cause or hazards which have the potential to cause environmental harm are to be reported, regardless of size of impacts.

Please refer to Table 33 for internal reporting summary.

**Table 33 Internal Reporting**

| Type                          | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Requirement                                                                                                                                                                                                                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Environmental Incident</b> | <p>An incident is an unplanned event that causes harm to people or the environment. As a result of an incident people could be injured or made ill, while the environment could be damaged.</p> <p>An environmental incident at APA Group is when environmental harm has occurred. Environmental harm can occur because of a breach of one, or a combination of, three environmental management parameters:</p> <ol style="list-style-type: none"> <li>1) Environmental law and/or regulation (including license/approval conditions);</li> <li>2) Environmental harm to a technical environmental area (e.g. physical biological harm, loss of public amenity);</li> <li>3) Failure of an environmental risk management method.</li> </ol> | <p>Reported via Safeguard + or Incident Report E form or form<br/>APAHSEGP07.01T4 Incident Report Form.</p> <p>Report and investigate in accordance with:<br/>APA HSE GP 07.01 Incident, Near Miss and Hazard Management Protocol.</p>  |
| <b>Near Miss</b>              | <p>A near miss is an unplanned event that doesn't actually cause harm to people or the environment, but had circumstances been different the event could have resulted in harm.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Reported via Safeguard + or Incident Report E form or form<br/>APAHSEGP07.01T4 Incident Report Form.</p> <p>Report and investigate in accordance with :<br/>APA HSE GP 07.01 Incident, Near Miss and Hazard Management Protocol.</p> |

## 12.3 External Reporting

APA assigns roles and responsibilities to appropriate staff within the business. This assist with ensuring periodic reporting is completed within the regulatory timelines.

### 12.3.1 Periodic Reporting

Please refer to Table 34 for external periodic reporting summary.

**Table 34 External Periodic Reporting**

| Type                                                                                                | Definition                                           | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Timing                                                                                    | DLA Ref                              |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Annual Return and Payment of Annual Fees (Environmental Authorisation Licence 45002; Moomba)</b> | NA.                                                  | <p>For the purposes of section 48(2)(a) of the <i>Environment Protection Act 1993</i>, the date in each year for the lodgement of the Annual Return is no later than 90 days before the anniversary of the grant or renewal of the Licence; and</p> <p>For the purposes of section 48(2)(b) of the <i>Environment Protection Act 1993</i>, the date in each year for the payment of Annual Authorisation Fee is the anniversary of the grant of the Licence.</p> | <p>Annual Return: February, Annually.</p> <p>Annual Authorisation Fee: May, Annually.</p> | <b>Regulatory Compliance Manager</b> |
| <b>Annual Return and Payment of Annual Fees (Pipeline Licence 18)</b>                               | N/A.                                                 | <p>For the purposes of section 33 of the <i>Energy Resources Regulations 2013</i> the date in each year for the lodgement of the Annual Return within 2 months after the end of each licence year.</p> <p>For the purposes of Section 48(2)(b) of the <i>Environment Protection Act 1993</i> the date in each year for the payment of Annual Fee is the anniversary of the grant of the Licence.</p>                                                             | <p>Annual Return: March Annually.</p> <p>Annual Licence Fee: March Annually.</p>          | <b>Regulatory Compliance Manager</b> |
| <b>Fitness for Purpose Reporting (Pipeline Licence 18)</b>                                          | Report on the "Fitness For Purpose" of the pipeline. | For the purposes of Section 30 of the <i>Energy Resources Regulations 2013</i> carry out fitness-for-purpose assessment within 5 years after completion of previous assessment and lodge a report within 2 months.                                                                                                                                                                                                                                               | 5 Yearly.                                                                                 | <b>Regulatory Compliance Manager</b> |
| <b>Emergency Drill Report (Pipeline Licence 18)</b>                                                 | Report on Emergency Practice Drills.                 | For the purposes of section 31 of the <i>Energy Resources Regulations 2013</i> at intervals not exceeding 2 years, conduct a practice drill of the emergency response procedures and lodge a report within 2 months.                                                                                                                                                                                                                                             | 2 Yearly.                                                                                 | <b>Regulatory Compliance Manager</b> |

| Type                   | Definition                                                                                                                                                                | Requirement                                                                             | Timing                  | DLA Ref                       |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------|-------------------------------|
| <b>NGERS Reporting</b> | <p>National Greenhouse and Energy Reporting.</p> <p>APA is required to report on its greenhouse gas emissions and energy usage annually to NGERs from all activities.</p> | Include GHG emissions and energy use from pipeline operation in APA annual NGER report. | 31 October, Annually.   | <b>Sustainability Manager</b> |
| <b>NPI Reporting</b>   | <p>National Pollutant Inventory emissions reporting may be required for the pipeline operation.</p>                                                                       | If NPI thresholds are triggered, submit an annual NPI report for the pipeline assets.   | 30 September, Annually. | <b>Sustainability Manager</b> |

## 12.3.2 Incident Reporting

Please refer to Table 35 for external incident reporting summary.

**Table 35 External Incident Reporting**

| Type                                                                               | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Requirement                                            | Resp. Person                                                 |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------|
| <b>All incidents causing or threatening serious or material environmental harm</b> | The Licensee must report to the EPA (on the EPA emergency phone number 1800 100 833) all incidents causing or threatening serious or material environmental harm, upon becoming aware of the incident, in accordance with Section 83 of the <i>Environment Protection Act 1993</i> .<br>Note - In the event that the primary emergency phone number is out of order, phone the secondary number (08) 8204 2004.                                                                                                                                                                                                                                               | EPA Licence 45002 (Moomba).                            | <b>Environmental Manager / Regulatory Compliance Manager</b> |
| <b>All incidents causing or threatening serious or material environmental harm</b> | If serious or material environmental harm from pollution is caused or threatened in the course of an activity undertaken by a person, the person must, as soon as reasonably practicable after becoming aware of the harm or threatened harm, notify the EPA of the harm or threatened harm, its nature, the circumstances in which it occurred and the action taken to deal with it.                                                                                                                                                                                                                                                                         | <i>Environmental Protection Act 1993</i> - Section 83. | <b>Environment Manager / Regulatory Compliance Manager</b>   |
| <b>Immediately Reportable and Reportable Incidents</b>                             | It is a requirement under Section 85 of the <i>Energy Resources Act 2000</i> that any incidents that are determined to be 'reportable' or 'immediately reportable' incidents must be reported to the Minister.<br><br><b>Immediately Reportable Incidents</b> must be reported to the Minister as soon as practicable after the occurrence, as per Section 85 of the <i>Energy Resources Act 2000</i> and Section 32 of the <i>Energy Resources Regulations 2013</i> .<br><br><b>Reportable Incidents</b> must be reported on a quarterly basis within 1 month of the end of the quarter, as per Section 32 of the <i>Energy Resources Regulations 2013</i> . | <i>Energy Resources Act 2000</i> - Section 85.         | <b>Environment Manager / Regulatory Compliance Manager</b>   |

## 13 Definitions & Acronyms

| Item           | Definition/Acronym                                                                                                                                                                                                                     |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ALARP</b>   | As Low As Reasonably Practicable                                                                                                                                                                                                       |
| <b>AS 2885</b> | Australian Standard AS 2885: Pipelines - Gas and liquid petroleum                                                                                                                                                                      |
| <b>ARGO</b>    | Spatial information system - Assets, Resources and GIS Online.                                                                                                                                                                         |
| <b>CH</b>      | Cultural Heritage                                                                                                                                                                                                                      |
| <b>CHAT</b>    | Contractor HSE Assessment Tool                                                                                                                                                                                                         |
| <b>DBYD</b>    | Dial Before You Dig                                                                                                                                                                                                                    |
| <b>DEM</b>     | Department of Energy and Mining                                                                                                                                                                                                        |
| <b>DEW</b>     | Department for Environment and Water                                                                                                                                                                                                   |
| <b>EIR</b>     | Environmental Impact Report                                                                                                                                                                                                            |
| <b>GIS</b>     | Geographical Information System                                                                                                                                                                                                        |
| <b>JHA</b>     | Job Hazard Analysis                                                                                                                                                                                                                    |
| <b>IPP</b>     | APA Group Infrastructure Planning and Protection Team                                                                                                                                                                                  |
| <b>LMS</b>     | Learning Management System                                                                                                                                                                                                             |
| <b>Maximo</b>  | APA national maintenance and management system                                                                                                                                                                                         |
| <b>NORMs</b>   | Naturally Occurring Radioactive Materials                                                                                                                                                                                              |
| <b>PM/CM</b>   | Planned Maintenance /Corrective Maintenance                                                                                                                                                                                            |
| <b>PTW</b>     | Permit to Work                                                                                                                                                                                                                         |
| <b>ROW</b>     | Right-of-way                                                                                                                                                                                                                           |
| <b>QSN</b>     | Queensland-South Australia – New South Wales                                                                                                                                                                                           |
| <b>SA</b>      | South Australia                                                                                                                                                                                                                        |
| <b>SIB</b>     | Stay in Business                                                                                                                                                                                                                       |
| <b>SEO</b>     | Statement of Environmental Objectives                                                                                                                                                                                                  |
| <b>SCADA</b>   | Supervisory Control and Data Acquisition is a system of software and hardware elements that allows industrial organizations to control industrial processes locally or at remote locations. Monitor gather and process real-time data. |
| <b>SG+</b>     | Safeguard Plus                                                                                                                                                                                                                         |
| <b>SWQP</b>    | South West Queensland Pipeline                                                                                                                                                                                                         |
| <b>XIC</b>     | X-Info Connect is a fully customizable software application that allows you to store, maintain track and analyse information.                                                                                                          |

# 14 References

Australian Heritage Services (2007) Work Area Clearance of the proposed Ballera to Moomba Interconnector Project, Moomba to South Australian Queensland border section of gas pipeline alignment; located to the south west and north east of Innamincka, in the Cooper Basin, South Australia. A Report to the Yandruwandha/Yawarrawarrka Native Title Claimant Group and Epic Energy, Corporate Shared Services Pty Limited. September 2007.

BOM (2025). Summary statistics Moomba Airport Station 017123 (1995-2025). [http://www.bom.gov.au/climate/averages/tables/cw\\_017123.shtml](http://www.bom.gov.au/climate/averages/tables/cw_017123.shtml) (accessed 25 February 2025). Bureau of Meteorology, Commonwealth of Australia.

Desert Channels Queensland (2004). Our Country: Our Community. A Community Information Paper For the Queensland Section of the Lake Eyre Basin. Prepared By Desert Channels Queensland, October 2004.

Division of Land Utilisation, 1974. Western Arid Region Land Use Study – Part I. Technical Bulletin No. 12. Department of Primary Industries, Queensland.

DEM (2024). Energy Information Sheet 014: Environmental Impact Assessment Criteria. <https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/image/DDD/PGRG015.pdf> (accessed 25 February 2025). Department of Energy and Mining.

DLGWV (2025). Water Monitoring Information Portal 2025 – Streamflow Data (Station 003103A Cooper Creek at Nappa Merrie). <https://water-monitoring.information.qld.gov.au/> (accessed 26 February 2025), Department of Local Government, Water and Volunteers, Queensland Government, Brisbane.

DWLBC (2007) (now DEW, Water Data). e-NRIMS Natural Resources Information System – South Australian Surface Water Archive (Station A0030501: Cooper Creek @ Callamurra Water Hole). <http://e-nrims.dwlbc.sa.gov.au/swa/index.cfm> (Accessed 11 October 2007). Department of Water, Land and Biodiversity Conservation, South Australia.

EA (2000). Revision Of The Interim Biogeographic Regionalisation For Australia (IBRA) And Development Of Version 5.1: Summary Report. Environment Australia, Canberra.

Environment Australia (2001). A Directory of Important Wetlands in Australia, Third Edition. Environment Australia, Canberra.

Kotwicki, V. (1986). Floods of Lake Eyre. Engineering and Water Supply Department, Adelaide

Krieg, G.W., Callen, R.A., Gravestock, D.I. and Gatehouse, C.G. (1990). Geology. In Tyler, M.J., Twidale, C.R., Davies, M. and C.B. Wells (eds) Natural History of the North East Deserts. Royal Society of South Australia, Adelaide.

Marree SCB (2004) *Marree Soil Conservation Board District Plan. Revised 2004*. Marree Soil Conservation Board. Available at [https://cdn.environment.sa.gov.au/landscape/docs/saal/marree\\_soil\\_conservation\\_board\\_plan.pdf](https://cdn.environment.sa.gov.au/landscape/docs/saal/marree_soil_conservation_board_plan.pdf).

NLWRA (2002). Australian Terrestrial Biodiversity Assessment 2002. National Land and Water Resources Audit, Land and Water Australia, Canberra.

Prepared for Santos Limited by Social and Ecological Assessment Pty Ltd, August 1992.

Puckridge J.T., Costelloe, J.F. and Walker, K.F. (1999). DRY/WET: Effects of changed water regime on the fauna of arid zone wetlands (CD-ROM model and documentation). Report to National Wetlands Research & Development Program: Environment Australia and Land and Water Resources Research & Development Corporation, Canberra. ISBN: 0-642-47326-9.

SEA (1992). South West Queensland Gas Project Environmental Impact Assessment Final Report.

# **Appendix 1 – Health, Safety, Environmental and Heritage (HSEH) Policy**

# APA Group Policy

## Health, Safety, Environment and Heritage Policy

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Document type    | Policy                                                                                                                                                                                                                                                                                                                                                                                                          |
| Effective from   | 1 January 2023                                                                                                                                                                                                                                                                                                                                                                                                  |
| Key contact      | Manager, HSEH Systems and Governance                                                                                                                                                                                                                                                                                                                                                                            |
| Document owner   | General Manager, HSEH                                                                                                                                                                                                                                                                                                                                                                                           |
| Approved by      | Board                                                                                                                                                                                                                                                                                                                                                                                                           |
| Approved date    | 15 December 2022                                                                                                                                                                                                                                                                                                                                                                                                |
| Next review date | 15 October 2024                                                                                                                                                                                                                                                                                                                                                                                                 |
| Review cycles    | Every 2 years                                                                                                                                                                                                                                                                                                                                                                                                   |
| Legend           | <p><a href="#">Hyperlink</a> to either a location in this document or to an intranet site or website</p> <p><i>Reference to an APA document</i></p> <p><i>Glossary terms</i> (in the <a href="#">Glossary</a> in this document)</p> <p><i>Version control</i> (in the <a href="#">Version Control</a> in this document)</p> <p><u><i>Document Guidance {to be removed when the document is created}</i></u></p> |

## 1 Purpose

At APA Group (APA) we strive to be world class in health, safety, environment and heritage performance. Our foremost priorities are the health, safety and wellbeing of our workers and protection of the environment, heritage and the communities in which we operate.

APA is committed to managing and minimising our impact on the environment and heritage. We foster a culture of responsibility, leadership and awareness of our environment and heritage obligations and practices. We recognise our role as land stewards and aspire to not just respect the past but protect values for the future.

## 2 Scope

This policy applies to all APA employees as well as directors, contingent workers, contractors and visitors.

## 3 Strategic intent

We are committed to establishing a workplace culture that values and prioritises safety, respect and inclusion. We aspire for our workers to be free of illness and injury which includes the health, wellbeing and psychological safety such that the whole person is considered.

## 4 Objectives

The APA's Health, Safety Environment and Heritage (HSEH) Management System outlines accountabilities to implement this Policy and requires that we:

- Proactively identify hazards and aim to eliminate or implement effective controls to minimise the risk of injury, illness to people or unacceptable impacts on the environment and heritage as far as reasonably practicable;
- Provide systems of work that focus on guiding workers to manage and control critical risk;
- Provide a work environment and fit for purpose equipment that minimises the risk to workers so far as is reasonably practicable;
- Provide systems of work that empower workers to control the risks to themselves, others and the environment, whilst carrying out their duties;
- Meet or exceed applicable HSEH statutory, regulatory, legal and social obligations;
- Adopt and monitor measurable, fit for purpose objectives and targets around HSEH performance;
- Consult, engage and educate with our workers and communities on HSEH matters that affect them;
- Undertake early intervention and support the rehabilitation of workers in the event of injury or illness;
- Establish a learning culture through investigation of incidents to embed learnings and reduce the risk of repeated events;
- Ensure HSEH leadership is visible across the organisation to promote a strong culture;
- Undertake activities to continuously improve the effectiveness of the HSEH Management System and controls.

## 5 Key roles and responsibilities

For the purposes of this policy, the following specific responsibilities apply:

| Position                                   | Responsibility                                                                                                                                                                                                                                                                           |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>APA Board</i>                           | <ul style="list-style-type: none"> <li>Oversight of, and support for, APA's commitment to HSEH in accordance with this Policy</li> <li>Monitoring the performance of the HSEH Management System.</li> </ul>                                                                              |
| <i>Safety and Sustainability Committee</i> | <ul style="list-style-type: none"> <li>Assisting the Board to carry out its role in overseeing APA's safety and sustainability matters, including APA's compliance with this Policy</li> </ul>                                                                                           |
| <i>CEO</i>                                 | <ul style="list-style-type: none"> <li>Resourcing the implementation of the HSEH Management System to ensure these Policy commitments are being achieved.</li> </ul>                                                                                                                     |
| <i>Executive Leadership Team</i>           | <ul style="list-style-type: none"> <li>Implementation of the HSEH Management System within their area of responsibility.</li> </ul>                                                                                                                                                      |
| <i>General Manager HSEH</i>                | <ul style="list-style-type: none"> <li>Facilitating the implementation of the HSEH Management System, collating information and reporting on APA's performance.</li> </ul>                                                                                                               |
| <i>APA Employees</i>                       | <ul style="list-style-type: none"> <li>Managing HSEH risks that impact themselves, others, the environment and communities in which they operate</li> <li>All workers have the authority to stop work if the HSEH risks cannot effectively be managed to an acceptable level.</li> </ul> |

## 6 Glossary

| Term                    | Definition                                |
|-------------------------|-------------------------------------------|
| <i>HSEH Definitions</i> | Refer to <a href="#">HSEH Definitions</a> |

## 7 Related Documents

- Health, Safety, Environment & Heritage Operating Mandate
- HSEH Management System

## 8 Version Control

| Date              | Changes                                                                           |
|-------------------|-----------------------------------------------------------------------------------|
| <b>15/12/2022</b> | Combination of Health Safety & Wellbeing Policy and Environment & Heritage Policy |

# Appendix 2 – Environmental Risk Assessment (ERA)

Note: the Impact ID numbers in the ERA above vary from those used in the Appendix 2 ERA, due to updating of the ERA and certain impact IDs being merged together.

| ERA # | Type:<br>1. ENVFEAT<br>2. ASSETHAZ<br>3. RISKACTION | Aspect or Activity (Hazard)<br><br>RISKACTION - use Maximo Job Plan (PM/CM number and name)<br>(e.g. trenching, filter change)                                                                                                                                                                                           | Event/Cause of harm (Risk)<br>(e.g. chemical spill)                                                                                | Environment Impact<br>(e.g. soil contamination; death of fauna; nuisance to community) | Primary Safeguard Environment Area<br>(select from dropdown box)                           | Environment Impact Type<br>(select from dropdown box) | Relevant Risk? Y/N | Pre-Control (Inherent) |             |            | Risk Management Method/s (Controls)                    |                                                                                                                                                                             |                                                                    |                                                                                                                        |                                                                                            |                                                                                                            |                                                                                                               |                                                                                                                                                                                                         |                                                                               |                                                              |                                                                                                                                                                                                                          |                                                                                                      |                                                            |                                          |                                                                                                  |                                                           |                                                                                                           | Post-Control (residual)                                                                         |             |            |                                |
|-------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------|------------------------|-------------|------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------|------------|--------------------------------|
|       |                                                     |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                    |                                                                                        |                                                                                            |                                                       |                    | Likelihood             | Consequence | Risk Level | Competency Controls                                    |                                                                                                                                                                             |                                                                    | Site Setup Control                                                                                                     |                                                                                            |                                                                                                            |                                                                                                               |                                                                                                                                                                                                         |                                                                               |                                                              |                                                                                                                                                                                                                          | Maximo Planning Control                                                                              | Info Access                                                |                                          | Assurance Control                                                                                |                                                           |                                                                                                           | Likelihood                                                                                      | Consequence | Risk Level |                                |
|       |                                                     |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                    |                                                                                        |                                                                                            |                                                       |                    |                        |             |            | Site Induction                                         | Specific Awareness                                                                                                                                                          | Specific Training                                                  | Waste Storage                                                                                                          | Waste Disposal                                                                             | Chemical Storage (e.g. bunding)                                                                            | Erosion Controls                                                                                              | Exclusion Zones                                                                                                                                                                                         | Emergency Response Controls (reactive)                                        | Engineering design controls                                  | Inherent controls / mitigating factors                                                                                                                                                                                   | Other                                                                                                | Relevant Remediation CM or Non-Preventative Maintenance    | Info Storage Location/ System            | Supporting Documents (e.g. Work Instruction; Tech Guide)                                         | Inspection                                                | Monitoring                                                                                                |                                                                                                 |             |            | Compliance Records or Evidence |
| 1     | ENVFEAT                                             | Eversfield Nature Refuge (KP 573-589)<br>Innaminka (KP 90-147)<br>Strzelecki Creek Wetlands System (KP 157 to KP119)<br>Sensitive areas / protected features<br>Protected vegetation adjoining easement (off easement)                                                                                                   | Clearing and / or works off easement. Scope not clearly defined, new contractor, overspray                                         | Unauthorised clearing / clearing protected vegetation / exceed EA clearing limits      | APA HSE EP 13.02.01 Native Vegetation Management                                           | Reputational, legal and technical                     | Y                  | 3                      | 2           | Low        | x                                                      | 1 page Env awareness sheet includes locations of environmentally sensitive areas*                                                                                           | x                                                                  | x                                                                                                                      | x                                                                                          | Refuelling on the ROW is avoided in nature reserves. Refuelling trailer is banded, and contains drip trays | x                                                                                                             | Signage marking start and end of nature reserves. Provision of environmental line list is noted on JHA / Permit to Work.*                                                                               | Spill kits with all plant and equipment in environmentally sensitive areas.   | x                                                            | No works are to occur outside of easement during normal operations without prior approval.                                                                                                                               | GIS/mapping of environmentally sensitive areas is available to all field personnel and contractors.* | x                                                          | Maximo, ARGO                             | Dedicated Sow for contractor works within the environmentally sensitive area.*                   | Monthly aerial patrols and 6 monthly ground patrols       | Permit Issuing Officer (PIO) / APA monitors contractor works                                              | Scope of works, Patrol reports / sightings, work orders.                                        | 2           | 2          | Negligible                     |
| 3     | ENVFEAT                                             | Areas of high erosion risk on alignment and intersected watercourses (many)                                                                                                                                                                                                                                              | Inadequate or poorly maintained erosion control devices/ rehabilitation / general weathering                                       | Sedimentation, loss of soil, landholder dissatisfaction                                | APA HSE EP 13.06.02 Watercourse Management<br>APA HSE EP 13.06.01 Soil and Land Management | Reputational and technical                            | Y                  | 3                      | 3           | Moderate   | Standard easement enviro induction - 1 pager sign off* | Erosion identification and remediation information is available (Guideline or toolbox).*                                                                                    | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | Erosion controls include installation of berms, matting, repair of existing controls and engineering controls | Environmental line list is provided and noted on JHA / Permit to Work.*                                                                                                                                 | x                                                                             | Specialist civil works as required                           | x                                                                                                                                                                                                                        | GIS/mapping of environmentally sensitive areas is available to all field personnel and contractors.* | x                                                          | Maximo, ARGO                             | There is a clear Scope of Works for erosion repair jobs linked in with CHAT.*                    | Monthly aerial patrols and 6 monthly ground patrols       | Permit Issuing Officer (PIO) / APA monitors contractor works                                              | Scope of Works for each job, work orders, sectional sign off of works, Permit to Work and JHA.* | 2           | 3          | Low                            |
| 4     | ENVFEAT                                             | Cultural Heritage<br>(including quarries, artefact scatter, hearth/ovens, historical place, stone arrangement, isolated find, grinding grooves, scar tree, resource place, ochre source, burial sites, story places and shell middens) - known and unknown                                                               | Disturbance of CH site / material                                                                                                  | Loss of heritage value                                                                 | APA HSE EP 13.07.02 Aboriginal Cultural Heritage Management                                | Reputational, legal and technical                     | Y                  | 3                      | 4           | High       | x                                                      | Specific run through of what is on the easement and process for accidental finds as per APA EP CH.*                                                                         | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | Crashage in the field is correlated with APA CH data and censored where required. Standard signage of CH areas is used across APA. Provision of environmental line list noted on JHA / Permit to Work.* | The Accidental Finds procedure in EMP and communicated in awareness sessions. | x                                                            | Access / driving are without ground disturbance. Working in previously cleared areas. Ground disturbing works require further assessment prior to commencement.                                                          | GIS/mapping of environmentally sensitive areas is available to all field personnel and contractors.* | x                                                          | Maximo, ARGO                             | x                                                                                                | x                                                         | x                                                                                                         | x                                                                                               | 2           | 4          | Moderate                       |
| 5     | ENVFEAT                                             | Key fauna habitats:<br>Riparian Woodland / Floodplain Coolabah open woodland and Cooper Creek / Strzelecki Creek floodplains.<br>No habitat trees / hollow bearing veg.<br>Dusky hopping mouse - suitable dune field habitat (KP 116 - 182)                                                                              | Vehicle strike (single), equipment or plant interaction and general activities                                                     | Death of fauna                                                                         | APA HSE EP 13.02.02 Fauna Management                                                       | Reputational, legal and technical                     | Y                  | 3                      | 1           | Negligible | x                                                      | 1 page Env awareness sheet includes locations of environmentally sensitive areas*                                                                                           | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | Provision of environmental line list noted on JHA / Permit to Work                                                                                                                                      | x                                                                             | x                                                            | Minimal access to ROW, driving through the day at inactive periods avoiding dusk and dawn. Travelling at low speeds. No access outside easement or approved areas.                                                       | GIS/mapping of environmentally sensitive areas is available to personnel and contractors*            | x                                                          | Maximo, ARGO                             | APA Fatal Risk protocol - Driving.                                                               | x                                                         | x                                                                                                         | x                                                                                               | 2           | 1          | Negligible                     |
| 6     | ENVFEAT                                             | Weeds along easement - Parthenium, burr etc.                                                                                                                                                                                                                                                                             | Spread of weeds on and off easement.                                                                                               | Ecological impacts, Spread of weeds / disease and landholder dissatisfaction           | APA HSE EP 13.02.03 Pest, Disease & Weed Management                                        | Reputational, legal and technical                     | Y                  | 5                      | 3           | High       | x                                                      | Weed ID books and weeds in the region are communicated.*                                                                                                                    | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | Signage identifying known weed areas along ROW. Provision of environmental line list noted on JHA / Permit to Work.                                                                                     | x                                                                             | x                                                            | Weed washdowns are conducted for properties identified in X-info as requiring clean vehicles, equipment and machinery.                                                                                                   | x                                                                                                    | Known parthenium infested properties are captured in ARGO. | Biosecurity Management Plan*             | Ground Patrols                                                                                   | Monitored against baseline.*                              | Work orders, permit to work, contractor procurement, weed washdown certs, monitoring reports if required. | 2                                                                                               | 3           | Low        |                                |
| 7     | ENVFEAT                                             | Landholder biosecurity requirements (known and unknown)                                                                                                                                                                                                                                                                  | Breach of property biosecurity controls (sign in, washdown records, etc)<br>Weed infestations / spread                             | Ecological impacts, Spread of weeds / disease and landholder dissatisfaction           | APA HSE EP 13.02.03 Pest, Disease & Weed Management                                        | Reputational, legal and technical                     | Y                  | 4                      | 3           | Moderate   | x                                                      | Specific awareness of properties with biosecurity requirements and what APA staff / contractors have to do - linked with IPP                                                | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | Do not enter properties without consulting Xic. Provision of environmental line list noted on JHA / Permit to Work                                                                                      | x                                                                             | x                                                            | Properties with biosecurity / wash down requirements for vehicles, equipment and machinery identified in X-info. Landholders are notified prior to accessing their properties if there are specific access requirements. | Annual landholder contact.                                                                           | x                                                          | X-info connect, ARGO.                    | x                                                                                                | x                                                         | Washdown records. Landholder contact in x-info.                                                           | 3                                                                                               | 3           | Moderate   |                                |
| 9     | ENVFEAT                                             | Overall Compliance risk                                                                                                                                                                                                                                                                                                  | Non-compliant with Environmental Authority Conditions and / or Statement of Environmental Objectives / Environmental Impact Report | Regulatory infringement or penalties                                                   | APA HSE EP 13.01.01 Environment Approvals Process                                          | Legal                                                 | Y                  | 3                      | 2           | Low        | x                                                      | EMP Development and roll out. 1 page Env awareness sheet accompanies site inductions, contractor scope of works etc. includes locations of environmentally sensitive areas* | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | x                                                                                                                                                                                                       | x                                                                             | x                                                            | Controls for EA compliance captured in ERA and EMP.                                                                                                                                                                      | All                                                                                                  | Maximo Xinfo Hard Copy LMS                                 | EAXXXX - insert EA number.               | x                                                                                                | x                                                         | Annual Report accompanies the EA Annual Return and SEO.                                                   | 2                                                                                               | 2           | Negligible |                                |
| 10    | ASSETHAZ                                            | Compressor stations - septic System and associated water treatment and drainage (just holding tank at Moomba).                                                                                                                                                                                                           | Leaching to ground                                                                                                                 | Soil contamination                                                                     | APA HSE EP 13.05.01 Regulated Waste Management                                             | Legal                                                 | Y                  | 3                      | 2           | Low        | x                                                      | x                                                                                                                                                                           | Licensed plumber / competent contractor maintains septic system.   | Alarmed system - alert prior to issues, pumped out fortnightly at Moomba only                                          | Grey water released to ground/ evaporation. Transportation trenches at compressor stations | x                                                                                                          | x                                                                                                             | x                                                                                                                                                                                                       | x                                                                             | Designed septic systems (no specific records).               | x                                                                                                                                                                                                                        | x                                                                                                    | x                                                          | x                                        | x                                                                                                | Contractor reporting. Waste tracking receipts for Moomba. | 2                                                                                                         | 2                                                                                               | Negligible  |            |                                |
| 11    | ASSETHAZ                                            | Light Vehicles, plant, bob cat, forklift, vac truck, trucks, semi trailers, helicopters and equipment etc.                                                                                                                                                                                                               | Uncontained chemical spill (hose, or oil < 10L)                                                                                    | Soil contamination                                                                     | APA HSE EP 13.04.02 Contaminated Land Management                                           | Technical                                             | Y                  | 4                      | 2           | Low        | x                                                      | Chemical E-Learning - safe guard protocol. Toolboxes on hazardous chemicals.                                                                                                | x                                                                  | If soil is contaminated it is cleaned up with spill kit and stored in regulated waste bin until contractor collection  | Contaminated soil is disposed of by licenced contractor.                                   | Chemicals are stored undercover in banded areas (shed area) that drains to the oily water system.          | x                                                                                                             | Plant, equipment and vehicles are parked in dedicated areas.                                                                                                                                            | Spill response equipment is available in all plant and equipment.             | x                                                            | Pre-starts, regularly maintenance and scheduled servicing                                                                                                                                                                | x                                                                                                    | Chemwatch                                                  | SDS and Chemical Register (in Chemwatch) | Yearly inspection of spill response equipment and replenishment if used. Housekeeping - monthly. | x                                                         | Pre-starts, maintenance records, incident reporting and waste tracking.                                   | 2                                                                                               | 2           | Negligible |                                |
| 12    | ASSETHAZ                                            | Waterbath heaters:<br>Moomba - 1 x 2,000L<br>Water contains corrosion inhibitor and tannins.                                                                                                                                                                                                                             | Chemical spill, loss of containment                                                                                                | Soil contamination                                                                     | APA HSE EP 13.04.01 Chemical Spill Management                                              | Technical                                             | Y                  | 3                      | 2           | Low        | x                                                      | x                                                                                                                                                                           | Specific contractor for larger scale Water Bath Heater activities. | If soil is contaminated it is cleaned up with spill kit and stored in regulated waste bin until contractor collection  | Contaminated soil is disposed of by licenced contractor.                                   | Concrete and hard stand pad at Moomba                                                                      | x                                                                                                             | x                                                                                                                                                                                                       | Pump and lay flat hose available.                                             | x                                                            | x                                                                                                                                                                                                                        | 6 yearly vessel inspections and water testing by contractor.                                         | Maximo                                                     | ERP                                      | Daily and weekly inspection.                                                                     | x                                                         | Work orders, inspections by contractors.                                                                  | 2                                                                                               | 2           | Negligible |                                |
| 13    | ASSETHAZ                                            | Hazardous materials storage, handling and transfers (inc at facility):<br>Oil<br>Coolant (glycol based)<br>Diesel<br>Unleaded Petrol<br>Misc chems eg. Grease, bugspray, paint, degreasers, round up<br><br>Wallumbilla - 2 x 10,000L Oil and 1x 4,000L Diesel<br>Moomba - 1 x 4,500L Diesel<br>GCSA - 1 x 8,000L Diesel | Chemical Spill                                                                                                                     | Soil contamination                                                                     | APA HSE EP 13.04.01 Chemical Spill Management                                              | Technical                                             | Y                  | 3                      | 3           | Moderate   | x                                                      | Emergency response exercises                                                                                                                                                | Forklift tickets                                                   | If soil is contaminated it is cleaned up with spill kit and stored in regulated waste bin until contractor collection. | Spill waste or waste oil disposed of by licenced contractor.                               | Double skinned tanks and bunds for bulk storage. Bunded containers for minor storage.                      | x                                                                                                             | No refuelling in sensitive areas or near surface water. Refuel within facilities or hard stand areas where possible.                                                                                    | Emergency response plans. Spill kits within storage areas.                    | Bulk oil tanks - Wallumbilla - fitted with safe fill valves. | All storage and facilities located on hard stand / compacted areas. Remote from sensitive areas.                                                                                                                         | Use of specialised contractors for refuelling bulk storage.                                          | x                                                          | x                                        | Emergency Response Plan                                                                          | x                                                         | Maximo work orders. Consignment notes. Waste tracking certs.                                              | 2                                                                                               | 2           | Negligible |                                |
| 16 a  | ASSETHAZ                                            | Exhaust gases (SWQP), general plant operations, emergency shut downs and venting                                                                                                                                                                                                                                         | Release of gas emissions - NOx and CH4                                                                                             | Exceeding licence conditions and contribution to GHG in atmosphere                     | APA HSE EP 13.03.01 Gas, Dust & Light Emission Management                                  | Legal and Technical                                   | Y                  | 3                      | 2           | Low        | x                                                      | Competent maintenance personnel                                                                                                                                             | x                                                                  | x                                                                                                                      | x                                                                                          | x                                                                                                          | x                                                                                                             | x                                                                                                                                                                                                       | x                                                                             | Monitoring systems are installed on units.                   | Condition requirements are linked with standard operating conditions and equipment design                                                                                                                                | x                                                                                                    | x                                                          | x                                        | x                                                                                                | x                                                         | Emissions monitoring is undertaken as per the EA requirement                                              | Annual Environment Reports and contractor monitoring report, NGRS and NPI Reporting             | 2           | 2          | Negligible                     |

| ERA # | Type:<br>1. ENVFEAT<br>2. ASSETHAZ<br>3. RISKACTIV | Aspect or Activity (Hazard)<br><br>RISKACTIV - use Maximo Job Plan (PM/CM number and name)<br>(e.g. trenching, filter change)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Event/Cause of harm (Risk)<br>(e.g. chemical spill)                                                                        | Environment Impact<br>(e.g. soil contamination; death of fauna; nuisance to community)    | Primary Safeguard Environment Area<br>(select from dropdown box)                                                                                                | Environment Impact Type<br>(select from dropdown box) | Relevant Risk?<br>Y/N | Pre-Control (Inherent) |             |            | Risk Management Method/s (Controls)                    |                                                                                                                       |                                                                                |                                        |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   |                                                                                                                               |                                                                                                                                                                                              |                                                         |                                   |                                                                                |                                                                                             |                                                                     |                                                           | Post-Control (residual) |            |                                |
|-------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----------------------|------------------------|-------------|------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------|-------------------------|------------|--------------------------------|
|       |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                            |                                                                                           |                                                                                                                                                                 |                                                       |                       | Likelihood             | Consequence | Risk Level | Competency Controls                                    |                                                                                                                       |                                                                                | Site Setup Control                     |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   |                                                                                                                               | Maximo Planning Control                                                                                                                                                                      | Info Access                                             |                                   | Assurance Control                                                              |                                                                                             |                                                                     | Likelihood                                                | Consequence             | Risk Level |                                |
|       |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                            |                                                                                           |                                                                                                                                                                 |                                                       |                       |                        |             |            | Site Induction                                         | Specific Awareness                                                                                                    | Specific Training                                                              | Waste Storage                          | Waste Disposal                                                                                                                                                                  | Chemical Storage (e.g. bunding)                                                                            | Erosion Controls                                                     | Exclusion Zones                                                                                                      | Emergency Response Controls (reactive)               | Engineering design controls                                       | Inherent controls / mitigating factors                                                                                        | Other                                                                                                                                                                                        | Relevant Remediation CM or Non-Preventative Maintenance | Info Storage Location/ System     | Supporting Documents (e.g. Work Instruction; Tech Guide)                       | Inspection                                                                                  | Monitoring                                                          |                                                           |                         |            | Compliance Records or Evidence |
| 16 b  | ASSETHAZ                                           | General venting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Release of gas emissions -Methane                                                                                          | Gas release                                                                               | APA HSE EP 13.03.01 Gas, Dust & Light Emission Management                                                                                                       | Technical                                             | Y                     | 5                      | 1           | Low        | x                                                      | Competent maintenance personnel                                                                                       | x                                                                              | x                                      | x                                                                                                                                                                               | x                                                                                                          | x                                                                    | x                                                                                                                    | Monitoring systems installed on unit.                | x                                                                 | Minimise venting via work practices (automatic vents are stopped or prevented)                                                | x                                                                                                                                                                                            | x                                                       | x                                 | Maintenance of plant and equipment to minimise release                         | SCADA                                                                                       | NGERS and NPI Reporting                                             | 5                                                         | 1                       | Negligible |                                |
| 17    | ASSETHAZ                                           | Compressor units and Gas Engine Alternators                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Chemical release / uncontained chemical spill                                                                              | Soil contamination                                                                        | APA HSE EP 13.04.02 Contaminated Land Management                                                                                                                | Technical                                             | Y                     | 5                      | 2           | Low        | x                                                      | Competent maintenance personnel                                                                                       | x                                                                              | x                                      | Disposal of regulated waste to designated area by licenced contractor                                                                                                           | Bunding around all compressor units - excluding after coolers for recipis and oil coolers for the turbines | x                                                                    | x                                                                                                                    | Spill kits                                           | x                                                                 | Compressors located on hard stand / compacted areas. Remote from sensitive areas.                                             | x                                                                                                                                                                                            | x                                                       | x                                 | Maintenance regime                                                             | x                                                                                           | Waste tracking certificates. Maximo work orders.                    | 2                                                         | 2                       | Negligible |                                |
| 19    | ASSETHAZ                                           | Control Buildings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Release of gas emissions FM200 - fire suppression system - update in CGP                                                   | Contribution to GHG in atmosphere                                                         | APA HSE EP 13.03.01 Gas, Dust & Light Emission Management                                                                                                       | Technical                                             | Y                     | 5                      | 1           | Negligible | x                                                      | x                                                                                                                     | Managed by 3rd party contractor                                                | x                                      | x                                                                                                                                                                               | x                                                                                                          | x                                                                    | x                                                                                                                    | System tested without release monthly                | x                                                                 | System maintenance                                                                                                            | Maximo                                                                                                                                                                                       | x                                                       | Inspecting monthly                | x                                                                              | Inspection records in Maximo. Contractor records / reports.                                 | 2                                                                   | 1                                                         | Negligible              |            |                                |
| 20    | ASSETHAZ                                           | Battery Building- gel batteries replaced every 5 years except MLV and truck batteries (lead acid)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Incorrect disposal                                                                                                         | Contamination of landfill                                                                 | APA HSE EP 13.05.01 Regulated Waste Management                                                                                                                  | Legal                                                 | Y                     | 5                      | 2           | Low        | x                                                      | x                                                                                                                     | x                                                                              | Under cover hardstand, bunded area*    | Veolia for QSN via Moomba. QCS4 - Charleville dump. WCS - Wallumbilla - Roma Dump. Licenced 3rd party contractors for Wallumbilla and Moomba ONLY. QCS4 no separation of waste. | x                                                                                                          | x                                                                    | x                                                                                                                    | x                                                    | Long life batteries                                               | x                                                                                                                             | x                                                                                                                                                                                            | Maximo                                                  | x                                 | x                                                                              | Waste tracking certs for Veolia - Moomba only. Currently no waste certs for regional dumps. | 1                                                                   | 2                                                         | Negligible              |            |                                |
| 22    | ASSETHAZ                                           | Filtration skid, discharge coalescer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Incorrect disposal of filter elements - covered in oil residue                                                             | Contamination of landfill                                                                 | APA HSE EP 13.05.01 Regulated Waste Management                                                                                                                  | Legal                                                 | Y                     | 5                      | 2           | Low        | x                                                      | Competent maintenance personnel                                                                                       | x                                                                              | Wallumbilla designated bin for filters | x                                                                                                                                                                               | x                                                                                                          | x                                                                    | x                                                                                                                    | 6-12 monthly change outs and as required             | x                                                                 | x                                                                                                                             | x                                                                                                                                                                                            | x                                                       | x                                 | Waste tracking for Moomba and Wallumbilla only.                                | 2                                                                                           | 2                                                                   | Negligible                                                |                         |            |                                |
| 26    | RISKACTIV                                          | Patrol general<br>TN - Easement Corridor Inspection 6 monthly<br>TN - Anode Bed (Impressed Current) 6 Monthly Functional testing<br>TN - Easement Ground Patrol 6 Monthly<br>TN - Easement Ground Patrol 1 Monthly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Driving and access. Breach of property biosecurity controls (sign in, washdown records, etc)<br>Weed infestations / spread | Weed spread. Ecological impacts. Spread of weeds / disease and landholder dissatisfaction | APA HSE EP 13.02.03 Pest, Disease & Weed Management                                                                                                             | Reputational, legal and technical                     | Y                     | 5                      | 5           | High       |                                                        | Specific awareness required for CP engineers*                                                                         |                                                                                |                                        |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   | x                                                                                                                             | x                                                                                                                                                                                            | Biosecurity Management Plan and Biosecurity Guideline   |                                   |                                                                                |                                                                                             | 5                                                                   | 5                                                         | Moderate                |            |                                |
| 29    | RISKACTIV                                          | Patrol general                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Chemical Spill - fuel or herbicide or hydraulic                                                                            | Soil Contamination                                                                        | APA HSE EP 13.04.01 Chemical Spill Management                                                                                                                   | Technical                                             | Y                     | 4                      | 2           | Low        |                                                        |                                                                                                                       |                                                                                |                                        |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   | x                                                                                                                             | SG+                                                                                                                                                                                          | x                                                       |                                   |                                                                                |                                                                                             | 2                                                                   | 2                                                         | Negligible              |            |                                |
| 30    | RISKACTIV                                          | TN - Pipeline Sections - Cleaning Pigging                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Loss of containment / control of pigging waste potentially including NORMS                                                 | Soil contamination                                                                        | APA HSE EP 13.05.01 Regulated Waste Management                                                                                                                  | Legal                                                 | Y                     | 5                      | 5           | Moderate   |                                                        |                                                                                                                       |                                                                                |                                        |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   | x                                                                                                                             | x                                                                                                                                                                                            | Specific pigging risk assessment, plan and learn        |                                   |                                                                                | Waste tracking certs from licenced contractor                                               | 2                                                                   | 5                                                         | Low                     |            |                                |
| 31    | RISKACTIV                                          | INSPECTIONS<br>TN - Pipeline Sites 2 Yearly Inspection<br>TN - SWQ 383SSDN400 Main Line Valve Oil Reservoir External Condition 2 Yearly Inspection Route<br>TN - Mech Maintenance Yearly<br>TN - Pressure Safety Valve Yearly Inspection Route<br>TN - Ball Valve Inspection (Site) Yearly - waste liquids<br>TN - Rotary Pump 3 Monthly Inspection Route<br>TN - Centrifugal Pump 3 Monthly Inspection Route<br>TN - R - Heat Exchanger Air-cooled (After cooler) Inspection Monthly<br>TN - Vent Silencer Integrity Inspection Route<br>TN - Main Line Valve Oil Reservoir External Condition 2 Yearly Inspection Route (Less than 1L of oil replacement)<br>TN - Solar Gas Turbine/Compressor (Master) Monthly Oil Sampling<br>TN - CGP 391SS Main Line Valve Oil Reservoir Yearly Checks Route<br>TN - CGP 000PRMS Filter, Element Servicing Yearly Route<br>TN - Filter, Strainer Servicing (Continuous Service) Yearly Functionality test and checklist for records<br>TN - Mobile Plant Inspection<br>Completed off site by contractor and some on site | Chemical spill or incorrect waste disposal                                                                                 | Soil contamination                                                                        | APA HSE EP 13.04.01 Chemical Spill Management                                                                                                                   | Technical and Legal                                   | Y                     | 5                      | 1           | Negligible |                                                        |                                                                                                                       |                                                                                |                                        |                                                                                                                                                                                 |                                                                                                            |                                                                      |                                                                                                                      |                                                      |                                                                   | x                                                                                                                             | x                                                                                                                                                                                            | x                                                       |                                   |                                                                                |                                                                                             | 5                                                                   | 1                                                         | Negligible              |            |                                |
| 40    | RISKACTIV                                          | TN - PEST CONTROL - bugs, birds, rats, mice, baits, sprays, fumigation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Incorrect pest management                                                                                                  | Unintended control / poisoning non-target species                                         | APA HSE EP 13.02.03 Pest, Disease & Weed Management                                                                                                             | Technical                                             | Y                     | 5                      | 2           | Low        | x                                                      | x                                                                                                                     | Licenced contractor                                                            | x                                      | x                                                                                                                                                                               | x                                                                                                          | x                                                                    | x                                                                                                                    | x                                                    | x                                                                 | Only within fenced facilities, not located near threatened species.                                                           | Baits to be secured as advised by contractor.                                                                                                                                                | x                                                       | x                                 | x                                                                              | Housekeeping inspection checklist*                                                          | x                                                                   | Maximo work orders and contractor reports.                | 2                       | 2          | Negligible                     |
| 41    | RISKACTIV                                          | TN - BASE INSPECTION includes spray of weeds<br>Housekeeping                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Overspray of chemical - APA personnel generally only spraying within facilities. Contractors utilised for ROW              | Unintended poisoning non-target species                                                   | APA HSE EP 13.02.03 Pest, Disease & Weed Management                                                                                                             | Technical                                             | Y                     | 4                      | 5           | Moderate   | x                                                      | Specific awareness of properties with biosecurity requirements and what APA staff / contractors have to do - with IPP | Agricultural Chemicals Distribution Control Licences for chemical application* | x                                      | x                                                                                                                                                                               | SDS for all chemicals                                                                                      | x                                                                    | x                                                                                                                    | x                                                    | x                                                                 | Spraying only within compound by APA. Utilisation of contractor on ROW for large scale treatments. APA staff - spot spraying. | x                                                                                                                                                                                            | x                                                       | x                                 | SOW for contractor works. Biosecurity Management Plan / guideline.             | Regular housekeeping.                                                                       | x                                                                   | Capture locations of weeds sprayed along easement (SOW).* | 2                       | 2          | Negligible                     |
| 43    | RISKACTIV                                          | Coating defect repairs could including buffing, sand/grit blasting, rewapping, use of epoxy resins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Dust, blasting material, coating removal media, chemical waste                                                             | Contamination surrounding soils / landfill                                                | APA HSE EP 13.03.01 Gas, Dust & Light Emission Management                                                                                                       | Technical                                             | Y                     | 5                      | 2           | Low        | x                                                      | x                                                                                                                     | Competent operator to carry out works                                          | x                                      | Ensure any waste material is captured and disposed of appropriately by a licenced contractor.                                                                                   | Use of drip trays / containment to capture coating                                                         | x                                                                    | x                                                                                                                    | x                                                    | x                                                                 | x                                                                                                                             | x                                                                                                                                                                                            | x                                                       | National Paint Coating Procedure* | x                                                                              | x                                                                                           | Waste tracking                                                      | 2                                                         | 2                       | Negligible |                                |
| 44    | RISKACTIV                                          | Excavation / dig-up                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Disturbance of CH site / material, impacts to fauna, erosion, impacts to landholders, inadequate rehabilitation            | Loss of heritage value/ecological impacts/negative impacts to reputation                  | APA HSE EP 13.07.02 Aboriginal Cultural Heritage Management<br>APA HSE EP 13.02.01 Native Vegetation Management<br>APA HSE EP 13.06.01 Soil and Land Management | Reputational, legal and technical                     | Y                     | 5                      | 4           | High       | x                                                      | Dedicated training required for Engineering / SIB.*                                                                   | x                                                                              | x                                      | x                                                                                                                                                                               | Installation of erosion and sediment control as required particularly in areas of surface water.           | Fencing and Fauna ramps (45 degrees) for excavations left over night | x                                                                                                                    | x                                                    | Reseeding of disturbed area - seed mix as required by landholder. | Restrict work during wet periods. No know ASS areas along pipelines.                                                          | Dig-up works generally managed by SIB projects. Additional assessment of dig-up locations and any potential additional work space required prior to works. Notification of landholders prior | x                                                       | x                                 | SIB Project Plan or similar.SOW, CHAT, National Excavation procedure / guide.* | x                                                                                           | Daily site reports                                                  | Daily check sheet/log of works*                           | 2                       | 5          | Low                            |
| 45    | RISKACTIV                                          | HEL Corrective - Land Erosion<br>HEL Corrective - Vegetation / LOS Issues<br>Clearing of trees and tall shrubs is required along the easement so as to comply with the requirements of AS2885.3.<br>Sign replacement / installation<br>CP post repairs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Spills and over clearing veg (as above)                                                                                    | Soil contamination and clearing of protected veg                                          | APA HSE EP 13.06.01 Soil and Land Management                                                                                                                    | Legal                                                 | Y                     | 5                      | 5           | Moderate   | Standard easement enviro induction - 1 pager sign off* | x                                                                                                                     | x                                                                              | x                                      | Any general waste disposed of back at base                                                                                                                                      | Fuel trailer is double skinned                                                                             | x                                                                    | No refuelling in sensitive areas or near surface water. Refuel within facilities or hard stand areas where possible. | Spill response equipment in all plant and equipment. | x                                                                 | x                                                                                                                             | Consultation of works with landholders. Review of GIS / Biosecurity Requirements prior to works.                                                                                             | x                                                       | x                                 | Specific scope of works, for all easement works via contractors. BMP.*         | x                                                                                           | Ongoing monitoring of dig up locations via ground and aerial patrol | x                                                         | 2                       | 5          | Low                            |

| ERA # | Type:<br>1. ENVFEAT<br>2. ASSETHAZ<br>3. RISKACTIV | Aspect or Activity<br>(Hazard)<br><br>RISKACTIV - use Maximo Job Plan (PM/CM number and name)<br>(e.g. trenching; filter change) | Event/Cause of harm (Risk)<br>(e.g. chemical spill) | Environment Impact<br>(e.g. soil contamination; death of fauna; nuisance to community) | Primary Safeguard Environment Area<br>(select from dropdown box) | Environment Impact Type<br>(select from dropdown box) | Relevant Risk?<br>Y/N | Pre-Control (Inherent) |             |            | Risk Management Method/s (Controls) |                                                 |                                      |                    |                |                                              |                  |                                                                                                  |                                                          |                             |                                        |       |                                                         |                                       |                                                          |                   |            | Post-Control (residual)        |            |             |
|-------|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------|-----------------------|------------------------|-------------|------------|-------------------------------------|-------------------------------------------------|--------------------------------------|--------------------|----------------|----------------------------------------------|------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------|----------------------------------------|-------|---------------------------------------------------------|---------------------------------------|----------------------------------------------------------|-------------------|------------|--------------------------------|------------|-------------|
|       |                                                    |                                                                                                                                  |                                                     |                                                                                        |                                                                  |                                                       |                       |                        |             |            | Competency Controls                 |                                                 |                                      | Site Setup Control |                |                                              |                  |                                                                                                  |                                                          |                             |                                        |       | Maximo Planning Control                                 | Info Access                           |                                                          | Assurance Control |            |                                |            |             |
|       |                                                    |                                                                                                                                  |                                                     |                                                                                        |                                                                  |                                                       |                       | Likelihood             | Consequence | Risk Level | Site Induction                      | Specific Awareness                              | Specific Training                    | Waste Storage      | Waste Disposal | Chemical Storage (e.g. bunding)              | Erosion Controls | Exclusion Zones                                                                                  | Emergency Response Controls (reactive)                   | Engineering design controls | Inherent controls / mitigating factors | Other | Relevant Remediation CM or Non-Preventative Maintenance | Info Storage Location/ System         | Supporting Documents (e.g. Work Instruction; Tech Guide) | Inspection        | Monitoring | Compliance Records or Evidence | Likelihood | Consequence |
| 48    | RISKACTIV                                          | Welding and Grinding                                                                                                             | Event/Cause of harm - ignition source               | Potential for fire                                                                     | APA HSE EP 13.02.01 Native Vegetation Management                 | Technical                                             | Y                     | 2                      | 3           | Low        | x                                   | x                                               | Fire response training, PTW training | x                  | x              | x                                            | x                | Fire breaks around compound. Designated areas for welding and grinding - within facilities only. | Emergency response procedure and fire response equipment | x                           | x                                      | x     | x                                                       | Fire prevention and control procedure | x                                                        | x                 | JHA/PTW    | 1                              | 3          | Negligible  |
| 49    | RISKACTIV                                          | Transport of Chemicals along ROW - generally less than 20L accepting fuel up to 400L                                             | Chemical spill                                      | Soil contamination and clearing of protected veg                                       | APA HSE EP 13.04.01 Chemical Spill Management                    | Technical and Legal                                   | Y                     | 2                      | 2           | Negligible | x                                   | Spill response via Emergency Response Exercises | x                                    | x                  | x              | Materials contained within truck / tool box. | x                | x                                                                                                | Spill response equipment in all plant and equipment.     | x                           | Small amounts, dedicated fuel storage  | x     | x                                                       | x                                     | x                                                        | x                 | x          | 1                              | 2          | Negligible  |

# Appendix 3 – APA Risk Matrix Definitions

APA Enterprise Risk Matrix (not for projects) v4.0 - Approved Feb 22

|                                                                                                                                                                                                                                                |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Likelihood*                                                                                                                                                                                                                                    | Frequent [many times in 1yr]                                                    | 5       | Low                                                                                                                                                                                                                                  | Moderate                                                                                                                                                                                                                                                                                                                                    | High                                                                                                                                                                                                                                                                                                                                                                     | Extreme                                                                                                                                                                                                                                                                                                                                        | Extreme                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                | Occasional [every 2yrs]                                                         | 4       | Low                                                                                                                                                                                                                                  | Low                                                                                                                                                                                                                                                                                                                                         | Moderate                                                                                                                                                                                                                                                                                                                                                                 | High                                                                                                                                                                                                                                                                                                                                           | Extreme                                                                                                                                                                                       |
|                                                                                                                                                                                                                                                | Unlikely [every 5yrs]                                                           | 3       | Negligible                                                                                                                                                                                                                           | Low                                                                                                                                                                                                                                                                                                                                         | Moderate                                                                                                                                                                                                                                                                                                                                                                 | High                                                                                                                                                                                                                                                                                                                                           | High                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                | Remote [every 20yrs]                                                            | 2       | Negligible                                                                                                                                                                                                                           | Negligible                                                                                                                                                                                                                                                                                                                                  | Low                                                                                                                                                                                                                                                                                                                                                                      | Moderate                                                                                                                                                                                                                                                                                                                                       | High                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                | Rare [every 50yrs]                                                              | 1       | Negligible                                                                                                                                                                                                                           | Negligible                                                                                                                                                                                                                                                                                                                                  | Negligible                                                                                                                                                                                                                                                                                                                                                               | Low                                                                                                                                                                                                                                                                                                                                            | Moderate                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                |                                                                                 |         | 1. Minimal                                                                                                                                                                                                                           | 2. Minor                                                                                                                                                                                                                                                                                                                                    | 3. Significant                                                                                                                                                                                                                                                                                                                                                           | 4. Major                                                                                                                                                                                                                                                                                                                                       | 5. Catastrophic                                                                                                                                                                               |
| Impact (consequences)                                                                                                                                                                                                                          |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| 1. Health & Safety                                                                                                                                                                                                                             |                                                                                 |         | Injury or illness requiring no treatment or first aid treatment only                                                                                                                                                                 | Injury / illness resulting in time lost from work of one day / one shift or more (LTI) or treatment by a qualified medical practitioner, other than First Aid.                                                                                                                                                                              | Injury / illness resulting in permanent or partial disability to employees                                                                                                                                                                                                                                                                                               | Fatality or life threatening injuries or illness or permanent total disability of employees and contractors or members of the public                                                                                                                                                                                                           | Fatality arising from systemic failure of APA safety or multiple fatalities of employees and contractors or members of the public                                                             |
| Injuries, illness or death of employees, contractors or members of the public                                                                                                                                                                  |                                                                                 |         | Psychological illness that does not result in time lost from work.                                                                                                                                                                   | Psychological illness that results in time lost from work.                                                                                                                                                                                                                                                                                  | Psychological illness resulting in total inability to return to work.                                                                                                                                                                                                                                                                                                    | Psychological illness resulting in fatality.                                                                                                                                                                                                                                                                                                   | Psychological illness resulting in multiple fatalities                                                                                                                                        |
| 2. Environment, Heritage or Social impact                                                                                                                                                                                                      |                                                                                 |         | At least one of the following:<br>- onsite and impacting < 1 ha<br>- no remediation needed<br>- impact continues for < 1 wk<br>- fauna death of a non-conservation significant species                                               | At least one of the following:<br>- onsite and impacting > 1 ha<br>- able to be remediated easily<br>- impact continues for <1 yr<br>- fauna death of a conservation significant species                                                                                                                                                    | At least one of the following:<br>- offsite and impacting < 1 ha<br>- able to be remediated with some difficulty<br>- impact continues for <5 yrs<br>- multiple fauna deaths of a of conservation significant species                                                                                                                                                    | One or a combination of the following consequences:<br>- offsite and impacting > 1 ha<br>- able to be remediated with difficulty<br>- impact continues for <10 yrs                                                                                                                                                                             | At least one of the following:<br>- offsite and impact is widespread >1ha<br>- unable to be remediated<br>- impact is irreversible or lasts >10 yrs                                           |
| Environmental harm or impacts to heritage or negative social impacts without approvals.                                                                                                                                                        |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| Guidance:<br>- Social impacts may include quality of life, livelihoods, access to shared resources/services                                                                                                                                    |                                                                                 |         | A process failure not affecting the overall significance of the heritage place or negligible damage that is fully repairable.                                                                                                        | Overall significance of the heritage place not affected or minor damage to heritage site that is not fully repairable                                                                                                                                                                                                                       | Overall significance of the heritage place not affected but does impact upon an aspect of its significance or causes moderate damage to heritage site that is not fully repairable.                                                                                                                                                                                      | Overall significance of the heritage place affected or causes serious harm to a heritage site that is not fully repairable.                                                                                                                                                                                                                    | Overall significance of the heritage place destroyed or substantially damages the important aspects of a heritage site and is not fully repairable.                                           |
| - Communities include landowners, townships, First Nations People etc.                                                                                                                                                                         |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| - Human rights relate to those rights and freedoms that everyone should be entitled to and is enshrined in the Universal Declaration of Human Rights. eg. dignity, recognition of our values, rights to work, adequate standard of living etc. |                                                                                 |         | At least one of the following:<br>- dissatisfaction or one off low level negative impacts on social environment/values or Human Rights.<br>- damage to relationships with local or key communities which can be immediately resolved | At least one of the following:<br>- isolated negative impacts on social environment/values or Human Rights.<br>- damage to relationships with local or key communities which can be resolved within 3 months.                                                                                                                               | At least one of the following:<br>- negative impacts on social environment/values or Human Rights.<br>- damage to relationships with local or key communities which can be recovered within 6 months                                                                                                                                                                     | At least one of the following:<br>- multiple instances or substantial negative impacts on social environment/values or Human Rights.<br>- multiple high-risk network sites without alternate supply which would take up to 12 months to resolve.                                                                                               | At least one of the following:<br>- extensive and systemic negative impacts on social environment/values or Human Rights.<br>- enduring non-recoverable relationships with local communities. |
| 3. Operational Capability                                                                                                                                                                                                                      |                                                                                 |         | Unplanned supply disruption potentially impacting (any one of):<br>- <100 end users, but no networks demand customers (i.e.>10TJ pa).<br>- services of ≤1 day                                                                        | Unplanned supply disruption potentially impacting (any one of):<br>- 100 – 1,000 end users<br>- a single networks demand customer (>10TJ pa)<br>- single high risk network site without alternate supply options (i.e. hospital, nursing home, home on life support)<br>- delivery of services >1 day to ≤1 week<br>- minor property damage | Unplanned supply disruption potentially impacting (any one of):<br>- >1,000 – 10,000 end users<br>- multiple networks demand customers (> 10 TJ pa)<br>- an entire regional town regardless of number of customers<br>- multiple high-risk network sites without alternative supply options<br>- delivery of services >1 week to ≤1 month<br>- extensive property damage | Unplanned supply disruption potentially impacting (any one of):<br>- > 10,000 end users<br>- a networks demand customer (>10TJ pa) with an end user loss of revenue or infrastructure damage<br>- multiple high-risk network sites without alternate supply options approx. 1 week to 1 month<br>- delivery of services >1 month to ≤ 3 months | Unplanned supply disruption potentially impacting (any one of):<br>- a metropolitan city<br>- high risk network sites without supply for > 1 month<br>- delivery of services > 3 months       |
| Disruption in our operations (supply or services)                                                                                                                                                                                              |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| Guidance:<br>Give greater weighting to the Reputation & Customer impact criteria where an asset has a single customer.                                                                                                                         |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| 4. People                                                                                                                                                                                                                                      |                                                                                 |         | - Little or no impact on individual or team engagement<br>- Capability available                                                                                                                                                     | - some impact on team or site engagement / minor site level complaints or breaches<br>- some capability gaps                                                                                                                                                                                                                                | - Some impact on Business unit engagement / rising complaints or breach levels / some staff turnover<br>- Some capability gaps where skills can be easily sourced externally                                                                                                                                                                                             | - Some serious complaints or breaches / Staff turnover rising<br>- Extensive capability gaps where most skills can be sourced externally but with some difficulty                                                                                                                                                                              | - Increasing serious complaints and breaches/ High staff turnover<br>- Extensive capability gaps where skills are not easily available or accessible externally                               |
| Impact size, engagement, capability of our Staff                                                                                                                                                                                               |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |
| 5. Compliance                                                                                                                                                                                                                                  |                                                                                 |         | Immaterial non-compliance which can be resolved internally in < 3 months                                                                                                                                                             | Non-compliance which can be resolved in 3 - 12 months or issuance of formal notice.                                                                                                                                                                                                                                                         | Non-compliance reportable to a regulator with potential for regulatory investigation or fines                                                                                                                                                                                                                                                                            | Non-compliance resulting in major fines, restrictions, potential of loss of license or licence variations                                                                                                                                                                                                                                      | Multiple areas of non-compliance / breaches with loss of one or more operating licenses, prosecution of directors or officers of APA.                                                         |
| Non-compliance with operating licenses, legal, regulatory, contractual obligations (excluding customers), debt financing covenants or reporting / disclosure requirements.                                                                     |                                                                                 |         | Non-compliance with a contractual obligation - negotiations required                                                                                                                                                                 | Non-compliance with a contractual/legal obligation(s) - arbitration required<br>Review event under debt financing obligation addressed through consultation with lender                                                                                                                                                                     | Non-compliance with a contractual/legal obligation(s) - results in litigation<br>Immaterial breach of covenant under debt financing obligation reportable to lender                                                                                                                                                                                                      | Permanent loss of major/material contract                                                                                                                                                                                                                                                                                                      | Permanent loss of multiple material contracts                                                                                                                                                 |
| 6. Reputation & Customer                                                                                                                                                                                                                       |                                                                                 |         | Isolated adverse:<br>- local media comment or articles on APA<br>- low levels of detrimental social media comments                                                                                                                   | - Sustained: adverse local media articles on APA or detrimental social media comments<br>- one off negative reports by financial analysts                                                                                                                                                                                                   | - Sustained: adverse national media articles on APA or viral social media<br>- Multiple negative reports by financial analysts                                                                                                                                                                                                                                           | -Considerable, prolonged adverse national coverage (social and media)<br>-Sustained negative reports by financial analysts<br>-ASX Trading halt                                                                                                                                                                                                | - Considerable and prolonged adverse international coverage (social and media) on APA and energy industry<br>- Suspension from ASX                                                            |
| The view of APA from its stakeholders, customers, investors, regulators, governments and the community.                                                                                                                                        |                                                                                 |         | Some decline in customer satisfaction                                                                                                                                                                                                | Customer no longer positively advocates for APA                                                                                                                                                                                                                                                                                             | Sustained deterioration in customer satisfaction / small contract arbitration / Negative customer feedback possible                                                                                                                                                                                                                                                      | Loss of one top 10 customer / Major contract arbitration / Negative customer feedback persisting more than 6 months                                                                                                                                                                                                                            | Loss of multiple top 10 customers / Customers seeks to terminate / avoid existing contractual relationships                                                                                   |
| 7. Financial                                                                                                                                                                                                                                   |                                                                                 |         |                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                          | Permanent downgrade of either credit rating by a single notch                                                                                                                                                                                                                                                                                  | Permanent downgrade of either credit rating by two or more notches (to sub-investment grade)                                                                                                  |
|                                                                                                                                                                                                                                                | a. APA Group<br>Balance sheet, P&L impact (one-off or up to 2 years cumulative) | ≤ \$15M |                                                                                                                                                                                                                                      | \$16M - \$30M                                                                                                                                                                                                                                                                                                                               | \$31M - \$60M                                                                                                                                                                                                                                                                                                                                                            | \$61M - \$250M or potentially outside market guidance                                                                                                                                                                                                                                                                                          | > \$250M or major impact on market guidance                                                                                                                                                   |
|                                                                                                                                                                                                                                                | b. Asset<br>Revenue, Cost impact (one-off or up to 2 years cumulative)          | ≤ \$1M  |                                                                                                                                                                                                                                      | \$1M-\$5M                                                                                                                                                                                                                                                                                                                                   | \$5M-\$20M                                                                                                                                                                                                                                                                                                                                                               | \$20M-\$50M                                                                                                                                                                                                                                                                                                                                    | >\$50M                                                                                                                                                                                        |

| Likelihood* | Description                                                             | Frequency         |
|-------------|-------------------------------------------------------------------------|-------------------|
| Frequent    | Expected to occur on a regular basis and many times                     | Many times in 1yr |
| Occasional  | May occur occasionally or in many circumstances                         | Every 2yrs        |
| Unlikely    | Unlikely to occur but possible when certain circumstances prevail       | Every 5yrs        |
| Remote      | Not anticipated but may occur if certain abnormal circumstances prevail | Every 20yrs       |
| Rare        | Conceivable, but has not been known to arise previously                 | Every 50yrs       |

\*depending on the risks under review, users can choose either the likelihood description, frequency or both. Users can choose based on what is more helpful in risk understanding.

# Appendix 4 – Heritage Management Protocol

# Heritage Management Protocol

APA HSEH GP 47.00

03 March 2025



## 1. Scope

This protocol describes APA's minimum requirements for the management of heritage. The term heritage refers to Aboriginal or Torres Strait Islander cultural heritage (also known collectively as First Nations' heritage), and natural and historic heritage.

This document does not address native title or broader First Nations' consultation.

## 2. Controls

### 2.1. Heritage Assessment, Approvals and Records

- |       |                                                                                                                                                                                                                                                                                  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 47.01 | The potential for an activity to impact on heritage must be assessed prior to activity commencement in accordance with <u>APA HSEH GP 47.00 T04 Heritage Management Flow Chart</u> , with a record of the assessment retained by the relevant business area.                     |
| 47.45 | Potential heritage impacts must be considered during site selection and design and where practical, avoided.                                                                                                                                                                     |
| 47.04 | Activities that impact, or are likely to impact heritage, must be authorised under a statutory approval, statutory exemption, or legal agreement.                                                                                                                                |
| 47.03 | Heritage surveys to identify, document and assess heritage values must be undertaken by a suitably qualified person and, where related to First Nations heritage, in consultation with relevant First Nations stakeholders.                                                      |
| 47.21 | Control measures to mitigate heritage impacts must be developed in consultation with external heritage stakeholders unless the activity is subject to a statutory exemption that does not require consultation.                                                                  |
| 47.35 | A register of external heritage stakeholder consultation must be maintained.                                                                                                                                                                                                     |
| 47.36 | Prior to consulting with an external heritage stakeholder, the person planning the consultation must review the heritage stakeholder register.                                                                                                                                   |
| 47.37 | External heritage stakeholder consultation and agreement development must be in accordance with the APA <u>Community and Social Performance Standard</u> and <u>Land Access Standard</u> .                                                                                       |
| 47.42 | Heritage spatial data must be recorded in accordance with the APA Heritage Schema ( <u>560-GD-A-0004 Environment and Heritage – Spatial data schema</u> ) and, unless advised otherwise by the external heritage stakeholder, added to the APA Enterprise Heritage GIS database. |
| 47.16 | Heritage statutory approvals, legal agreements and supporting reports must be stored in the associated project or asset document library.                                                                                                                                        |

- 47.39 A register of heritage obligations arising from statutory approvals, statutory exemptions, or legal agreements, must be maintained and periodically reviewed for compliance.
- 47.13 Heritage obligations must be communicated as part of project / asset handover and included in the respective construction or operational environmental management plan.

## 2.2. Implementation

- 47.10 Heritage obligations must be implemented in accordance with the relevant statutory approval, statutory exemption, or legal agreement.
- 47.40 Prior to work, the work supervisor must be provided with a copy of, and complete a review of, the heritage obligations applicable to the work.
- 47.23 The work supervisor must ensure any relevant heritage obligations are communicated to relevant workers as part of the job prestart, site induction or equivalent.
- 47.41 The work supervisor must ensure any exclusion or restricted zones are appropriately marked out or otherwise defined prior to and during work.
- 47.14 A record of completed heritage management actions and controls must be maintained.

## 2.3. Change Management

- 47.11 Where new heritage information is discovered a change impact assessment must be undertaken to determine the need for formal modification of applicable statutory approval(s) or legal agreement(s).
- If required, modification must be sought and obtained by the business from the relevant external heritage stakeholders, prior to work commencing or continuing.

## 2.4. Heritage Survey Results and Discoveries

- 47.43 Heritage survey results and discoveries must be notified to the relevant external heritage stakeholders in accordance with statutory and legal agreement requirements.
- 47.17 If heritage is unexpectedly discovered the event must be managed as follows:
- The activity must be stopped, the site must be made safe, any immediate threat to heritage controlled, and an exclusion zone established.
  - Complete internal and external notification as per the APA HSE GP 07.01 T9 Incident and Near Miss Flowchart and activity specific agreements. If the discovery includes potential human remains the local police must be notified immediately.
  - Enter event into relevant system(s) within 1 business day unless otherwise directed by legal, general manager or external heritage stakeholder.

- Complete any further actions as per APA HSE GP 07.01 Incident, Near Miss and Hazard Management Protocol.

Activities must not recommence until authorised by the APA heritage representative.

## **2.5. Emergency Activities**

**47.27** Emergency activities that are likely to impact on heritage must be reported to the emergency management team, and advice on management of heritage impacts sought. Where possible, emergency activities must be undertaken with care to minimise harm to heritage.

**47.44** Emergency activities must be assessed for heritage requirements, in accordance with APA HSEH GP 47.00 T04 Heritage Management Flowchart. Where necessary, retrospective statutory approvals, agreements or exemptions must be obtained.

## **2.6. Incidents and Complaints**

**47.31** Applicable external stakeholders must be notified of heritage incidents as per the APA HSE GP 07.01 Incident, Near Miss & Hazard Protocol and project specific heritage approvals, agreements and or legislative requirements.

**47.32** Community complaints and community grievances regarding APA's heritage management must be managed in accordance with the APA Community and Social Performance Standard and relevant business area community grievance, complaints and feedback procedure(s).

## **3. Supporting Material**

APA Community and Social Performance Standard

APA Land Access Standard

For supporting Safeguard procedures refer to the Safeguard document library

APA HSEH GP 47.00 T01 Heritage Guideline

APA HSEH GP 47.00 T02 Heritage Reference Manual

APA HSEH GP 47.00 T03 Historic Heritage Guideline – Gas Services

APA HSEH GP 47.00 T04 Heritage Management Flowchart

APA HSEH GP 47.00 T05 Historic Heritage Flowchart – Gas Services

APA HSEH GP 47.00 T22 Quick Reference Guide - Historic Heritage - Gas Services

### **Desktop Assessment Templates - Historic Heritage**

APA HSEH GP 47.00 T06 NSW Historic Heritage Desktop Assessment Template

APA HSEH GP 47.00 T07 VIC Historic Heritage Desktop Assessment Template

[APA HSEH GP 47.00 T08 QLD Historic Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T09 SA Historic Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T10 WA Historic Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T11 NT Historic Heritage Desktop Assessment Template](#)

#### **Desktop Assessment Templates - Cultural Heritage**

[APA HSEH GP 47.00 T12 NSW Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T13 VIC Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T14 QLD Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T15 SA Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T16 WA Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T17 NT Cultural Heritage Desktop Assessment Template](#)

[APA HSEH GP 47.00 T18 TAS Cultural Heritage Desktop Assessment Template](#)

#### **Desktop Assessment Templates - Heritage (both / combined)**

[APA HSEH GP 47.00 T19 ACT Heritage Desktop Assessment Template](#)

#### **Spatial Data Schema**

[560-GD-A-0004 Environment and Heritage – Spatial data schema](#)

#### **Toolbox Talks**

[APA HSEH GP 47.00 T20 Toolbox Heritage Discovery](#)

[APA HSEH GP 47.00 T21 Toolbox Heritage Management](#)

## **4. Definitions**

| <b>Term</b>                             | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Activities / activity</b>            | A field-based task carried out for APA, by an APA Group employee, contractor or sub-contractor.                                                                                                                                                                                                                                                                                                                                               |
| <b>APA Enterprise Heritage database</b> | <p>Centrally managed geospatial (GIS) database containing APA records of Aboriginal and Historic Heritage relevant to operational assets. Data has been compiled from a range of government sources and previous APA studies.</p> <p>For a full description refer to 560-GD-A-0004 Environment and Heritage Spatial Data Schema Guide in ECM.</p> <p>Data can be accessed via the APA GeoHub – Environment and Heritage National Web App.</p> |
| <b>Authority</b>                        | See external authority                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Term                        | Definition                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Community Complaint</b>  | An expression of dissatisfaction made by a community stakeholder, regarding perceived, potential or real impacts or harm related to APA activities, personnel, or the complaint management process itself, where a response or resolution is explicitly or implicitly expected.                                                              |
| <b>Community Grievance</b>  | <p>A complaint made by a community member on the grounds of a real or perceived unlawful, unfair or unjust act that requires a solution via a third-party:</p> <ul style="list-style-type: none"><li>• either informally or formally through mediation</li><li>• other court proceedings</li></ul>                                           |
| <b>Consultation</b>         | To obtain public feedback on analysis, alternatives and/or decisions (a level of public participation as defined by the IAP2 Spectrum) Source: International Association of Public Participation.                                                                                                                                            |
| <b>Cultural Heritage</b>    | <p>Aboriginal or Torres Strait Islander cultural heritage (otherwise known collectively as First Nations' heritage) includes both physical (tangible) elements such as objects, sites, landscapes, places and non-physical (non-tangible) elements such as peoples' connections, ceremonies, lore and language.</p> <p>See also Heritage</p> |
| <b>Emergency activities</b> | Activities that are urgently required to address an immediate risk to the life or health of a person/s or environment or heritage values, or catastrophic damage to infrastructure. This could be (but not exclusively) as result of a natural disaster, fire or accident.                                                                   |
| <b>Exclusion zone</b>       | An area around a sensitive value where access is controlled. The zone may be delineated using a barrier (such as fencing, bunting or flagging tape) and contain a buffer of a defined radius (e.g. 10m) from the extent of the site.                                                                                                         |
| <b>External authority</b>   | Any regulatory (government) authority or stakeholder group with formal authority over activities and outcomes.                                                                                                                                                                                                                               |
| <b>Harm</b>                 | To damage or impact.                                                                                                                                                                                                                                                                                                                         |

| Term                      | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Heritage</b>           | <p>Refers to Aboriginal or Torres Strait Islander cultural heritage, natural and historic heritage values. Includes both known and previously unrecorded artefacts and relics.</p> <p><b>Aboriginal or Torres Strait Islander cultural heritage</b> (otherwise known collectively as First Nations' heritage) includes both physical elements such as objects, sites, landscapes, places and non-physical elements such as peoples' connections, ceremonies, lore and language.</p> <p><b>Historic and natural heritage</b> refers to places or items possessing significant historical values such as buildings, archaeological items, landmarks, infrastructure and commemorative locations, or places otherwise defined by statute as being historic heritage.</p> <p><b>Historic and natural heritage</b> also includes character places or precincts, which are buildings, gardens or areas that have a quality or style (either on their own or collectively) that are valued by the community e.g. a row of houses of the same architectural style or a street lined with a certain species of tree.</p> |
| <b>Land disturbance</b>   | <p>Any disturbance of an area which causes a lasting impact to the land or waters during the activity or after the activity has ceased.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Stakeholder</b>        | <p>Any person, organisation or interested party that has an impact on, or is impacted by, the company.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Statutory Approval</b> | <p>A generic term for any consent granted from a relevant authority under, or as an exemption from an environment or heritage law.</p> <p>Can take the form of a permit, approval, licence or similar legal tool.</p> <p>May be supported by or conditional on a Management Plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Term                                              | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitably Qualified Person (SQP) - Heritage</b> | <p>A suitably qualified person can vary depending on the type of heritage involved.</p> <p>For First Nations heritage APA considers, a suitably qualified person is:</p> <ul style="list-style-type: none"><li>• An Australian First Nations person who is authorised to speak for their specific country, or</li><li>• A First Nations Person with demonstrated experience and knowledge in heritage management who is specifically engaged as a heritage expert, or</li><li>• A heritage professional who holds an honours, masters or doctoral degree or graduate diploma in a relevant heritage discipline (archaeology, anthropology, museum studies, history etc) and has a minimum 5 years relevant experience.</li></ul> <p>The person must also meet any SQP requirements defined under the relevant jurisdiction's legislation.</p> <p>For other forms of heritage, APA considers a suitably qualified person to include the following relative to the heritage matters under consideration:</p> <ul style="list-style-type: none"><li>• A heritage professional who holds a bachelor's degree in architecture or planning.</li><li>• A level five arborist.</li><li>• A qualified tradesperson with recognised expertise in built heritage.</li><li>• A person defined as a SQP under the relevant jurisdiction's legislation</li></ul> <p>In each instance, the suitability of the person to assess the specific heritage values must be considered along with factors such as local knowledge about the area, specific place, and project-specific issues.</p> <p>A suitably qualified person can be supported by others who don't meet the definition provided they are supervised by a suitably qualified person.</p> |
| <b>Unexpected heritage discovery</b>              | <p>Refers to an unexpected find of heritage.</p> <p>This does not include instances where there are agreed heritage discovery management arrangements in place, for example in a heritage management plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

# Appendix 5 – Pests, Weeds and Disease Management Protocol

# APA Group Procedure

## Pests, Weeds and Diseases Management

|                               |                                                                                                                   |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Document type                 | <b>Procedure</b>                                                                                                  |
| Effective from                | 01/06/2022                                                                                                        |
| Key contact                   | Manager, Environment and Heritage                                                                                 |
| Document owner                | Manager, Environment and Heritage                                                                                 |
| Approved by                   | General Manager Health, Safety, Environment and Heritage                                                          |
| Approved date                 | 01/06/2022                                                                                                        |
| Next review date              | 01/06/2025                                                                                                        |
| Review cycles                 | 3 Yearly                                                                                                          |
| Related Group Standard/Policy | Pests, weeds and diseases standard                                                                                |
| Legend                        | <a href="#">Hyperlink</a> to either a location in this document, to an intranet site or website, or APA document. |

## Table of Contents

|                   |                                                                        |           |
|-------------------|------------------------------------------------------------------------|-----------|
| <b>1</b>          | <b>Purpose and Scope.....</b>                                          | <b>3</b>  |
| <b>2</b>          | <b>Controls .....</b>                                                  | <b>3</b>  |
| 2.1               | Process Overview.....                                                  | 3         |
| 2.2               | PWD Risk Assessment and Prioritisation.....                            | 5         |
| 2.3               | PWD Survey and Monitoring.....                                         | 6         |
| 2.4               | Monitoring results and management objectives .....                     | 7         |
| 2.5               | Cleanup Requirements.....                                              | 8         |
| 2.6               | Treatment of PWD .....                                                 | 10        |
| 2.7               | Preventing spread of PWD in movement of soil and other materials ..... | 10        |
| <b>3</b>          | <b>Resources.....</b>                                                  | <b>10</b> |
| <b>4</b>          | <b>Version Control .....</b>                                           | <b>11</b> |
| <b>Appendix A</b> | <b>Authorities .....</b>                                               | <b>12</b> |
| <b>Appendix B</b> | <b>Glossary .....</b>                                                  | <b>13</b> |

## Group Procedure Icons



Important information



A reference that provides further information or assistance.



A tool to help implement this procedure.

## 1 Purpose and Scope

This procedure describes APA's processes and requirements for the management of pests, weeds and diseases (PWD). PWD within this context refers to animals, plants and biosecurity (plant and animal) diseases that have potential to cause serious negative environmental, social or economic impacts. APA has obligations to manage PWD hazards and risks that may occur during the course of its activities.

This procedure applies to all activities at all APA sites, conducted by APA employees, contractors and sub-contractors within APA's operational control, in all jurisdictions.

This procedure does not address the following:

- Human diseases.
- Specific federal, state, territory or local government requirements.
- Workplace health and safety issues associated with PWD.
- Domestic or nuisance pests, insects and vermin.

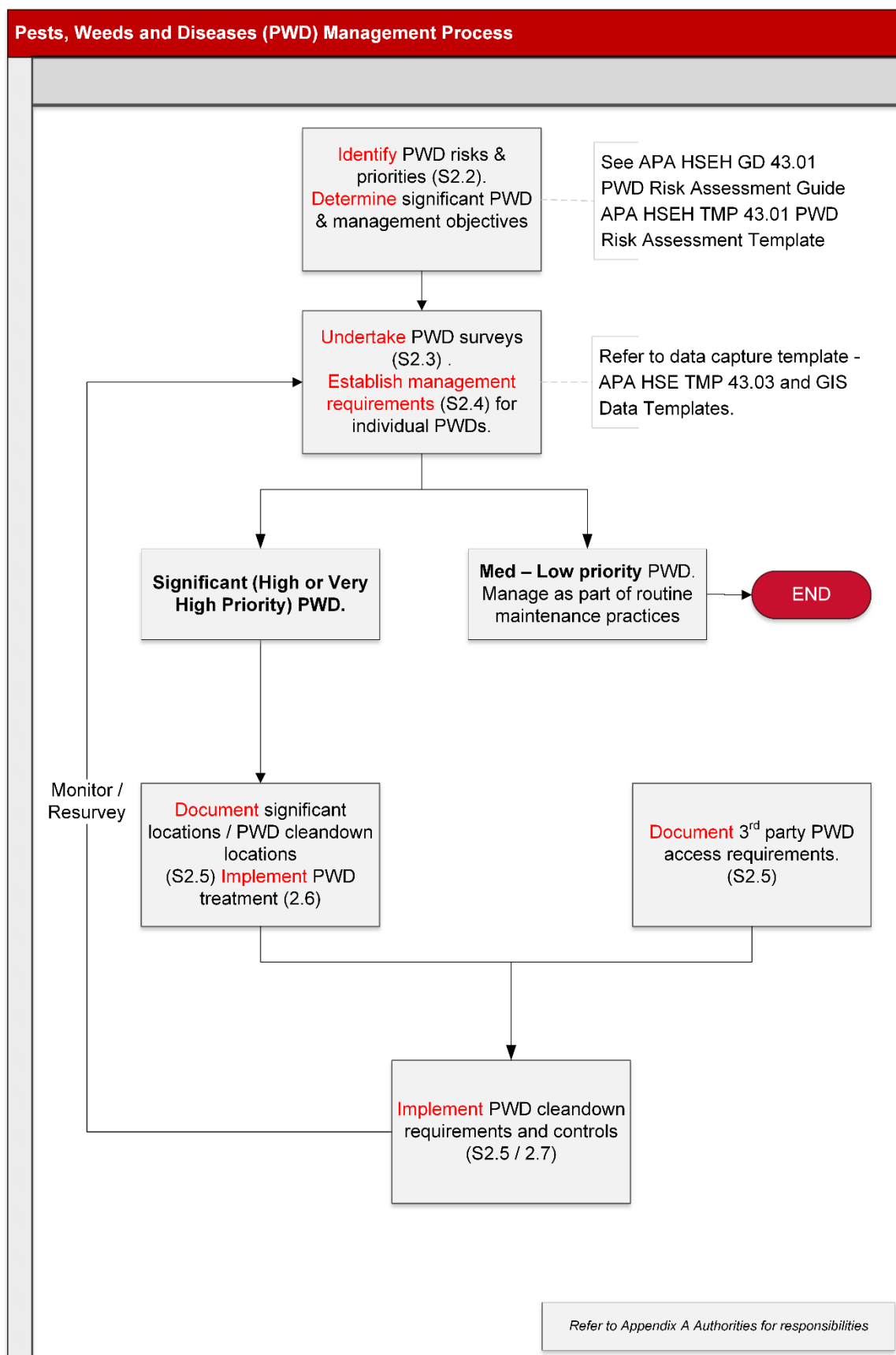
This procedure must be read in conjunction with [APA Group Standard - Pests, Weeds and Diseases](#).

## 2 Controls

### 2.1 Process Overview

Figure 1 provide a high-level overview of this procedure.

Figure 1 PWD Management Process Overview



## 2.2 PWD Risk Assessment and Prioritisation

43.021 A register of known and potential pests, weeds and diseases (PWD risks) must be established for locations (e.g. operational regions, project areas) within which APA undertakes activities. Individual PWD must be risk assessed to identify priority PWD applicable to the activity area.

Refer to Table 1 and APA Pest, Weed Disease Risk Assessment Guideline ([APA HSEH GD 43.01](#)) for details on risk assessment and prioritisation assessment criteria.

Criterion include:

- Government significance rating.
- Potential for further APA spread.
- Feasibility of controlling a PWD.
- Current PWD distribution.
- Level of coordination required to effectively control.

Use the APA PWD risk assessment template ([APA HSEH TMP 43.01](#)) to record the risk assessment results.



Completed PWD risk assessments are published on Empower.  
Refer to section 3 Resources.

Table 1 PWD Prioritisation matrix

|  |                        | PWD Level of Risk |                                        |                                        |                                        |
|--|------------------------|-------------------|----------------------------------------|----------------------------------------|----------------------------------------|
|  |                        | Very Low          | Low                                    | Med                                    | High                                   |
|  | Feasibility of Control |                   |                                        |                                        |                                        |
|  | High                   | Low - Monitor     | Targeted management in sensitive areas | High - Contain spread                  | Very High – Prevention & Eradication   |
|  | Med                    | Low - Monitor     | Medium - Routine management            | Targeted management in sensitive areas | High - Contain spread                  |
|  | Low                    | Low - Monitor     | Medium - Routine management            | Medium - Routine management            | Targeted management in sensitive areas |



The APA Pest, Weed Disease Risk Assessment Guideline ([APA HSEH GD 43.01](#)) provides a detailed step-by-step guide to completing a PWD Risk Assessment. APA has modelled this process on HB 294:2006 - National Post Border Weed Risk Management Protocol (Standards Australia).

## 2.3 PWD Survey and Monitoring

- 
- 43.031 A PWD survey / monitoring program must be established for locations where
- APA activities have a credible risk of spreading significant PWD (risk based monitoring), or
  - APA activities have caused / are suspected to have caused a significant PWD issue, or
  - There is a regulatory requirement for APA to manage particular PWD. Regulatory requirements may be in the form of an explicit permit or approval condition or general management requirement.
-  Refer to the asset or project specific Environmental Risk Assessment and Environmental Management Plan to determine regulatory requirements and risk of PWD spread.
- 
- 43.032 PWD surveys must record information on the PWD species, location, density and management priority (based on the PWD risk assessment). Information should be collected electronically, e.g. via GPS / mobile mapping applications.
- Refer to [APA HSEH TMP 43.03 Weed Survey Form](#)
-  Refer to APA's GIS data templates for Pest, Disease and Weeds ([560-DBS-CMP-0076](#), [560-DBS-CMP-0085](#) & [560-DBS-CMP-0086](#)).
- 
- 43.034 Surveys must be undertaken by personnel trained, or with demonstrated experienced, in the identification of PWDs.
-  Positive identification of PWD species is essential. If you are unsure take photographs or samples to assist with identification. Contact the Environment and Heritage team for further assistance.
- 
- 43.035 Designated access tracks must be included within the PWD survey scope.
-

## 2.4 Monitoring results and management objectives

- 43.041 PWD management objectives and control strategies must be developed based on the PWD risk. Refer to the results of the PWD Risk Assessment and Table 2 Standard PWD Management Objectives and Control Strategies.

*Table 2 Standard PWD Management Objectives and Control Strategies*

| Priority                                      | Management Objectives             | Control Strategies                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Very High</b>                              | Prevention & Eradication          | Prevent introduction via cleandown measures prior to entry.<br>Treat to remove/ destroy all individuals.<br>Limit access to infested area.<br>Inspect and cleandown following access                                                                                                                                                                                          |
| <b>High</b>                                   | Containment                       | Inspect / cleandown following access to infested areas.<br>Limit access to infested area.<br>Treat to reduce PWD population, particularly in areas adjacent to access tracks.                                                                                                                                                                                                 |
| <b>Targeted management in sensitive areas</b> | Containment or Routine Management | Management dependent upon location - assess on case-by-case basis.<br>If in a sensitive area where significant impacts are likely manage as per "High" priority.<br>If not in sensitive area, manage as per "Medium" priority.                                                                                                                                                |
| <b>Medium</b>                                 | Routine Management                | Reduce PWD infestations as part of routine vegetation maintenance / management activities required for operation / construction of the asset. For example slashing and herbicide treatment of easements and access tracks.                                                                                                                                                    |
| <b>Low</b>                                    | Monitor                           | Monitor infested areas as part of routine operational monitoring and reassess if resources or PWD risk status changes.<br>Treat as part of ongoing routine maintenance activities.<br>These PWD are generally well established with minor impacts.<br>The low level of expected impacts and low feasibility of control level does not currently warrant any immediate action. |

- 43.042 Locations that have PWD requirements and restrictions, such as clean on entry / clean on exit requirements, must be recorded in the relevant business unit management systems (eg GIS / X-Info) and relevant workers informed of these requirements.

- 43.043 Relevant PWD survey data must be collated into the relevant GIS to support ongoing management.

## 2.5 Cleandown Requirements

- 43.050 Vehicles, machinery and equipment moving into un-infested areas or relocating from areas known to contain a significant PWD must be cleaned-down where doing so is likely to reduce the risk of spread. Refer to controls 43.051 - 43.056 for further details.

 Cleandown measures include pressure cleaning, brushing, use of compressed air and manual removal. A combination of measures is generally required.

Refer to [APA HSEH GD 43.02 Pests, Weeds & Diseases Cleandown Guideline](#) for further guidance on completing cleandowns.

 Refer to the relevant APA mapping (GIS), land access systems (e.g. XIC) or site access rules for information on the location of PWDs and land access requirements.

- 43.051 Generally, items must be clean and free of loose and / or built up soil and plant matter, particularly when moving between sites.

- 43.052 Movement of materials, vehicles, machinery and equipment must comply with government PWD zones and cleandown / hygiene requirements.

- 43.053 **Easements** - When entering or operating in easement areas, the following minimum requirements must be implemented.

| Situation                                                                                                                           | Requirement                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| When initially mobilising from an external site.                                                                                    | Item must be Clean on Entry.                                                                                   |
| Following movement through a significant PWD zone / infestation (including government PWD zones).                                   | Inspect and, where contaminated, cleandown.                                                                    |
| Individual properties with "Clean on Entry" requirements. These requirements must be defined via liaison with land owner / manager. | Complete additional measures where the item doesn't meet property specific PWD management plan / requirements. |

43.054 **Built up areas** – When operating in public areas in metropolitan or built up areas the following minimum requirements must be implemented:

| Situation                                                                                                                          | Requirement                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Movement through a significant PWD zone / infestation (including government PWD Zones).                                            | Inspect and, where contaminated, cleandown.                                                                           |
| Entry to sensitive or undeveloped sites / areas                                                                                    |                                                                                                                       |
| Individual properties with “Clean on Entry’ requirements. These requirements must be defined via liaison with landowner / manager. | Complete additional measures where the item doesn’t meet property / site specific PWD management plan / requirements. |

43.055 **Fixed Sites** – When entering or operating on a fixed site, the following minimum requirements must be implemented.

| Situation                                                                            | Requirement                                 |
|--------------------------------------------------------------------------------------|---------------------------------------------|
| Vegetation maintenance, ground disturbance or excavation outside of hardstand areas. | Item must be Clean on Entry                 |
| Entry to undeveloped parts of the site.                                              |                                             |
| Movement through a significant PWD zone / infestation (within site).                 | Inspect and, where contaminated, cleandown. |

43.056 Personal items, such as boots and clothing, must be regularly checked for weed seeds, soil and mud. If contaminated, the items must be cleaned in line with vehicle cleandown requirements.

43.057 Where specified in access requirements, a trained and / or third party PWD inspector must be engaged to verify an item is free of soil and plant matter. The inspector must be trained in the national competency - AHC BIO203 - Inspect and clean machinery, tools and equipment to preserve biosecurity or equivalent.

43.058 For activities that involve contractor access to site, the relevant cleandown requirements must be communicated to the contractor. For example in the scope of works, Environmental Management Plan or equivalent.

43.059 Inspections and / or cleandowns must be recorded using [APA HSE TMP 43.02 Pests, Weeds & Diseases Hygiene Record Form](#) (or equivalent).

## 2.6 Treatment of PWD

- 43.061 PWD treatment must be implemented in line with management objectives and control strategies (see 43.04143.041) and, where applicable, regulatory requirements. Treatment should be targeted to locations where treatment will reduce the potential for further spread and minimise the need for vehicle cleandowns.

**!** Landholders may have specific requirements or accreditations such as being 'chemical free' or 'no spray' zones. Incorrect or unapproved chemical use can cause significant impacts to landholder operations.

- 43.062 Treatment programs must be reviewed periodically and updated based on the results of follow-up inspections and monitoring.

**!** Record keeping requirements apply to the use of agricultural chemicals. Refer to [APA HSE PRO 005 Chemical Management](#) for details.

## 2.7 Preventing spread of PWD in movement of soil and other materials

- 43.071 Soil and other materials containing, or suspected of containing, PWD, must not be moved into an un-infested area. Materials in this instance can include sand, mulch, seed or other items that could be contaminated with PWD reproductive material.
- 43.072 When excavating materials (e.g. soil) that are known or suspected to contain PWD, 'infested' materials must be stockpiled separately from clean material to minimise the spread of PWD.
- 43.073 If sourcing soil, sand, mulch, seed and other materials potentially contaminated with PWD the source location must be inspected for the presence of significant PWDs or alternatively, written verification obtained from the supplier that the material is free of significant PWD.

The PWD status of the material must be recorded using [APA HSEH TMP 43.02 Pest Weed & Disease Hygiene Record Form](#) or equivalent.

## 3 Resources

The following resources are available to support the implementation of this procedure.



- [APA HSEH GD 43.01 Pests, Weeds and Diseases Risk Assessment Guideline](#)
- [APA HSEH GD 43.02 Pests, Weeds and Diseases Cleandown Guideline](#)
- [APA HSEH GD 43.04 Pests, Weeds and Diseases Site Poster](#)
- [APA HSEH TMP 43.01 Pests, Weeds, and Diseases Risk Assessment Template](#)
- [APA HSEH TMP 43.02 Pests, Weeds, and Diseases Hygiene Record Form](#)

- [APA HSEH TMP 43.03 Pests, Weeds, and Diseases Weed Survey Form](#)
- [APA HSEH TMP 43.06 Pests, Weeds & Diseases Audit and Self-Assessment Form](#)
- [APA HSEH TMP 43.07 Toolbox – Preventing the spread of pests, weeds and diseases](#)
- Pest Weed and Disease GIS Data template ([560-DBS-CMP-0076](#), [560-DBS-CMP-0085](#) & [560-DBS-CMP-0086](#))

### Regional PWD Risk Registers & Guidelines

- [APA HSEH GD 43.21 PWD Risk Register NSW Cobar Region](#)
- [APA HSEH GD 43.22 PWD Risk Register NSW VIC Albury Region](#)
- [APA HSEH GD 43.23 PWD Risk Register NSW Wilton Region](#)
- [APA HSEH GD 43.24 PWD Risk Register NSW Young Region](#)
- [APA HSEH GD 43.30 PWD Risk Register VIC Gippsland Region](#)
- [APA HSEH GD 43.31 PWD Risk Register VIC Melbourne Region](#)
- [APA HSEH GD 43.32 PWD Risk Register VIC SA Otway Region](#)
- [APA HSEH GD 43.40 PWD Risk Register QLD Far West Region](#)
- [APA HSEH GD 43.41 PWD Risk Register QLD South East Region](#)
- [APA HSEH GD 43.42 PWD Risk Register QLD South West Region](#)
- [APA HSEH GD 43.43 PWD Risk Register QLD Surat Region](#)
- [APA HSEH GD 43.44 PWD Risk Register QLD Central Qld Region](#)
- [APA HSEH GD 43.50 PWD Risk Register SA VIC Riverland Region](#)
- [APA HSEH GD 43.60 PWD Risk Register WA Goldfields Region](#)
- [APA HSEH GD 43.61 PWD Risk Register WA PGP Region](#)
- [APA HSEH GD 43.62 PWD Risk Register WA Pilbara Region](#)
- [APA HSEH GD 43.80 PWD Risk Register NT Northern Region](#)
- [APA HSEH GD 43.81 PWD Risk Register NT Southern Region](#)

## 4 Version Control

| Version | Date  | Summary of Changes                                                                                                                                    |
|---------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0     | DRAFT | New document to address requirements of APA Pests, Weeds and Diseases Standard. Document supersedes APA HSE EP 13.02.03 Pest Weed Disease Management. |

## Appendix A Authorities

| Activity                                                                                                           | Responsible | Accountable | Supporting | Consulted | Informed |
|--------------------------------------------------------------------------------------------------------------------|-------------|-------------|------------|-----------|----------|
| <b>Planning –PWD assessment, coordination of surveys / monitoring and development of PWD management strategies</b> |             |             |            |           |          |
| Environment and Heritage (E&H) *                                                                                   | ✓           |             |            |           |          |
| Infrastructure Planning and Approvals (IPA)*                                                                       | ✓           |             |            |           |          |
| Operations                                                                                                         |             |             | ✓          |           |          |
| Infrastructure Construction                                                                                        |             |             | ✓          |           |          |
| Engineering & Planning – Engineering Projects                                                                      |             |             | ✓          |           |          |
| Engineering & Planning – Infrastructure Protection                                                                 |             |             | ✓          |           |          |
| Networks Capital Delivery                                                                                          |             |             | ✓          |           |          |
| <b>Implementation – PWD treatment and implementation of PWD spread prevention / cleanup measures</b>               |             |             |            |           |          |
| Operations                                                                                                         | ✓           |             |            |           |          |
| Infrastructure Construction                                                                                        | ✓           |             |            |           |          |
| Engineering & Planning – Engineering Projects                                                                      | ✓           |             |            |           |          |
| Engineering & Planning – Infrastructure Protection                                                                 |             |             | ✓          |           |          |
| Networks - Capital Delivery                                                                                        | ✓           |             |            |           |          |
| Environment and Heritage*                                                                                          |             |             | ✓          |           |          |
| Infrastructure Planning and Approvals*                                                                             |             |             | ✓          |           |          |

\* Refer to 870-MTX-HSE-0001 E&H / IPA RASCI for division of responsibilities for Infrastructure Construction and Engineering Projects.

## Appendix B Glossary

| Term                                | Definition                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agricultural chemical</b>        | Agricultural chemicals include a range of products developed to protect crops, livestock and domestic animals or to safeguard our environment from invasive weeds and pests.                                                                                                                                                                                                                                 |
| <b>Cleandown</b>                    | An action, or actions undertaken to minimise the potential spread of a PWD. For example a vehicle wash.<br>Typically involves the removal of all soil, seeds, vegetative material, spores and other reproductive material from mobile plant, equipment and personal items.<br>In the case of pest animals, such as ants, includes the removal and or treatment of all individuals and reproductive material. |
| <b>Containment of spread</b>        | A management approach that aims to prevent and increase in the current distribution of a PWD by using control procedures to reduce the density of existing infestations and limit the dispersal of propagules.                                                                                                                                                                                               |
| <b>Disease</b>                      | Disease refer to animal and plant diseases that cause, or could cause significant negative economic, environmental and/or social impacts. Dieback and myrtle rust are two examples.                                                                                                                                                                                                                          |
| <b>Eradication</b>                  | The elimination of every single individual of a species from an area to which recolonisation is unlikely to occur, including propagules.                                                                                                                                                                                                                                                                     |
| <b>Hardened</b>                     | Surface hardening involves the placement of materials such as fill, road base, gravel, rock or concrete to form conditions unsuitable for the establishment of PWD and transport of propagules on vehicles and machinery, particularly during wet weather.                                                                                                                                                   |
| <b>Harm</b>                         | Any adverse effect on an environmental value.                                                                                                                                                                                                                                                                                                                                                                |
| <b>Hazard</b>                       | A source of potential harm                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Infested area</b>                | An area where there the presence of a particular pest, weed or disease is known to occur.                                                                                                                                                                                                                                                                                                                    |
| <b>Items</b>                        | Includes vehicles, plant and equipment that may be contaminated with PWD.                                                                                                                                                                                                                                                                                                                                    |
| <b>May</b>                          | Means that the action(s) are optional.                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Monitoring</b>                   | Surveillance and record keeping in relation to the presence of pests, weeds or disease.                                                                                                                                                                                                                                                                                                                      |
| <b>Must</b>                         | Means the requirement is mandatory.                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Pest Weed Disease Management</b> | A planned, long-term combination of preventative hygiene procedures and active control methods to minimise the spread and impacts of one or a range of pests, weeds and/or diseases.                                                                                                                                                                                                                         |
| <b>Pests</b>                        | Animals that have, or could have, serious economic, environmental or social impacts. Certain pest are 'declared' or listed by government authorities. Examples include exotic ants like fire ants, rabbits and wild pigs.                                                                                                                                                                                    |
| <b>PWD / significant PWD</b>        | Pests, weeds and diseases. Animals, plants or (plant and animal) diseases that have potential to cause environmental, social or economic damage.<br>A significant PWD is a PWD that has been identified as being a priority for prevention of further spread or management within a particular region / area.                                                                                                |

| Term                  | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | Significant PWD may be “declared” or “listed” by a government authority and, as such have specific legislated requirements for management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Sensitive Area</b> | <p>Sensitive areas are locations that are likely to be disproportionately impacted by the particular PWD. Examples include locations where a PWD is likely to:</p> <ul style="list-style-type: none"> <li>• Reduce the value of a landholder crop as a result of contamination</li> <li>• Cause livestock impacts as a result of toxicity, competition for food or predation</li> <li>• Impact a threatened plant, animal or protected area; or</li> <li>• Cause allergic reactions to nearby residents (e.g. parthenium).</li> </ul> <p>Examples may include organically certified / no spray properties, national parks and reserves and properties with a biosecurity management plan.</p> |
| <b>Should</b>         | Means that the requirement or action is not mandatory but would enhance the effectiveness of the process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Stakeholder</b>    | A person or group with a direct interest in the management of PWD that will, or could be impacted by APA Group activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Treatment</b>      | Application of any of a number of methods (eg mechanical, chemical or biological) that are designed to reduce the density and reproductive output of an infestation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Weeds</b>          | <p>Plants (not necessarily non-native) that grow in sites where they are not wanted and which usually have detectable, negative economic, environmental and/or social effects (negative impacts)</p> <p>Significant weeds are weeds that have been identified as being a priority for prevention of further spread or management within a particular region / area.</p>                                                                                                                                                                                                                                                                                                                       |

# Appendix 6 – Native Vegetation and Fauna Management Protocol

# Vegetation and Fauna Management Protocol

APA HSE EP 13.02

May 2025



## 1. Scope

This protocol describes APA's minimum requirements for the management of biodiversity, including protected vegetation and fauna.

This protocol does not address:

- Biodiversity impacts from pests, weeds and disease (see [APA HSEH GP 43.00](#));
- Biodiversity impacts from purchased goods (see [APA HSE GP 10.01 HSE in Purchasing Goods](#));
- Fire prevention and control (see [APA HSE PRO 012 Fire Prevention and Control](#) and [APA HSE PRO 037 Hot Works](#)).

## 2. Controls

### 2.1. Planning

- 13.02.01 Potential impacts to protected vegetation and fauna must be assessed in accordance with [APA HSE GP 40.00 Environment and Heritage Approvals](#).  
The assessment must include,
- A review of protected vegetation and fauna as relevant to the activity and impacts.
  - An assessment of potential impacts and compliance obligations.
  - Development of controls in accordance with compliance obligations and the hierarchy of controls (avoid, minimise, mitigate, offset).
- 13.02.02 Potential impacts to protected vegetation and fauna must be considered when determining the location of proposed infrastructure and land disturbance. As far as reasonably practical, impacts must be, in order of preference, avoided, minimised or mitigated.
- 13.02.03 Vegetation and fauna surveys must be carried out by a suitably qualified person(s) and in accordance with relevant regulatory survey standards or guidelines.
- 13.02.04 Prior to commencing an activity that will impact protected vegetation and fauna, the relevant project or operational manager (or equivalent) must ensure necessary statutory approvals, exemptions or agreements have been obtained and relevant requirements communicated to the party responsible for undertaking the works.
- 13.02.05 Plant species selected for use in revegetation or landscaping must consider potential biodiversity benefits and risks, landholder requirements and asset integrity.
- 13.02.06 The location of protected vegetation and fauna, where relevant to ongoing operations, must be added to the Enterprise Environment and Heritage GIS database in accordance with [APA HSEH GD 40.02 Environment and Heritage - Spatial Data Process Flow](#).

## **2.2. Implementation**

- 13.02.07 Clearing of native vegetation must be undertaken in accordance with an approved work methodology that describes:
- How the disturbance and exclusion / restricted zone boundaries will be demarcated or defined.
  - Control measures that will be used to avoid disturbance outside of authorised boundaries including temporary measures and supervision.
  - Fauna management methods, including fauna relocation, habitat preservation and reinstatement and monitoring (where applicable).
  - Vegetation regeneration and monitoring methods (where applicable).
  - Controls to address any additional applicable compliance obligations.
- 13.02.08 Excavation within the tree protection zone of public or protected trees, must be undertaken in accordance with the relevant local authority requirements and where required, an approved Tree Management Plan using [APA HSE EP 13.02 T02 Tree Management Plan](#) or equivalent.
- 13.02.09 The work supervisor must ensure relevant vegetation and fauna management requirements and responsibilities are communicated to relevant workers as part of the job prestart, site induction or equivalent.
- 13.02.10 The work supervisor must ensure any exclusion or restricted zones are physically demarcated or otherwise defined prior to and during work.
- 13.02.11 The work supervisor must ensure that during clearing and land disturbance activities a regular check of compliance with the authorised disturbance boundaries is completed and recorded.
- 13.02.12 The work supervisor must ensure control measures are implemented to minimise fauna entrapment and / or injury in open excavations and pipework. Control measures may include, for example, exclusion fencing, pipe end caps, use of fauna escape ramps, inspections or other measures identified in the risk assessment.
- 13.02.13 Fauna handling must be carried out by a suitably qualified and licenced fauna handler.

## **2.3. Change management**

- 13.02.14 Where new information on protected fauna, vegetation or fauna habitat is identified during an activity, or when an activity is materially changed, the activity must be paused and the impact / risk assessment revised.
- Either additional controls must be implemented to avoid unauthorised harm, or required approvals must be sought and obtained by the business from the relevant external authority, prior to work commencing or continuing.

## 2.4. Native vegetation clearing data

13.02.15 Projects and activities that involve clearing of protected native vegetation must report on metrics as required under statutory approvals and the following internal APA performance metrics:

- The area of protected native vegetation cleared.
- The area of cleared protected native vegetation mitigated via regeneration.
- The area of cleared protected native vegetation mitigated via secured offsets.

Supporting spatial data must be captured as per [APA-GD-A-0018 Environment and Heritage – Spatial data schema](#).

## 3. Supporting Material

[APA HSE EP 13.02 T01 Vegetation and Fauna Management Guideline](#)

[APA HSE EP 13.02 T02 Tree Management Plan \(template\)](#)

[APA HSE EP 13.02 T03 Vegetation and Fauna Toolbox Talk](#)

[APA HSE EP 13.02 T04 Tree Protection Zone Toolbox Talk](#)

## 4. Definitions

| Term                                                    | Definition                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Activity</b>                                         | A field-based task carried out for APA, by an APA Group employee, contractor or sub-contractor.                                                                                                                                                                                                                                                                 |
| <b>APA Enterprise Environment and Heritage database</b> | <p>Centrally managed GIS database containing known records of significant environmental and heritage features relevant to APA's operational assets.</p> <p>For a full description refer to APA-GD-A-0018 Environment and Heritage Spatial Data Schema Guide.</p>                                                                                                |
| <b>Authorised disturbance boundary</b>                  | The area that APA is legally permitted (under a statutory approval, statutory exemption and / or legal agreement) to undertake land disturbance within.                                                                                                                                                                                                         |
| <b>Biodiversity</b>                                     | The variety of all plants, animals and micro-organisms found within an area or region, including the diversity and complex relationships within species, between species and of ecosystems.                                                                                                                                                                     |
| <b>Clearing (vegetation)</b>                            | Any activity that impacts upon native or protected vegetation and/or habitats, including (but not limited to) pruning, severing or ringbarking of stems, branches or trunks, clearing, interference with roots, the burning of vegetation, the draining or flooding of land or the killing, destruction or removal of some or all of the vegetation in an area. |

| <b>Term</b>                   | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Exclusion zone</b>         | An area around a sensitive value where access is controlled. The zone may be delineated using a barrier (such as fencing, bunting or flagging tape) and contain a buffer of a defined radius (e.g. 10m) from the extent of the site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Fauna</b>                  | The animals of an area or region.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Fauna habitat</b>          | The natural environment in which a species or group of species lives. For example, habitat can include vegetation, hollow bearing trees, hollow logs, nests, ground cover, etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Fauna handler</b>          | A qualified and licenced person who is authorised to catch, handle and relocate native fauna (also known as a Spotter Catcher).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Habitat</b>                | The place or type of site where an organism or population naturally occurs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Impact (environmental)</b> | A change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Land disturbance</b>       | <p>Any disturbance of an area which causes a lasting impact to the land or waters during the activity or after the activity has ceased.</p> <p>Includes vegetation clearing and disturbance.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Management Plan</b>        | A document that outlines risks, management measures and the process for implementation, monitoring and review.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Monitoring</b>             | Determining the status of a system, process or an activity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Native</b>                 | Living things that live or grow naturally in Australia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Obligation</b>             | A requirement with which APA must comply under legal, regulatory, standard, code as well as those that APA voluntarily choose to comply with, including our Group Policies and Code of Conduct.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Offset (Vegetation)</b>    | <p>A mechanism used to compensate for any impacts to native vegetation that cannot be avoided or mitigated on site (for example via in-situ vegetation regeneration).</p> <p>An offset typically involves establishing an area, in a different, but comparable location, and either re-establishing native vegetation or protecting the existing vegetation.</p> <p>Offset sites require protection for perpetuity under a covenant or similar legal instrument. An offset is considered secured once the required level of legal protection is established over the site.</p> <p>They are generally only considered after other management strategies such as avoidance, minimisation and restoration.</p> |

| <b>Term</b>                            | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Protected vegetation and fauna</b>  | Plants, plant communities, fauna and fauna habitat deemed to be significant and regulated by local, state and/or federal government (planning) policies or law.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Public tree</b>                     | Public trees, are trees that are growing on land under the management of Council or similar public authority.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Reasonably practical</b>            | A quantitative measure of benefit against detriment or cost. A method to avoid or minimise and impact is no longer considered reasonably practical when the cost associated with available ways of avoiding or minimising the impact, is cost is grossly disproportionate to the impact.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Regeneration</b>                    | <p>The process of returning native vegetation on a permanent or long-term basis, to an area of disturbed land.</p> <p>The aim of regeneration is to return native vegetation to resemble the mix of trees, shrubs, herbs and grasses (i.e. vegetation structure and species diversity) that existed prior to clearing or disturbance.</p> <p>Vegetation that is subject to removal, mowing or similar maintenance on a regular / semi regular basis, is not within the definition of “regeneration”, as these management practices do not support the long-term re-establishment of the native vegetation community.</p> <p>Regeneration may be via revegetation / replanting, or via natural regeneration of desirable plant species from the soil seed bank.</p> <p><b>May also be referred to as restoration / habitat restoration</b></p> |
| <b>Reinstatement</b>                   | The process of returning the soil surface, including topsoil, surface contours and drainage patterns, to a state consistent with the pre-disturbance state.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Revegetation</b>                    | The re-establishment of plants on an area via techniques such as planting, seeding or turfing. Used as a technique to assist in regeneration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Statutory Approval</b>              | <p>A generic term for any consent granted from a relevant authority under, or as an exemption from an environment or heritage law.</p> <p>It can take the form of a permit, approval, licence or similar legal tool.</p> <p>May be supported by or conditional on a Management Plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Suitably qualified person (SQP)</b> | <p>A person that is recognised by industry and professional peers, as having sufficient qualifications and experience in the subject matter for which they are engaged to assess and or report on.</p> <p>Where standards or requirements are defined by the relevant regulatory body, the person must meet these requirements.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Survey</b>                          | A formal examination or assessment of an area that is undertaken and documented by a suitably qualified or experienced person.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Term                              | Definition                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tree Protection Zone (TPZ)</b> | <p>A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.</p> <p>Refer to AS 4970-2009 Protection of trees on development sites.</p> |
| <b>Vegetation</b>                 | <p>Plants and plant / vegetation communities that live and grow naturally in an area.</p>                                                                                                                                                                                                                                                           |
| <b>Vegetation community</b>       | <p>A naturally occurring group of native plants that form a unique habitat.</p>                                                                                                                                                                                                                                                                     |

# Appendix 7 – Soil and Water Management Protocol

# Soil and Water Management Protocol

APA HSE EP 13.06

18 September 2024



## 1 Scope

This protocol describes APA's minimum requirements for the management of potential impacts to soil and water resources. These impacts may occur via:

- Release of sediment due to, for example, soil & land disturbance, horizontal directional drilling and dewatering activities.
- Release of naturally occurring harmful chemicals via the exposure of acid sulfate soils.
- Erosion and loss of surface soil due to, for example, wind, rain, altered drainage patterns and traffic movement.
- Loss of soil quality due to, for example, soil inversion, compaction, or incorrect handling during land disturbance.
- Depletion of water resources due to water extraction and use.

This protocol does not address potential impacts to soil and water associated with:

- Chemical management (see APA HSE PRO 005 Chemical Management),
- Solid or liquid wastes including wastewater and hydrostatic test water (see APA HSE EP 13.05 Waste Management),
- Land contamination (see APA HSE EP 13.04.02), or
- Air quality impacts from dust (see APA HSE EP 13.03).

Approval requirements are addressed in APA HSE GP 40.00.

## 2 Controls

### 2.1 Education & Training

- 13.06.01 Relevant business area procedures and work instructions must include reference to soil and water control requirements and be supported by an appropriate level of employee education and training as described in APA HSE GP 04.01.

### 2.2 Soil and erosion management

#### 2.2.1 Planning

- 13.06.02 An erosion hazard assessment must be completed prior to undertaking soil disturbance that
- Will disturb more than >1000m<sup>2</sup> of land at any one time
  - Is within or adjacent to a watercourse, or
  - Is on a slope >10% gradient and >30m in length.
- The assessment must be completed using APA HSE EP 13.06 T3 Erosion Hazard Assessment Template or equivalent regulatory or industry accepted framework.
- 13.06.03 For high erosion hazard locations, a pre-disturbance inspection, to document the current state of the location, must be undertaken. This inspection may range from a visual inspection / record through to detailed site / contour survey, depending upon site specifics.
- 13.06.04 For low erosion hazard locations, works must be undertaken in accordance with an Erosion and Sediment Control Plan (ESCP) or APA HSE EP 13.06 T4 Erosion & Sediment Control – Site Planning and Inspection Checklist.
- 13.06.05 For medium or high erosion hazard locations, an ESCP must be developed.
- 13.06.06 For high erosion hazard locations, a supplementary addendum (secondary ESCP) to the ESCP must be developed, detailing the specific erosion and sediment controls applicable to the location. The ESCP and supplementary plan must be endorsed by an SQP.

- 13.06.07 ESCPs, where required, must be developed prior to the commencement of soil disturbance. Where a secondary ESCP is required, the secondary ESCP must be developed prior to the relevant stage of works.
- 13.06.08 ESCPs must be reviewed periodically and, where required, updated to reflect significant changes in site conditions, activities and project phases.

### **2.2.2 Soil sampling and analysis**

- 13.06.09 Information on soil properties relevant to erosion and plant growth must be collected or otherwise sourced to inform the development of ESCPs. Soil information must be sufficiently detailed to support
- Identification of erosive or hazardous soil types (e.g. dispersive, saline, sodic, or acid sulfate soils).
  - Selection, design and operation of drainage, erosion, and sediment control measures during construction and operation.
  - Post disturbance site stabilisation works, including revegetation and soil amelioration.
- 13.06.10 Soil sampling and laboratory analysis must meet the following requirements:
- Sampling must be undertaken by, or under the guidance of, a suitably qualified person.
  - Testing and analysis must be undertaken by an accredited facility (National Association of Testing Authorities (NATA), Australasian Soil and Plant Analysis Council (ASPAC) or equivalent)

### **2.2.3 Implementation**

- 13.06.11 When undertaking soil disturbance, reasonable and practical measures must be implemented to control erosion and protect watercourses from sediment runoff and pollution. This includes both during and following the works, until such time as the site has been stabilised.
- 13.06.12 When undertaking soil disturbance, sufficient topsoil must be preserved for reuse as part site reinstatement and stabilisation. Preserved topsoil must be separated from subsoil and other unsuitable materials and stored in a manner that preserves soil quality and, where desirable, seed bank viability.
- 13.06.13 Erosion and sediment controls must be periodically inspected to validate their effectiveness, and to identify maintenance requirements.

### **2.2.4 Reinstatement and Stabilisation**

- 13.06.14 Areas of soil disturbance must be:
- Reinstated to reflect natural, design or alternative, landholder agreed, surface contours and,
  - Stabilised to minimise ongoing erosion.
- 13.06.15 Reinstatement and stabilisation must be undertaken as soon as practical following the completion of the soil disturbing works, or stage of works.
- 13.06.16 ESCPs must contain details on reinstatement and stabilisation methods, performance criteria and an inspection and monitoring plan to evaluate and measure performance.

### **2.2.5 Close out and Handover**

- 13.06.17 As part of activity hand over, relevant information on soil and water must be provided to the asset manager and business area environmental representative including the following.
- Confirmation of reinstatement and stabilisation completion, or punch-list / plan detailing outstanding issues.
  - A register of outstanding or ongoing soil and water issues and obligations, arising from the completed activity.
  - Background soil and water reports.
- 13.06.18 Spatial data on soil and water characteristics (e.g. soil types, soil sample locations and test results, ground water depths), must be added to the relevant enterprise Environment GIS layer.

### **2.2.6 Ongoing monitoring**

- 13.06.19 A program for monitoring of areas of previous significant disturbance for erosion must be developed and implemented by the relevant asset manager / operator. The monitoring frequency must be reflective of the ongoing risk of erosion.

### **2.2.7 Management of erosion issues**

- 13.06.20 Actual or potential erosion and sediment release must be assessed for management / treatment in accordance with APA's risk management framework.
- 13.06.21 Where erosion is likely to cause sediment pollution to a watercourse or other environmental harm, immediate action to avoid or minimise environmental impacts must be implemented in accordance with timeframes described in APA HSE GP 07.01 Incident, Near Miss and Hazard Management Protocol.

## **2.3 Works within and adjacent to watercourse**

- 13.06.22 Before commencing works within or adjacent to a watercourse, an assessment of environmental / regulatory permits and approval requirements and conditions must be undertaken using APA HSEH TMP 40.01 Environment and Heritage Activity Assessment Report or equivalent.

## **2.4 Horizontal Directional Drilling – Watercourses**

- 13.06.23 Horizontal directional drilling under or adjacent to a watercourse must be undertaken in accordance with a fluid loss management plan (or equivalent) to manage the uncontrolled release of drilling fluids.

The management plan must include:

- Details of drill fluid ecotoxicity.
- Control methods to reduce the potential for loss of drill fluids and impacts to the environment to as low as reasonably practical.
- Emergency provisions should loss of drilling fluids / hydraulic fracture occur.
- Materials, equipment, and personnel that will be available for emergency response, including roles and responsibilities.
- Access requirements necessary to implement the emergency response plan.

- 13.06.24 Horizontal directional drilling under or adjacent to a waterbody must be actively monitored for signs of loss of drilling fluid / hydraulic fracture.

Should loss of drilling fluid occur, the relevant provisions of the fluid loss management plan must be implemented.

## **2.5 Acid Sulfate Soils**

- 13.06.25 Prior to excavation or dewatering in an area that is <5m above sea level, an assessment of the potential presence of acid sulphate soil must be completed using APA HSEH TMP 40.01 Environment and Heritage Activity Assessment Report or equivalent.
- 13.06.26 Activities that are likely to disturb acid sulfate soils, must be undertaken in accordance with an Acid Sulfate Soils Management Plan (or similar), supported by an appropriate level of soil sampling and testing as recommended by a suitably qualified person. The management plan, must include as a minimum, contingency measures should acid sulfate soils be encountered.
- 13.06.27 If acid sulfate soils are inadvertently exposed to air, either through excavation or ground water removal, urgent advice must be sought from a suitably qualified person on management measures required to minimise acid generation.
- Interim actions must be implemented immediately (within 48 hrs) to minimise acid generation and runoff via either
- Backfilling excavations and placing an impervious cover of any remaining spoil to avoid rainfall exposure; or
  - Treating exposed soils with agricultural lime at rates suitable for the soil characteristics.
- 13.06.28 A record of acid sulfate soil occurrences must be captured in applicable business unit GIS.
- 13.06.29 A record of acid sulfate soil disturbance and treatments must be kept by the applicable business unit.

## **2.6 Dewatering**

- 13.06.30 Prior to dewatering captured stormwater or groundwater to either land or a watercourse, an assessment of regulatory permit and approval requirements and conditions must be undertaken using APA HSEH TMP 40.01 Environment and Heritage Activity Assessment Report or equivalent.
- 13.06.31 A record of all stormwater or groundwater dewatering discharges to land or a watercourse must be kept using APA HSE EP 13.06 T7 Water Discharge Permit or equivalent.

## **2.7 Water Withdrawal**

- 13.06.32 The volume of water withdrawn from a surface water body, ground water aquifer or sea water body, including produced water, must be recorded by the respective business area using APA HSE EP 13.06 T6 Water Extraction Register or equivalent.
- The volume of water from each source must be captured and reported each month.
- 13.06.33 Prior to extracting water from a groundwater aquifer or surface water body, including associated infrastructure, an assessment of regulatory permit and approval requirements and conditions must be undertaken using APA HSEH TMP 40.01 Environment and Heritage Activity Assessment Report or equivalent.

### 3 Supporting Material

[APA HSE EP 13.06 T1 Soil and Water Management Guideline](#)

[APA HSE EP 13.06 T2 Soil and Erosion Field Guide](#)

[APA HSE EP 13.06 T3 Erosion Hazard Assessment Template](#)

[APA HSE EP 13.06 T4 Erosion and Sediment Control – Site Planning & Inspection Checklist](#)

[APA HSE EP 13.06 T5 Erosion and Sediment Control Plan – Review Checklist](#)

[APA HSE EP 13.06 T6 Water Extraction Register](#)

[APA HSE EP 13.06 T7 Water Discharge Permit](#)

[APA HSE EP 13.06 T8 Acid Sulfate Soils Identification and Management Toolbox Talk](#)

[APA HSE EP 13.06 T9 Erosion and Sediment Control Toolbox Talk](#)

[APA HSE EP 13.06 T10 Soil and Water Management Audit and Self-Assessment](#)

[APA HSE EP 13.06 T11 Dewatering Toolbox Talk](#)

[APA HSE EP 13.06 T12 Site Poster – Soil and Water Management](#)

### 4 Definitions

| Term                           | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acid Sulfate Soils</b>      | <p>Acid sulfate soil (ASS) is the common name for soils that contain metal sulfides.</p> <p>When disturbed or exposed to oxygen, acid sulfate soils undergo a chemical reaction (oxidation). The oxidation process produces sulfuric acid, which in turn can have significant impacts to the environment.</p> <p>In an undisturbed and waterlogged state, these soils may pose little to no risk.</p> <p>Acid sulfate soils are most common in coastal areas, particularly land located &lt;5m Australian Height Datum (AHD) elevation. They can however occur in other areas.</p> |
| <b>Adjacent to watercourse</b> | <p>Refers to the transition zone between the water and land adjacent to a watercourse. The actual distance will vary depending upon the activity being undertaken and the reasonable likely to pollutants from that location reaching watercourse. See also Riparian Buffer Zone.</p>                                                                                                                                                                                                                                                                                              |
| <b>Agricultural lime</b>       | <p>Lime is used to neutralise acidity (ie raise the pH level of acidic soils) and supply Calcium (Ca) to displace sodium (Na) in acidic sodic soils.</p> <p>High quality agricultural lime with a neutralisation value of at least 93% should be used. Agricultural lime must not be substituted with builders / hydrated lime.</p> <p>Refer to supporting resources for further specifications.</p>                                                                                                                                                                               |
| <b>Catchment</b>               | <p>An area with a natural boundary (for example ridges, hills or mountains) where all surface water drains to a common point to form a river or creek.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Term                                     | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dewatering</b>                        | <p>Refers to the active discharge of water from a work site, typically captured stormwater or infiltrated groundwater, using pumps, or siphon / release via a valve from, for example, a sediment basin.</p> <p>See also water discharge.</p>                                                                                                                                                                                                                                                                                                                  |
| <b>Dispersive Soil</b>                   | <p>A structurally unstable soil that readily dispersed into its constituent parts (sand, silt and clay) when placed in water. Moderately and highly dispersive soils are normally highly erodible and are likely to be susceptible to tunnel erosion.</p>                                                                                                                                                                                                                                                                                                      |
| <b>Erosion</b>                           | <p>Detachment and movement of granular material, including soil, earth, sand, silt, mud, sediment, or cement, by wind, water, ice or gravity.</p>                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>ESCP</b><br>See also Secondary ESCP.  | <p>Erosion and Sediment Control Plan. A document that demonstrates general drainage, erosion and sediment control practices for the whole project / land disturbance activity. These plans would typically be produced during the planning and design phase of a project, or for maintenance activities, an overarching document covering common maintenance tasks.</p> <p>In some instances, they may be generic, supported by standard drawings and notes that are adapted by trained personnel to suit site conditions.</p> <p>See also Secondary ESCP.</p> |
| <b>Groundwater, Groundwater aquifer.</b> | <p>Water bodies held underground in the soil or in pores and crevices in rock at varying depths, confined and unconfined under the surface of the ground. Includes all types of watercourses which collect under the surface of the ground. See 'Watercourse'.</p>                                                                                                                                                                                                                                                                                             |
| <b>Produced Water</b>                    | <p>Water that enters APA's management as a result of extraction (e.g., upstream gas production), processing (e.g., midstream processing) or use of any raw material, and has to consequently be managed by the organisation. See <a href="#">Global Reporting Initiative Sustainability Reporting Standard 303: Water and Effluents</a>.</p>                                                                                                                                                                                                                   |
| <b>Rehabilitation</b>                    | <p>The process of returning an area of disturbed land to</p> <ul style="list-style-type: none"><li>• the condition it was in prior to disturbance, or</li><li>• an alternative agreed condition.</li></ul> <p>Condition refers to the susceptibility of land to erosion and the overall land use capability or suitability of the land and is generally defined for the purposes or relinquishing rights or interests in the land such as a lease or easement.</p>                                                                                             |
| <b>Reinstatement</b>                     | <p>The process of returning the soil surface, including topsoil, surface contours and drainage patterns, to a state consistent with the pre-disturbance state.</p>                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Revegetation</b>                      | <p>The re-establishment of plants on an area of ground depleted or devoid of vegetation to provide protection against erosion and to improve the nutrient and sediment capture and filtration capacity of the area. May also provide fauna habitat.</p>                                                                                                                                                                                                                                                                                                        |

| Term                                  | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Riparian buffer zone</b>           | <p>The riparian buffer zone is the transition zone between the water and land adjacent to a watercourse. The width of the riparian zone varies and, in some instances, is defined by local regulations.</p> <p>Refer to APA HSE EP 13.06 T3 Erosion Hazard Assessment Template for further guidance on determining the extents of the riparian zone.</p>                                                                                                                                                                    |
| <b>Secondary ESCP</b>                 | <p>Secondary ESCPs, also referred to as progressive ESCPs, are generally a series of drawings, tables and text outlining temporary drainage, erosion and sediment control procedures for a given sub-catchment or corridor subsection. Secondary ESCPs are generally prepared as the project progresses and site conditions, including drainage patterns, change.</p>                                                                                                                                                       |
| <b>Sediment</b>                       | <p>Any clay, silt, sand, mud, cement, fine-ceramic waste, or combination thereof, transported from its area of origin,</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Significant Soil Disturbance</b>   | <p>Refers to disturbance that isn't trivial, and makes the land more susceptible to ongoing erosion, or reduces the underlying land use capability of the land. Significant soil disturbance requires a level of human intervention to rehabilitate.</p>                                                                                                                                                                                                                                                                    |
| <b>Site</b>                           | <p>A location where major earthworks, construction of infrastructure and or non-domestic building works are undertaken/</p>                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Soil Disturbance</b>               | <p>Includes both</p> <ul style="list-style-type: none"><li>• Disturbance to the soil surface including the placement or stockpiling of soil, fill, materials on unstripped ground.</li><li>• Vegetation clearing by machinery or other means. Does not include slashing or mowing of non-native vegetation that does not increase erosion exposure.</li></ul>                                                                                                                                                               |
| <b>Stabilise / Stabilised Surface</b> | <p>A surface that has been made sufficiently resistant to erosion, such that the rate of soil loss has reached an acceptable level that protects the down slope / catchment water quality.</p> <p>Unless defined differently, an area is stabilised if it reaches either</p> <ul style="list-style-type: none"><li>• 70% ground cover; or</li><li>• 70% of the natural ground cover if the area does not naturally achieve 70% vegetative cover,</li><li>• 100% synthetic cover over all areas of disturbed soil.</li></ul> |

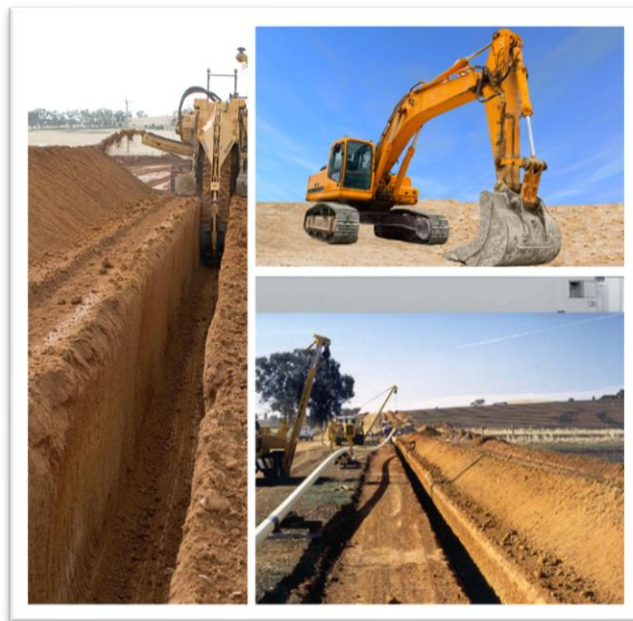
| Term                                   | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitably Qualified Professional</b> | <p>A suitably qualified professional (SQP) is as a person with:</p> <ul style="list-style-type: none"><li>• Advanced training in erosion and sediment control, provided under the auspices of a reputable body such as the International Erosion Control Association (IECA) Australasia, Soil Science Australia, or similar, and be able to provide evidence of training.</li><li>• More than 2 years' experience in implementing and designing erosion and sediment control plans and controls on site, which can be verified by an independent third party.</li><li>• A detailed understanding of the relevant legislative requirements, hydrology and hydraulics, soil as it related to revegetation and erosion and contemporary erosion, drainage and sediment control practices.</li></ul> <p>Where certified plans are required, the SQP must also demonstrate:</p> <ul style="list-style-type: none"><li>• Certification under a nationally recognised professional program in Erosion and Sediment Control (Registered Soil Practitioner-ESC or similar).</li><li>• Professional affiliation with an engineering, environmental engineering, soil science, and/or scientific organisation (e.g. the International Erosion Control Association, Engineers Australia, Soil Science Australia, New Zealand Soil Science Society, Environment Institute of Australia and New Zealand, or Stormwater Industry Association).</li></ul> |
| <b>Surface water</b>                   | <p>Natural and artificial water bodies which are permanent or ephemeral (seasonal) and pool or flow on the surface of the ground. Includes all types of watercourses which collect on the surface of the ground. See 'Watercourse'.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Topsoil</b>                         | <p>The upper part of the soil profile, also referred to as the A1 horizon, containing material that is usually more fertile and of better soil structure than the underlying layers.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Turbidity</b>                       | <p>A measure of the clarity of the water.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Water Discharge</b>                 | <p>The release of ponded stormwater or infiltrated groundwater from any location on site to either land or a watercourse.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Water withdrawal</b>                | <p>Water withdrawn from surface water, groundwater or seawater source, including produced water that APA manages. Refer to <a href="#">Global Reporting Initiative Sustainability Reporting Standard 303: Water and Effluents</a>. APA currently excludes the following</p> <ul style="list-style-type: none"><li>• third party water, i.e. water supplied by municipal water suppliers or other public or private utilities that supply water.</li><li>• water captured incidentally within, for example, excavations, or stormwater treatment devices (see dewatering).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Term               | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Watercourse</b> | <p>Any natural or constructed drainage line with well-defined bed and banks, including creeks and rivers, and any water body including lakes, wetlands, estuaries, bays and oceans. Includes all land below the high water bank.</p> <p>Drainage lines that do not have a well-defined bed and banks, and overland flow paths are not considered watercourses for the purposes of this document.</p> <p>N.b. Watercourses are further defined under local regulations.</p> |
| <b>Waters</b>      | <p>See watercourse. The term 'waters' is used in some state / territory regulations.</p>                                                                                                                                                                                                                                                                                                                                                                                   |

# Appendix 8 – Excavation and Trenching Fatal Risk Protocol

## APA HSE FRP 028

# excavation and trenching



This document is a Safeguard Fatal Risk Protocol for Health, Safety and Environment (HSE) and defines the requirements for excavation and trenching. The requirements apply all HSE related matters arising out of all assets, activities and operations controlled by APA and its related companies.

In Australian state and territory jurisdictions specific statutory requirements apply to the management of Workplace Health, Safety and Environmental matters. Businesses must ensure that HSE matters are managed in line with legal requirements. For further information contact your local HSE Manager or HSE Advisor.

**Senior managers** are responsible for resourcing implementation of the requirements of this document and monitoring and reviewing its effectiveness.

**Business and site managers** are responsible for the implementation and monitoring of the requirements of this document within their area of control.

**Employees and contractors** are responsible for participation in consultative arrangements and complying with defined requirements.

## Table of Contents

|                                     |          |
|-------------------------------------|----------|
| <b>1. Requirements</b>              | <b>2</b> |
| 1.1. Fatal Risks                    | 2        |
| 1.2. Minimum Mandatory Requirements | 2        |
| 1.3. Overview                       | 2        |
| 1.4. People                         | 2        |
| 1.5. Process / Procedures           | 3        |
| 1.6. Materials                      | 4        |
| 1.7. Work Environment               | 4        |
| 1.8. Plant and Equipment            | 5        |
| <b>2. Resources</b>                 | <b>6</b> |
| <b>3. Document Control</b>          | <b>6</b> |
| <b>4. Record Keeping</b>            | <b>6</b> |

## Icons and their use



Important information



A tool to help implement this Protocol.



A reference that provides further information or assistance.

# 1. Requirements

## 1.1. Fatal Risks

**What are Fatal Risks?** Fatal risks relate to extreme or high consequence activities that may be performed in APA workplaces. If these activities are not managed and performed safely they could, in some circumstances, result in incidents and even fatalities.

## 1.2. Minimum Mandatory Requirements

**General** Excavation and trenching work can present a number of hazards including such things as collapse of excavation, engulfment, unplanned contact with services, falls from height, contact with machinery.

**Mandatory**

- **Appropriate site and task specific risk controls must be detailed through the use of Safe Work Method Statements (SWMS), Job Hazard Environmental Analysis & an emergency plan (where required).**
- **Prior to mobilising plant into position to commence excavation, underground and overhead services must be identified and referenced in the site risk assessment (for example, "Before You Dig Australia" plans and requirements for minimum safe working distances from overhead assets).**
- **All underground assets (active and inactive) must be physically located and marked.**
- **The set up of the excavation and trenches must allow for safe access & egress, and be designed with the appropriate use of shoring, battering, benching and consideration of the zone of influence.**
- **All relevant approvals and licensing must be in place prior to works commencing.**
- **All safety equipment must be appropriate and available according to the hazards identified through the risk assessment process.**
- **Where road, rail or pedestrian traffic may be impacted by the excavation or trenching works, a traffic management plan must be in place.**
- **Workers involved in excavation and trench works must be appropriately qualified and trained, and have the appropriate permits and licenses to perform the work.**
- **Open excavations and assets must be secured in a safe manner when there are no personnel on site.**
- **Environmental impacts associated with excavation and trenching activities must be considered as part of any hazard and risk assessment, and managed in accordance with all regulatory requirements.**

## 1.3. Overview

**Overview** Risks to health and safety associated with excavation work must be managed and controlled. This must include:

- The identification of hazards that could give rise to the risk;
- The elimination of the risk. If it is not reasonably practicable to eliminate the risk then the risk must be minimised so far as is reasonably practicable in line with the hierarchy of controls;
- Maintaining and implementing control effectiveness, and Monitoring control measures and if necessary revising.

Risks to the environment must be controlled.

## 1.4. People

**Consultation** Arrangements must be in place to ensure consultation occurs on HSE aspects with 'at risk' workers who are (or are likely to be) directly affected by excavation and trenching activities.

Where other party's share a construction workplace, information must be exchanged about the risks associated with the excavation work.

Records of consultation must be kept.



Refer to [APA HSE GP 05.01 HSE Consultation](#)

Refer to [APA HSE GP 03.03 HSE Records Management](#)

#### Personnel

Workers should not work alone in a trench exceeding 1.5 metres. Persons conducting excavation activities should not work in isolation.

#### Training and Competency

Workers associated with excavation and trenching activities must be trained appropriate to the nature of the tasks to be undertaken, prior to work commencing. Workers in a supervisory role should be experienced and trained in excavation work to ensure the work is carried out in accordance with on-site risk management processes.

Where required, workers operating plant must possess a valid license or appropriate competence (as required) to operate that plant.

### 1.5. Process / Procedures

#### Hazard And Risk Management

Excavation and trenching related hazards must be identified and assessed in accordance with the requirements of this Protocol and local procedures. In general, the process for managing the risks associated with excavation work follows a systematic process that involves:

- Identifying hazards;
- Assessing the risks associated with these hazards;
- Implementing control measures, and;
- Maintaining and reviewing the effectiveness of control measures



Guidance on the general risk management process is available in the [Safework Australia](#) Code of Practice: How to Manage Work Health and Safety Risks.

#### Planning And Preparation

Excavation work must be planned before work starts so it can be carried out safely. Planning may include such things as:

- Plans;
- Design information including approvals;
- Location of essential services (buried and overhead);



- Consideration of surrounding buildings/ structures and other third party assets;
- Requirements for minimum safe working distances from overhead assets;
- Hazard/ risk assessment and controls;
- Development of SWMS/ Preliminary JHEA;
- Traffic management and crossings;
- Work area security;
- Shoring, benching and battering / ground stability;
- Environmental requirements including assessing the presence of contaminated soils and spoil management;
- Emergency plans.



Refer to [APA HSE GP 11.01 Emergency Management](#)

Guidance on the general risk management process is available in the [Safework Australia](#) Code of Practice: How to Manage Work Health and Safety Risks.



Refer to APA HSE FRP 028 T1 Excavation and Trenching Hazard Management

Refer to APA HSE FRP 028 T2 Guidance for Site Excavation Planning

**Safe Work Method Statements**

If the excavation work is, or involves high-risk construction work, safe work method statements (SWMS) must be prepared before the work starts.



Refer to [APA HSE GP 08.02 Job Risk Assessment](#)

**Authority To Work Permits**

Where specified by regulation, APA procedures or third party site rules, a permit to work must be raised for excavation work.



Refer to [APA HSE GP 08.03 Authority to Work Permits](#)

Refer to Operational Procedures

**Incident Reporting, Investigation And Corrective Actions**

All incidents, near misses and hazards associated with an excavation must be reported throughout APA Group and investigated in accordance with company procedures. Corrective actions must be identified and managed to close out.



Refer to [APA HSE GP 07.01 Incident Reporting](#)

Refer to [APA HSE GP 07.02 Incident Investigation and Analysis](#)

**1.6. Materials****Geotechnical Survey**

Geotechnical surveys should be completed (by a competent person) where specific technical information is required on managing risks associated with ground conditions/ materials, the stability and safety of a trench excavation.

**Back Fill And Waste**

Backfill material and processes must be completed in line with design specifications. All contaminated spoil must be disposed / removed from the worksite in accordance with jurisdictional Environmental Protection Agency and local council requirements.

Working with, handling and removing of asbestos must be conducted in accordance with local legislative requirements.



Refer to [APA HSE PRO 020 Asbestos](#)

Refer to [Environmental Management System](#)

**Use Of Explosives**

Construction work that involves the use of explosives is defined by the WHS Regulations as high-risk construction work and a SWMS must be prepared before this work commences.

Explosives must only be used by a licensed, competent person and has experience in the work to be undertaken. This person must develop the blast management plan and be responsible for all aspects of the use of explosives.



All possession, storage, handling and use of explosives must be carried out in compliance with the relevant dangerous substances/goods or explosives legislation applicable in your state or territory.



Refer to AS 2187.2: Explosives – Storage and Use – Use of Explosives

**1.7. Work Environment****Environmental Management**

Environmental factors associated with excavation and trenching must be managed to prevent harm and align with defined requirements including:

- Asset License, Safety and Operating Plan/Safety Case
- Environmental Management Plan;
- APIA Code of Environmental Practice;
- Regulatory requirements including Environmental Protection regulations or local council laws.



Refer to [Environmental Management System](#)

**Close Proximity Facilities**

The proximity of the excavation to other facilities must be assessed for hazards and risk. This may include such things as:

- Underground/overhead assets;
- Drains and waterways including the possibility of flooding from stormwater, drains or surface run-off;
- Retaining walls or buildings;
- Roads, footpaths, driveways, roadways, rail lines, and
- Cultural areas and/or areas of significance.

**Traffic Management**

Any excavation that impacts, or potentially could impact roads or rail lines, must have a Traffic Management Plan.



Refer to [APA HSE FRP 032 Traffic Management in Workplaces](#)

**Hazardous Atmospheres**

Where the atmosphere may be hazardous or there is an uncertainty whether or not the exposure standard has been or may be exceeded, atmospheric testing must be conducted. This may include:

- Work around gas lines;
- Work around petroleum storage tanks;
- The excavation is in or near existing or previous swamp or landfill;
- CO2 producing equipment is nearby / other hazardous gases may be present;
- Carbon monoxide (exhaust fumes) is emitted from nearby vehicle traffic.



Refer to [APA HSE PRO 018 Air Quality and Dusts](#)

Refer to [APA HSE FRP 017 Confined Spaces](#)

**Monitoring**

Excavations must be monitored by trained, qualified and competent personnel for integrity and points of weakness:

- Daily and during work activities;
- Prior to entry, and
- At any sign of changing conditions.

## 1.8. Plant and Equipment

**Mobile Plant**

Mobile plant must be managed in line with defined requirements.



Refer to [APA HSE FRP 027 Mobile Plant](#)

**Safety Equipment**

All site safety equipment, (e.g. fire extinguishers, signage, barricades, reflector lights, portable lighting, PPE etc.) must be determined by method of risk assessment as to what is required, and be in place at all times.



Refer to [APA HSE PRO 001 Personal Protective Equipment](#)

Refer to [APA HSE PRO 007 Plant and Equipment](#)

Refer to [APA HSE PRO 036 Gas Detectors](#)

Refer to [APA HSE PRO 012 Fire Prevention and Control](#)

Refer to [APA HSE PRO 015 Working Outdoors](#)

## 2. Resources

A range of resources are available to support the use of this Fatal Risk Protocol. To view the resources, click on the relevant hyperlink below.

-  [APA HSE FRP 028 T1 Excavation and Trenching Hazard Management](#)
-  [APA HSE FRP 028 T2 Excavation Planning Site Guidance](#)
-  [APA HSE FRP 028 T3 Excavation and Trenching Definitions](#)
-  [APA HSE FRP 028 T4 Excavation and Trenching Audit & Self-Assessment](#)
-  [APA HSE FRP 028 T5 Excavation and Trenching Tool Box Talk](#)
-  [APA HSE FRP 028 T6 Excavation and Trenching Reference Guide](#)

## 3. Document Control

The controlled copy of this document will reside on APA Empower ([Safeguard](#) site). Printed copies of this document are uncontrolled and it is the responsibility of all those with printed copies to ensure that they are kept up to date.

### Version Control and Authorisation

| Version | Date       | Summary of Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Authorisation                                                               |
|---------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| V3.00   | 02/03/2018 | In mandatory section include mobilisation into position and overhead assets. Reference to plans in addition to DBYD and identification of safe working distances from overhead assets. Clarify working for asset ID to include both active and inactive assets (CMR0417). Update Audit and Self-Assessment APA HSE FRP 028 T3 with topic and references and align / remove questions to reflect mandatory requirements as per change request 591. Update APA HSE FRP 028 T1 Hazard Management to include a basic exposing underground asset checklist (CMR0393). Add guidance for site excavation planning (CMR0612). Adjust wording on toolbox talk for working alone when performing excavation and trenching activities (CMR0671). Update branding an Audit drill down format. Minor wording changes. | Keith Hoskins<br>Head of HSE<br>(Approval Ref: APAHSEFRP028V3.00)           |
| V3.01   | 21/03/2023 | Review of document including minor corrections, formatting and amendments of hyperlinks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Adam Higgins<br>Manager HSEH –<br>Systems & Governance<br>APAHSEFRP028V3.01 |
| V3.02   | 03/05/2024 | Update of the T4 Self-Assessment questions and alignment of controls in the HSEH controls database.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Adam Higgins<br>Manager HSEH –<br>Systems & Governance<br>APAHSEFRP028V3.02 |

## 4. Record Keeping

Records must be retained and disposed of in accordance with APA's Information and Records Management Policy and regulatory requirements.

-  Refer to [APA HSE GP 03.03 HSE Records Management](#)

### Notes:

1. This document is the property of the APA Group and the information contained within is protected by copyright.
2. Unauthorised changes to this document are prohibited.
3. This document has been prepared to support APA staff in achieving its mission by delivering standardised and safe methods of work. It is recognised that improvements may be made and feedback on this document is encouraged. Please send any improvement ideas or queries to the Manager HSEH – Systems & Governance.

# Appendix 9 – Key Environmental Requirements

## Surrounding Environment:

- Innamincka Regional Reserve (QSN (SA Section) between KP 90 and KP 140).
- Strzelecki Creek Wetland System (QSN (SA Section) between KP 119 and KP 157).
- Dusky hopping-mouse habitat (Recorded from sand dunes along the Strzelecki Creek).
- Cultural Heritage (including Artefact scatters, burials, quarries, hearth, scarred / Carved trees, engravings and stone arrangements).

**General environmental duty** – a person must not carry out any activity that causes or is likely to cause environmental harm, unless measures to prevent or minimise the harm have been taken; and

**Duty to notify of environmental harm** – to inform the administering authority and landowner or occupier when an incident has occurred that may have caused or threatens serious or material environmental harm.

## Cultural Heritage:

- There is a “Duty of Care” on all people to avoid damage, disturbance or interference to Aboriginal heritage.
- If suspected cultural heritage material is discovered during operations (eg. discovery of artefacts, objects or bones etc), immediately stop any further work in the area, secure the site, ensure no further ground disturbance activity takes place in the immediate area and notify the Environmental Manager. If the discover is suspected to be remains, the Police must be immediately notified. Contact YY to identify an appropriate course of action. Damage, disturbance or interference to Aboriginal heritage sites, objects or remains will be reported to AAR.
- Yandruwandha Yawarrawarrka Traditional Owners to be contacted for works that are outside the facility and outside previously disturbed areas.

## Wildlife Interactions:

- Use nominated, licenced contractor for all animal relocations.

## Vegetation:

- Permit to Work / JHA required.
- Check fire danger rating prior to commencing work.
- No removal of vegetation beyond existing cleared areas.
- No vegetation clearing outside of operational area without IPP Approval – field assessment and/or additional approvals may be required prior to works.

## Regulated Waste:

- To be stored in a dedicated bin and includes: filters, oily rags, spill waste, waste water etc.
- Licensed contractor and waste Tracking Certificates required for areas identified.

## Housekeeping/Biosecurity:

- Pest control to be undertaken by licensed contractor.
- Weed hygiene declaration required for vehicles, equipment, machinery and fill.
- Licensed contractor (ACDC Licence) for weed treatment.
- Septic systems to be serviced regularly by licensed plumber.

## General:

- Check XIC/ARGO prior to access ROW.
- Access via approved access tracks.
- Ensure storage facilities for hazardous substances are bunded and in good condition.
- Know location of SDS and spill kits.
- Contractor Awareness – APA HSE Level 1 and Level 2 and site induction (including this key requirements) to be completed and recorded.

## Resources/Further Info:

- SWQP and QSN EMP.
- Corporate Environment Procedures 13.00.
- Environment Advisor.

# Appendix 10 – EPA Environmental Authorisation 45002



**Licence No. 45002**

**APA (SWQP) PTY LIMITED**

---

**ISSUED:**

01 Jun 2024

**EXPIRY:**

31 May 2029

**ACN:**

066 656 219

---

Environmental Authorisation  
under Part 6 of the  
*Environment Protection  
Act 1993*

---

**South Australian  
Environment  
Protection Authority**  
GPO Box 2607  
Adelaide SA 5001  
Tel: 08 8204 2004

EPA



# Environment Protection Authority

**LICENCE NUMBER** 45002

## **LICENSEE DETAILS**

Licence Holder: APA (SWQP) PTY LIMITED  
ACN: 066 656 219  
Registered Address: L12/141 St Georges Terrace, PERTH WA 6000

## **LICENSED ACTIVITIES**

The Licensee is authorised to undertake, at the location(s) shown above, the following prescribed activities of environmental significance under Schedule 1 Part A of the Act, subject to the conditions in this Licence.

|         |                                 |
|---------|---------------------------------|
| 3(5)(a) | Activity producing listed waste |
| 8(2)(a) | Fuel burning not coal or wood   |

## **TERMS OF LICENCE**

Commencement Date: 01 Jun 2024  
Expiry Date: 31 May 2029

## **PREMISES ADDRESS**

Section 1479 Out of Hundreds Strezelecki,  
MOOMBA SA 5001

## Table of Contents

|                                                                   |    |
|-------------------------------------------------------------------|----|
| Licence Explanatory Notes – Do Not Form Part of the Licence ..... | 5  |
| Definitions .....                                                 | 6  |
| Acronyms.....                                                     | 7  |
| Conditions of Licence .....                                       | 8  |
| Attachments.....                                                  | 10 |

## **Licence Explanatory Notes – Do Not Form Part of the Licence**

### **Compliance with this licence**

The EPA seeks to ensure that all reasonable and practicable measures are taken to protect, restore and enhance the quality of the environment according to the principles of ecologically sustainable development. To achieve this objective, the EPA uses a number of regulatory decision making principles and actions outlined in the 'Compliance and enforcement regulatory options and tools' document available on the EPA website.

### **Notification – serious or material environmental harm caused or threatened**

If serious or material environmental harm from pollution is caused or threatened in the course of an activity, the licence holder must, as soon as reasonably practicable after becoming aware of the harm or threatened harm, notify the EPA (preferably on EPA emergency phone number 1800 100 833) of the harm or threatened harm, its nature, the circumstances in which it occurred and the action taken to deal with it in accordance with section 83 of the [Environment Protection Act 1993](#) (the Act). In the event that the primary emergency phone number is out of order, the licence holder should phone (08) 8204 2004.

### **Variations, transfers and surrender of a licence**

The EPA may impose or vary the conditions of a licence by notice in writing to the licence holder in accordance with sections 45 and 46 of the Act. Public notice may be required where the variation of licence conditions results in a relaxation of the requirements imposed for the protection or restoration of the environment and results in an adverse effect on any adjoining land or its amenity.

If a licence holder wishes to vary the conditions of a licence, transfer a licence to another entity, or surrender a licence, the licence holder must submit an application to the EPA in accordance with the applicable provisions of the Act (sections 45, 49 and 56, respectively). A licence remains in effect and in its original form until such time as any proposed variation, application for surrender, or transfer has been made and approved in writing by the EPA.

### **Suspension or cancellation of a licence**

The EPA may suspend or cancel a licence by notice in writing to the licence holder in accordance with section 55 of the Act if satisfied the licence holder has either obtained the licence improperly, contravened a requirement under the Act or if the holder is a body corporate, a director of the body corporate has been guilty of misconduct of a prescribed kind (whether in this State or elsewhere).

### **Responsibilities under Environment Protection legislation**

In addition to the conditions of any licence, a licence holder must comply with their obligations under all State and Federal legislation (as amended from time to time) including: the [Environment Protection Act 1993](#); the [Environment Protection Regulations 2023](#); all Environment Protection Policies made under the [Environment Protection Act 1993](#); and any National Environment Protection Measures not operating as an Environment Protection Policy under the [Environment Protection Act 1993](#).

### **Public Register Information**

The EPA maintains and makes available a Public Register of details related to its determinations and other information it considers appropriate (i.e. excluding trade processes or financial information) in accordance with section 109 of the Act. These details include, but are not limited to:

- licensing and beverage container applications and approvals
- enforcement actions
- site contamination
- serious or material environmental harm caused or threatened in the course of an activity
- environment improvement programmes and environment performance agreements
- environment assessment reports; results of testing, monitoring or evaluation required by a licence
- EPA advice or direction regarding development approvals referred to the EPA by a planning authority

## Definitions

Unless the contrary intention appears, terms used in this licence that are defined in the Act (including any regulations or environment protection policies made pursuant to the Act) have the respective meanings assigned to those terms by the Act.

**THE ACT:** The *Environment Protection Act 1993*

**PREMISES:** The whole of the land comprised in Titles Register - Certificate of Title, Crown Lease and Crown Record.

CT6169/72

CT6181/958

CT6181/959

/

**AUTHORISATION FEE PAYMENT DATE:** means the anniversary of the grant or renewal of this authorisation.

**CONSIGNMENT AUTHORISATION:** as defined in the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure, 'Consignment Authorisation' means an approval which includes a unique identifier granted by an agency or a facility delegated by an agency in the jurisdiction of destination to allow the movement of Controlled Waste.

**CONTROLLED WASTE:** means any wastes of a category listed in Column 1 of the Table in Schedule 1 that has 1 or more characteristics listed in the Table in Schedule 2 of the Environment Protection (movement of Controlled Waste) Policy 2014.

**EMERGENCY SPILL KIT:** means a kit containing materials that when used would prevent and/or minimise listed waste from entering the stormwater or groundwater system in the event of a spill.

**ENVIRONMENTAL HARM:** means the same as is defined in section 5 of the Environment Protection Act 1993.

**LISTED WASTE:** means wastes listed in Part B of Schedule 1 of the Environment Protection Act 1993.

**POLLUTION CONTROL EQUIPMENT:** means 'control equipment' as defined in the Environment Protection (Air Quality) Policy: any device that controls, limits, measures, records or indicates air pollution.

**WASTE:** means -

1. As defined under the Environment Protection Act 1993,

1(a) any discarded, dumped, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for purification or resource recovery by a separate operation from that which produced the matter; or

1(b) any matter declared by regulation to be waste for the purposes of this Act (following consultation by the Minister on the regulation with prescribed bodies in accordance with the regulations); or

1(c) any matter declared by an environment protection policy to be waste for the purposes of this Act,

whether or not of value.

2. However, waste does not include—

2(a) an approved recovered resource whilst it is being dealt with in accordance with the declaration of that resource—see section 4A; or

2(b) anything declared by regulation or an environment protection policy not to be waste for

the purposes of this Act,

even though the resource or the thing so declared might otherwise, but for the declaration, fall within the definition of waste in subsection (1).

### **Acronyms**

**EPA:** means Environment Protection Authority

**WTC:** means Waste Transport Certificate.

**WTF:** means Waste Tracking Form.

## Conditions of Licence

The Licensee is authorised to conduct the prescribed activities as described in this Licence at the Premises nominated, subject to the following conditions:

---

### 1 WASTE MANAGEMENT

#### 1.1 WASTE TRACKING REQUIREMENTS FOR INTERSTATE TRANSPORT (S - 28)

The Licensee must:

- 1.1.1 appropriately complete a WTC regarding any waste specified in the "Controlled Waste" attachment to the Licence, before that waste is transported to a place outside South Australia; and
- 1.1.2 obtain a Consignment Authorisation from the appropriate environmental agency in the state or territory of destination of that waste before that waste is transported to a place outside South Australia.

#### 1.2 WASTE TRACKING REQUIREMENTS WITHIN SA (S - 27)

The Licensee must:

- 1.2.1 appropriately complete a WTC or WTF regarding any waste specified in the "Listed Waste" attachment to the Licence before that waste is transported to any place within South Australia;
- 1.2.2 provide copies of the WTC or WTF (as relevant) to the transporter of the waste and the EPA, as specified on the WTC or WTF; and
- 1.2.3 retain a copy of all completed WTFs and WTCs for a period of 12 months.

---

### 2 OPERATIONAL MANAGEMENT

#### 2.1 BUNDING (S - 5)

The licensee must ensure that all chemicals or chemical products are stored, loaded or unloaded in an appropriately bunded area.

##### NOTES

The EPA will assess the appropriateness of any bund against the EPA's 'Bunding and Spill Management Guidelines'.

#### 2.2 COMPLAINTS REGISTER (S - 1)

The Licensee must:

- 2.2.1 prepare and maintain a register of all complaints concerning environmental issues.

- 2.2.2 ensure the register includes:
- a the date and time that the complaint was made;
  - b details of the complaint including the likely cause of events giving rise to the complaint;
  - c the contact details of the complainant (if permitted by the complainant); and
  - d details of any action taken in response to the complaint by the Licensee.

## **2.3 EMERGENCY SPILL KIT (S - 21)**

The Licensee must ensure that an appropriate emergency spill kit is kept on the Premises at all times and is used in the event of a spill.

## **2.4 POLLUTION CONTROL EQUIPMENT REGISTER (S - 2)**

The Licensee must:

- 2.4.1 maintain all Pollution Control Equipment to ensure that pollution is minimised; and
- 2.4.2 keep a written record of all inspections of Pollution Control Equipment, which includes:
  - a the name of the recording officer;
  - b the date of each inspection of the equipment;
  - c details of the equipment that was inspected;
  - d an assessment of whether the equipment was working effectively; and
  - e the action taken (if required) to rectify any faults or failures.

---

## **3 ADMINISTRATION**

### **3.1 ANNUAL RETURN AND PAYMENT OF ANNUAL FEES (A - 4)**

For the purposes of section 48(2)(a) of the Act, the date in each year for the lodgement of the Annual Return is no later than 90 days before the anniversary of the grant or renewal of the Licence; and

- 3.1.1 For the purposes of section 48(2)(b) of the Act, the date in each year for the payment of Annual Authorisation Fee is the anniversary of the grant of the Licence.

### **3.2 APPROVAL OF OPERATING PROCESSES (A - 6)**

The Licensee must not undertake changes to operating processes conducted pursuant to the Licence at the Premises without written approval from the EPA, where such changes:

- 3.2.1 have the potential to increase emissions or alter the nature of pollutants or waste currently generated by, or from the licensed activity; or
- 3.2.2 have the potential to increase the risk of environmental harm; or
- 3.2.3 would relocate the point of discharge of pollution or waste at the Premises.

### **3.3 APPROVAL OF WORKS (A - 5)**

The Licensee must not construct or alter a building or structure, or install or alter any plant or equipment, for use of an activity undertaken pursuant to the Licence at the Premises without written approval from the EPA, where such changes:

- 3.3.1 have the potential to increase the emissions or alter the nature of pollutants or waste currently generated by, or from the licensed activity; or
- 3.3.2 have the potential to increase the risk of environmental harm; or
- 3.3.3 would relocate the point of discharge of pollution or waste at the Premises.

### **3.4 CHANGE OF LICENSEE DETAILS (A - 3)**

If the Licensee's name or postal address (or both) changes, the Licensee must inform the EPA within 28 days of the change occurring.

### **3.5 LICENCE RENEWAL (A - 2)**

For the purposes of section 43(3) of the Act, an application for Renewal of the Licence must be made no later than 90 days before the expiry date of the Licence.

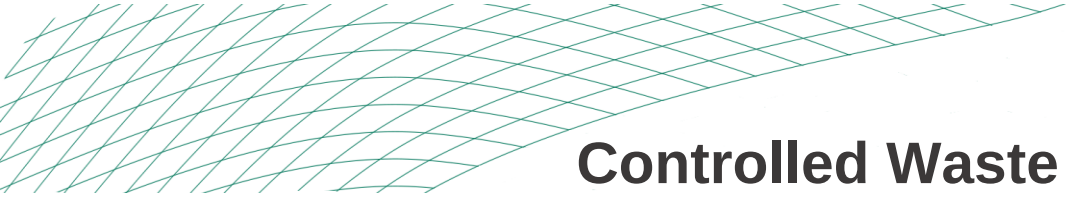
### **3.6 OBLIGATIONS TO EMPLOYEES, AGENTS AND CONTRACTORS (A - 1)**

The Licensee must ensure that every employee, agent or contractor responsible for undertaking any activity regulated by the Licence, is informed as to the conditions of the Licence.

## **Attachments**

**CONTROLLED WASTE.pdf"**





# Controlled Waste Attachment

## **Controlled Waste**

**– per the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998, requiring provision of Waste Transport Certificate (WTC) from State or Territory where waste originates**

### **Waste stream or wastes having as constituents:**

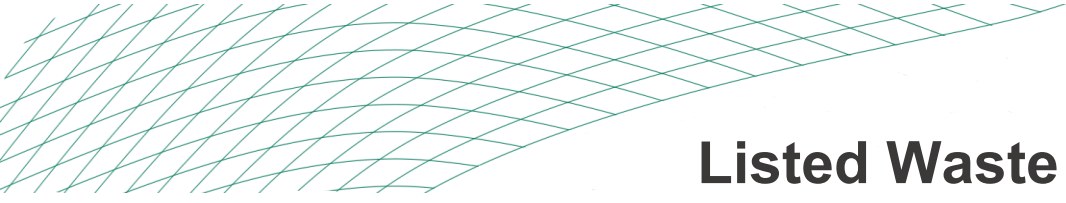
Acidic solutions or acids in solid form  
Animal effluent and residues (abattoir effluent, poultry and fish processing waste)  
Antimony; antimony compounds  
Arsenic; arsenic compounds  
Asbestos  
Barium compounds (excluding barium sulphate)  
Basic solutions or bases in solid form  
Beryllium; beryllium compounds  
Boron compounds  
Cadmium; cadmium compounds  
Ceramic-based fibres with physico-chemical characteristics similar to those of asbestos  
Chlorates  
Chromium compounds (hexavalent and trivalent)  
Clinical and related wastes  
Cobalt compounds  
Containers which are contaminated with residues of substances referred to in this list  
Copper compounds  
Cyanides (inorganic)  
Cyanides (organic)  
Cyanides (organic) / nitriles  
Encapsulated, chemically-fixed, solidified or polymerised wastes referred to in this list  
Ethers  
Filter cake contaminated with residues of substances referred to in this list  
Fire debris and fire washwaters  
Fly ash, excluding fly ash generated from Australian coal fired power stations  
Grease trap waste  
Halogenated organic solvents  
Highly odorous organic chemicals (including mercaptans and acrylates)  
Inorganic fluorine compounds excluding calcium fluoride  
Inorganic sulfides  
Isocyanate compounds  
Lead; lead compounds  
Mercury; mercury compounds  
Metal carbonyls  
Nickel compounds  
Non-toxic salts

## Controlled Waste Licence Attachment (continued)

**– per the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998, requiring provision of Waste Transport Certificate (WTC) from State or Territory where waste originates**

**Waste stream or wastes having as constituents:**

Organic phosphorus compounds  
Organic solvents excluding halogenated solvents  
Organohalogen compounds - other than substances referred to in this list  
Oxidising agents  
Perchlorates  
Phenols, phenol compounds including chlorophenols  
Phosphorus compounds excluding mineral phosphates  
Polychlorinated dibenzo-furan (any congener)  
Polychlorinated dibenzo-p-dioxin (any congener)  
Reactive chemicals  
Reducing agents  
Residues from industrial waste treatment/disposal operations.  
Selenium; selenium compounds  
Soils contaminated with a controlled waste  
Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials  
Tannery wastes (including leather dust, ash, sludges and flours)  
Tellurium, tellurium compounds  
Thallium; thallium compounds  
Triethylamine catalysts for setting foundry sands  
Tyres  
Vanadium compounds  
Waste chemical substances arising from research and development or teaching activities including those which are not identified and/or are new and whose effects on human health and/or the environment are not known  
Waste containing peroxides other than hydrogen peroxide  
Waste from heat treatment and tempering operations containing cyanides  
Waste from the manufacture, formulation and use of wood-preserving chemicals  
Waste from the production, formulation and use of biocides and phytopharmaceuticals  
Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish  
Waste from the production, formulation and use of organic solvents  
Waste from the production, formulation and use of photographic chemicals and processing materials  
Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives  
Waste from the production and preparation of pharmaceutical products  
Waste mineral oils unfit for their original intended use  
Waste oil/water, hydrocarbons/water mixtures or emulsions  
Waste pharmaceuticals, drugs and medicines  
Waste resulting from surface treatment of metals and plastics  
Waste tarry residues arising from refining, distillation, and any pyrolytic treatment  
Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated naphthalenes (PCNs), polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)  
Waste of an explosive nature not subject to other legislation  
Wool scouring waste  
Zinc compounds



# Listed Waste Attachment

## Listed Waste

– per part B of Schedule 1 to the Environment Protection Act 1993, requiring provision of Waste Transport Certificate (WTC) for all transport movements

### Waste stream or wastes having as constituents:

Acids and acidic solutions  
Adhesives (excluding solid inert polymeric materials)  
Alkali metals and alkaline earth metals  
Alkalis and alkaline solutions  
Antimony and antimony compounds and solutions  
Arsenic and arsenic compounds and solutions  
Asbestos  
Barium compounds and solutions  
Beryllium and beryllium compounds  
Boron and boron compounds  
Cadmium and cadmium compounds and solutions  
Calcium carbide  
Carbon disulphide  
Carcinogens teratogens and mutagens  
Chlorates  
Chromium compounds and solutions  
Copper compounds and solutions  
Cyanides or cyanide solutions and cyanide complexes  
Cytotoxic wastes  
Dangerous substances within the meaning of the *Dangerous Substances Act 1979*  
Distillation residues  
Fluoride compounds  
Halogens  
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur  
Hydrocarbons and their oxygen, nitrogen and sulphur compounds (including oils)  
Isocyanate compounds (excluding solid inert polymeric materials)  
Laboratory chemicals  
Lead compounds and solutions  
Lime sludges or slurries  
Manganese compounds  
Medical waste consisting of—  
    (a) a needle, syringe with needle, surgical instrument or other article that is discarded in the course of medical\*, dental or veterinary practice or research and has a sharp edge or point capable of inflicting a penetrating injury on a person who comes into contact with it; or  
    (b) human tissue, bone, organ, body part or foetus; or  
    (c) a vessel, bag or tube containing a liquid body substance; or  
    (d) an animal carcass discarded in the course of veterinary or medical\* practice or research; or  
    (e) a specimen or culture discarded in the course of medical\*, dental or veterinary practice or research and any material that has come into contact with such a specimen or culture; or  
    (f) any other article or matter that is discarded in the course of medical\*, dental or veterinary practice or research and that poses a significant risk to the health of a person who comes into contact with it.  
**medical practice** includes the practice of pathology and the operation of an immunisation clinic.

## Listed Waste Licence Attachment

– *per part B of Schedule 1 to the Environment Protection Act 1993, requiring provision of Waste Transport Certificate (WTC) for all transport movements*

**Waste stream or wastes having as constituents (continued):**

Mercaptans

Mercury compounds and equipment containing mercury

Nickel compounds and solutions

Nitrates

Organic halogen compounds (excluding solid inert polymeric materials)

Organic phosphates

Organic solvents

Organometallic residues

Oxidising agents

Paint sludges and residues

Perchlorates

Peroxides

Pesticides (including herbicides and fungicides)

Pharmaceutical wastes and residues

Phenolic compounds (excluding solid inert polymeric materials)

Phosphorus and its compounds

Polychlorinated biphenyls

Poisons within the meaning of the *Drugs Act 1908*

Reactive chemicals

Reducing agents

Selenium and selenium compounds and solutions

Silver compounds and solutions

Solvent recovery residues

Sulphides and sulphide solutions

Surfactants

Thallium and thallium compounds and solutions

Vanadium compounds

Zinc compounds and solutions

## Appendix 11 – Stakeholder Consultation

Key stakeholders consulted during the initial SEO/EIR development.

| Stakeholder Category                                          | Organisation/Agency                                                                                                      | Consultation / Issues Raised                                                                                                                                                                      |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regulatory Authorities                                        | Department of Primary Industries & Resources (PIRSA)                                                                     | Ongoing liaison regarding licensing, approvals, environment etc                                                                                                                                   |
|                                                               | Environment Protection Authority (EPA)                                                                                   |                                                                                                                                                                                                   |
| State Government Departments                                  | Department for Environment & Heritage (DEH)                                                                              | Innamincka Regional Reserve<br>Flora/fauna database records                                                                                                                                       |
|                                                               | Department of Water, Land & Biodiversity Conservation (DWLBC)                                                            |                                                                                                                                                                                                   |
|                                                               | Department of Transport, Energy & Infrastructure (DTEI)                                                                  | Road crossings and road use                                                                                                                                                                       |
|                                                               | Aboriginal Heritage Branch, Aboriginal Affairs & Reconciliation Division of the SA Department of the Premier and Cabinet | Recorded heritage sites and database search                                                                                                                                                       |
| Other State Government Bodies                                 | SA Arid Land Natural Resource Management Board                                                                           |                                                                                                                                                                                                   |
| Commonwealth Government                                       | Department of the Environment & Water Resources (DEWR)                                                                   | EPBC referral                                                                                                                                                                                     |
| Heritage/Native Title                                         | Yandruwandha/Yawarrawarrka Native Title Claimants                                                                        | Heritage agreement & survey                                                                                                                                                                       |
| Utility Operators                                             | Australian Pipeline Trust (APA)                                                                                          | Connection to Moomba-Sydney pipeline                                                                                                                                                              |
| Petroleum, Geothermal and Mining Tenement Holders / Operators | Santos and Cooper Basin JV partners                                                                                      | Connection to Moomba and commercial/technical discussions<br>Road, water and infrastructure use Facility location<br>Land acquisition<br>Santos environmental practices for pipeline construction |
|                                                               | Other tenement holders                                                                                                   | Provided notice of entry and information brochure.                                                                                                                                                |

## Government Agency Consultation

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | APA Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPA         | <p>The Environment Protection Authority (EPA) has assessed the documents referred to above and now provides its comments. The comments relate to the QSN Link Pipeline, QSN Expansion Pipeline and Moomba Interconnect Pipeline, and does not cover the Moomba Compressor Station. The Moomba Compressor Station is authorised under the Environment Protection Act 1993 (EPA licence no. 45002). This correspondence follows EPA concurrence with the Department for Energy and Mining (DEM) classification status of the QSN Link and the QSN Expansion Gas Pipeline (PL18) activity as being of low environmental impact (provided on 16 January 2020. Comments relate to the protection of surface and ground waters and the prevention of air quality issues and site contamination.</p> <p><b>General Comments</b></p> <p>Notification to the EPA of when harm has occurred or threatened has been described adequately within the SEO and EIR. The management of wastes has been described adequately within the SEO and EIR. The EPA acknowledges gas emissions are inherently low and can occur during maintenance operations, emergency shut downs and venting. The APA Group must ensure that all pipeline infrastructure is assessed and maintained to ensure their effective operation and prevent any loss of containment to the environment. With respect to pipelines, this would include maintaining effective pipeline pigging programs (and enhanced pigging programs if required) and the cathodic protection. The EPA requests the EIR, SEO and other relevant proponents documentation is updated to incorporate these comments.</p> | NA. Comment only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|             | <p><b>SEO Comments</b></p> <p>In general, the EPA supports the Environmental objectives and 'Guide to How Objectives Can be Achieved' particularly around Objectives 2 and 3 whereby impacts to drainage lines and surface waters from pipeline activities should be minimised and where an uncontrolled loss of petroleum, processed substance, chemical or fuel has the potential to cause environmental harm.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | NA. Comment only.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|             | <p><b>1)</b> The EPA considers a key environmental risk to be pipeline corrosion and loss of containment of hydrocarbon product. Pipeline corrosion is addressed in the EIR but not in the SEO. This should be included in Environmental Objective 3. Whilst it is acknowledged that a reference to a Pipeline Integrity Management Plan (PIMP) is made under Objective 3, this document should be appended in the EIR if being referenced. If it is not to be appended in the EIR, then pipeline corrosion mitigations should be detailed in the SEO.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>It would not be appropriate to append the Pipeline Integrity Management Plan (PIMP) to the EIR. Environmental Objective 3 and specifically Goal 3.1 relating to 'spills' which includes loss of pipeline fluid (natural gas) as a result of compromised pipeline integrity. Pipeline corrosion is one of several threats that can potentially compromise the integrity of the pipeline.</p> <p>Expanded information on Pipeline Integrity Management Plan has been included in the 'Guide to How Objectives Can be Achieved' in Environmental Objective 3.</p> |

| Stakeholder                                                                   | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | APA Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | 2) Table 2 (page 8) – The objectives listed in table 2 does not align with the objectives in Appendix 2 – Objectives and Assessment Criteria, specifically objectives 11 -12.                                                                                                                                                                                                                                                                                                                                                                                                            | References updated to align.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                                               | <b>EIR Comments</b><br>3) Section 4.2.2 (page 21) - It is noted that the QSN Link Pipeline crosses a number of drainage lines and ephemeral watercourses marked on 1:250,000 topographic mapping, including the Strzelecki Creek. Based on the route of the pipeline within South Australia, and the intermittent maintenance and repair activities for the pipelines, the EPA recommends the APA Group:<br>a) Have in place and execute a suitable soil erosion and drainage management plan and/or<br>b) Carry out maintenance and repair activities only during extended dry periods. | Following passage inserted into management methods Section 6.6 Soil and Water management;<br>“Maintenance and repair activities to be conducted during dry spells where possible. If not possible appropriate erosion and soil management plan will be developed.”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                               | 4) Table 5 (page 16) – Cathodic Protection Surveys are referenced ‘ <i>Surveys involve travelling the right-of-way and stopping to inspect Cathodic Protection points (above-ground post) on foot. Typically conducted twice per year</i> ’.<br>The twice per year surveys are not included in the SEO under any objectives. These surveys should be a ‘Guide to How Objectives Can be Achieved’ for a number of the Environmental Objectives within the SEO.                                                                                                                            | Cathodic Protection Surveys are referenced in Table 5 as one of many pipeline operational activities. The survey requirement and frequency are defined within the Pipeline Integrity Management Plan (PIMP), which is referenced in the ‘Guide to How Objectives Can be Achieved’ in Environmental Objective 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Health Protection and Licensing Services<br>Department for Health & Wellbeing | <b>SEO</b><br>Good reference made to our relevant legislation in Objectives 3 and 11 however if they are wanting to be entirely correct we are the “Department for Health and Wellbeing” not “Wellness” (well for now anyway!)                                                                                                                                                                                                                                                                                                                                                           | Reference updated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                                                               | <b>EIR</b> <ul style="list-style-type: none"> <li>Noted that there does not seem to be any reference to disposal of wastewater in the EIR, not sure if this is an oversight or not?</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                           | Waste water (inclusive of septic and grey water) is addressed the EIR as follows;<br>Section 6.5: In regards to septic and greywater, an additional line has been included in the waste description within Section 6.5 within the EIR to explicitly list septic and greywater. Also, reference to ERA item 10 and description has also been added within the table further clarify. The details regarding the management methods, including inspection, maintenance, disposal is listed at point 29 within Table 19 of the Section 6.5 Waste management.<br>Section 6.6: All efforts will be made to avoid discharge of wastewater, and it will be disposed of in a manner that minimises runoff. Should discharge potentially result in runoff to watercourses then all reasonable and practical measures (i.e. water testing) will be taken to ensure that the water quality guidelines associated with that waterway are met. |

| Stakeholder                                                                                                                             | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | APA Response                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary Industries and Regions SA                                                                                                       | <p>Thank you for the opportunity to make comment on this proposal and please see below a summary of comments from the Pastoral Unit. The proposal causes no concerns to the continued operation of the pastoral lease.</p> <ul style="list-style-type: none"> <li>• There will be little interaction with the PLMC act, only around 40km of the pipeline is on Pastoral leases (Gidgealpa). Most of the line in South Australia is on Innamincka, which is not covered under the PLMC act.</li> <li>• The pipeline is only near one waterpoint on a Pastoral lease, The Gap Trough on Gidgealpa. The underground pipeline and service track is 3km away and so is unlikely to affect stock or pastoral management.</li> <li>• No weeds were identified in the assessment, which would be one of the few ways the pipeline could negatively affect pastoral operations</li> <li>• The impacts of clearance along the pipeline needed for maintenance and repairs is small relative to the area available for pastoralism and activities are unlikely to impact lease operations.</li> <li>• Innamincka is miss-identified as a Pastoral lease (pg.28). Table 14 on page 28 of the Environmental Impact Report, identifies Innamincka Regional Reserve as having DEH as the head lessee and S Kidman and Co as the pastoral lessee. The land owner is The Crown, and S Kidman and Co is the Crown Lessee.</li> <li>• Adequate considerations have been taken to minimise the potential for fires and the spread of weeds in the Management Measures</li> <li>• Consideration has also been taken of potential for erosion around tracks, Management methods in place.</li> </ul> | <p>Within the SEO, Section 2.1 item 11 addresses wastewater, inclusive of septic and greywater.</p> <p>Weeds Identified as a potential impact and addressed in Section 6.2 of the EIR.</p> <p>Lease details updated.</p> |
| National Parks and Protected Area Program   National Parks and Wildlife Service South Australia<br>Department for Environment and Water | <p>DEWNR is now DEW or Department for Environment and Water.</p> <p>NRM Board will become Landscape Board as of 30 June 2020</p> <p>NRM Act is now Landscape South Australia Act 2019</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>References updated.</p>                                                                                                                                                                                               |

| Stakeholder                                                                | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | APA Response                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Resources SA<br>Arid Lands<br>Department for Environment and Water | PL 18 SEO and EIR review identifies water affecting activities or addresses the key areas of concern in relation to surface water, including drainage patterns, third party users, sedimentation and water quality.<br>Comments:                                                                                                                                                                                                                                                                                                                                             | Reference to "No new water affecting activities" included in 2.1, 2.2 and 2.4, 3.3 of SEO.                                                                                                                                                                                                                                                                                                                                         |
|                                                                            | <ul style="list-style-type: none"> <li>Within the Objectives and Assessment Criteria, page 22 &amp; 23, Objective 2. To minimise and manage impacts to water resources, Goal 2.3 To minimise disruption to third party use of surface waters, there is reference to no new water affecting activities as defined under the NRM Act (without prior approval). No new water affecting activities as defined under the NRM Act can be included in the other Goal areas, 21, 2.2 and 2.4. Relevant where low flows maybe prevented.</li> </ul>                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                            | <ul style="list-style-type: none"> <li>Potential impacts to aquatic ecosystems could be more explicit in the objectives and assessment criteria, especially given the QSN Link Pipeline crosses the Cooper Creek and other watercourses, wetlands or floodplain habitat (noting that the Cooper Creek crossing is in QLD)</li> </ul>                                                                                                                                                                                                                                         | Explicit mention of aquatic ecosystems is now included within the Objective 2 & 3 of the SEO.                                                                                                                                                                                                                                                                                                                                      |
|                                                                            | <ul style="list-style-type: none"> <li>Note risk associated with activities (i.e. maintenance) increases where water is present or likely to be present (rainfall/ weather forecast) and is likely given the approximate number (30) of drainage lines and ephemeral watercourses the QSN Link Pipeline crosses.</li> </ul>                                                                                                                                                                                                                                                  | N/A. Comment only.<br>Higher risk of impacts at water crossings, addressed within Section 6.11 of the EIR, and within the risk assessment.                                                                                                                                                                                                                                                                                         |
|                                                                            | <ul style="list-style-type: none"> <li>Water quality is adequately addressed in a number of objective and goal areas in the SEO document, however any water discharged to a watercourse of more than 1 ML will require a water affecting activity permit if not already authorised.</li> <li>Any excavations as part of the operational activities may require a water affecting activity permit, especially if the geomorphology of a watercourse or lake is significantly altered or greater than 10 ML water is diverted from the floodplain of a watercourse.</li> </ul> | Additional information included in table 20 within management measures Section 6.6) regarding requirement for water affecting activity permit. Additional information included in the Objectives table of the SEO regarding water affected activity permit (Obj. 2 &3) as above. Excavation works for maintenance and operations unlikely to effect the volumes of water described. Earthworks of such magnitude will be assessed. |
|                                                                            | <ul style="list-style-type: none"> <li>Erosion work may also require a water affecting activity permit where specialist civil works required to address areas of high erosion risk on alignment and intersected watercourse occurs. This will be on a case by case basis depending on the required activities.</li> </ul>                                                                                                                                                                                                                                                    | Noted as per comments above.                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                            | <ul style="list-style-type: none"> <li>Monitoring is adequate to detect erosion and water quality issues that may occur.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                          | NA. Comment only.                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Stakeholder                                                                  | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | APA Response                                                                     |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
|                                                                              | <p>Notes:</p> <ul style="list-style-type: none"> <li>From July 1 2020 the <i>Natural Resources Management Act 2004</i> is replaced by the <i>Landscape South Australia Act 2019</i>.</li> </ul> <p>A water affecting activity application takes a minimum of 2 months to assess simple applications, however 3 months is the general time frame where the application is complex and Native Title notification is required.</p>                                                                                                                                                                              | <p>Reference updated.</p> <p>Notes included around water affecting activity.</p> |
| Aboriginal Affairs and Reconciliation, Department of the Premier and Cabinet | <p><b>Environment Impact Report (EIR) – AAR Comments</b></p> <p>Page 10 – Table 3: Requirement, third paragraph</p> <p>Query –</p> <p>‘A person possessing an Aboriginal object must take all reasonable measures to protect it.’</p> <p>Comment –</p> <p>While this is true, it is a breach of section 23 of the <i>Aboriginal Heritage Act 1988</i> to remove an object or remains from an Aboriginal heritage site.</p>                                                                                                                                                                                   | Accepted and omitted from documentation                                          |
|                                                                              | <p>Page 10 – Table 3: Requirement</p> <p>Suggest omit –</p> <p>‘Permission to disturb/destroy Aboriginal relic.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Accepted and omitted from documentation.                                         |
|                                                                              | <p>Page 10 – Table 3: Requirement, paragraph five</p> <p>Comment –</p> <p>The Act applies to the entirety of the QSN Pipeline Corridor and provides for the protection of all Aboriginal sites, objects and remains, including recorded, reported or undiscovered heritage. This protection extends to Aboriginal sites, objects and remains which may exist in areas that have been disturbed in the past and/or subject to a cultural heritage survey or work area clearance.</p>                                                                                                                          | Noted within Table 3.                                                            |
|                                                                              | <p>Page 26 – 4.4.1 Indigenous Heritage</p> <p>Comment –</p> <p>As discussed in AAR’s cover letter, it is noted that APA previously engaged Yandruwandha Yawarrawarrka Traditional Owners (YY) to undertake a cultural heritage survey in 2007. It is prudent for APA to continue to liaise with YY through the duration of its operational and maintenance activities.</p>                                                                                                                                                                                                                                   | Noted as a specific control within on page 46 within management measures table.  |
|                                                                              | <p>Page 26 – 4.4.1. Indigenous Heritage, paragraph four</p> <p>Comment –</p> <p>As discussed in AAR’s cover letter, APA requested a search of the Central Archive in September 2018 and was advised by AAR that there is one registered Aboriginal site located within the QSN Project. Any disturbance or damage to this site during operational and maintenance activities would place you in breach of the <i>Aboriginal Heritage Act 1988</i>. Furthermore, the Act provides protection for <u>all</u> Aboriginal sites, objects and remains, including recorded, reported and undiscovered heritage</p> | NA. Comment only.                                                                |

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | APA Response                                                                                                                               |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Page 45 – 6.7 Heritage Management</p> <p>Suggest change –</p> <p>‘Prior to the construction of the pipeline a cultural an [sic] initial site clearance was undertaken.’</p> <p>Suggest replace with –</p> <p>‘Prior to the construction of the pipeline a cultural heritage survey and initial site clearance was undertaken.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Accepted & updated                                                                                                                         |
|             | <p>Page 45 – 6.7 Heritage Management, paragraph two and three</p> <p>Suggest edit –</p> <p>The term ‘undiscovered’ should be used as preference over ‘unknown’.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Accepted & updated                                                                                                                         |
|             | <p>Page 45 – 6.7 Heritage Management, paragraph four</p> <p>Suggest change –</p> <p>‘Provisions under the Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984 and the South Australian Aboriginal Heritage Act 1988 make is [sic] an offence to knowingly disturb, deface or damage an archaeological relic without the prior approval of the relevant Sate [sic] regulatory authority.’</p> <p>Suggest replace with –</p> <p>‘Provisions under the <i>Aboriginal Heritage Act 1988</i> make it an offence to damage, disturb or interfere with any Aboriginal site, object or remains. AAR administers the <i>Aboriginal Heritage Act 1988</i> on behalf of the Premier, and should be contacted in the event of damage, disturbance or interference.’</p> <p>Comment –</p> <p>The purpose of the Commonwealth <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> is the preservation and protection from injury or desecration of areas and objects in Australia including Australian waters of particular significance to Aboriginals in accordance with Aboriginal tradition. While the Commonwealth Act extends to every State and Territory, it is not intended to exclude or limit the operation of South Australia’s <i>Aboriginal Heritage Act 1988</i>. Traditional owners may appeal to the Commonwealth Act to be applied above the <i>Aboriginal Heritage Act 1988</i> for the further consideration of heritage protection and management of areas and objects.</p> | Accepted & updated                                                                                                                         |
|             | <p>Page 46 – Table 21 Heritage Management, Management Method - Heritage</p> <p>Query –</p> <p>‘Access/driving are without ground disturbance’</p> <p>Comment –</p> <p>All Aboriginal heritage sites should be clearly marked and protected from ground disturbance of any form.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Line updated to “Aboriginal heritage sites may be clearly marked to protect from disturbance, in consultation with the traditional owners” |

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | APA Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Page 46 – Table 21 Heritage Management</p> <p>Suggest change –</p> <p>‘GIS/mapping of environmentally sensitive areas is available to all field personnel and contractors.’</p> <p>Suggest replace with –</p> <p>‘GIS/mapping of environmentally and culturally sensitive areas is available to all field personnel and contractors.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Line updated to “GIS/mapping of environmentally and culturally sensitive areas is available via the APA Environment and Heritage Team”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|             | <p>Page 72 – Appendix 4: Cultural Heritage</p> <p>Suggest change –</p> <p>‘There is a ‘Duty of Care’ on all people to avoid harming Aboriginal cultural heritage.’</p> <p>Suggest replace with –</p> <p>‘The Aboriginal Heritage Act 1988 provides protection for all Aboriginal sites, objects and remains and all personnel have an obligation to avoid damage, disturbance or interference to Aboriginal heritage.’</p>                                                                                                                                                                                                                                                                                                                                                                        | <p>Line updated to There is a “Duty of Care” on all people to avoid damage, disturbance or interference to Aboriginal heritage.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|             | <p>Page 72 – Appendix 4: Cultural Heritage</p> <p>Suggest change –</p> <p>‘In the event of an accidental find (eg. Discovery of artefacts, bones, burial site etc.) any activity that may disturb the find is to stop and the Environmental Manager notified.’</p> <p>Suggest replace with –</p> <p>‘If suspected cultural heritage material is discovered during operations (eg. discovery of artefacts, objects or bones etc), immediately stop any further work in the area, secure the site, ensure no further ground disturbance activity takes place in the immediate area and notify the Environmental Manager. Contact YY to identify an appropriate course of action. Damage, disturbance or interference to Aboriginal heritage sites, objects or remains will be reported to AAR.’</p> | <p>Line replaced with;</p> <p>‘If suspected cultural heritage material is discovered during operations (eg. discovery of artefacts, objects or bones etc), immediately stop any further work in the area, secure the site, ensure no further ground disturbance activity takes place in the immediate area and notify the Environmental Manager. If the discover is suspected to be remains, the Police must be immediately notified. Contact YY to identify an appropriate course of action. Damage, disturbance or interference to Aboriginal heritage sites, objects or remains will be reported to AAR.’</p> |
|             | <p>Page 72 - Appendix 4: Cultural Heritage</p> <p>Suggest change –</p> <p>‘Local Registered Aboriginal Party to be contacted for works that are outside the facility and outside previously disturbed areas.’</p> <p>Suggest replace with –</p> <p>‘YY should be contacted for works that are outside the facility and outside previously disturbed areas.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Accepted, line updated.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|             | <b>Statement of Environmental Objectives (SEO) – AAR Comments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | APA Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Page 29 – Objective 6: Guide to How Objectives Can Be Achieved</p> <p>Suggest change –<br/>           ‘Implement appropriate protocols for dealing with accidental discovery of cultural heritage material during construction.’</p> <p>Suggest replace with –<br/>           ‘If suspected cultural heritage material is discovered during operations, immediately stop any further work in the area, secure the site and ensure no further ground disturbing activity takes place in the immediate area.’</p> <p>‘Any Aboriginal heritage sites, objects and remains discovered during operations will be appropriately reported and responded to, consistent with the <i>Aboriginal Heritage Act 1988</i>.’</p> <p>Comment –<br/>           APA must ensure work ceases when a possible discovery of Aboriginal heritage is made. Explicitly expressing this assists APA in preventing a breach of the <i>Aboriginal Heritage Act 1988</i>. AAR administers the <i>Aboriginal Heritage Act 1988</i> on behalf of the Premier, and should be contacted in the event of damage, disturbance or interference. Section 20 of the <i>Aboriginal Heritage Act 1988</i> provides that if Aboriginal sites, objects or remains are discovered, APA is required to report the discovery to AAR as soon as practicable. See Attachments 2 and 3 for the AAR approved discovery procedures that will assist APA in meeting its obligations under the Heritage Act.</p> | <p>Line replaced with;<br/>           ‘Any Aboriginal heritage sites, objects and remains discovered during operations will be appropriately reported and responded to, consistent with the <i>Aboriginal Heritage Act 1988</i>.’</p> <p>Additionally, line updated with;<br/>           ‘If suspected cultural heritage material is discovered during operations, immediately stop any further work in the area, secure the site and ensure no further ground disturbing activity takes place in the immediate area.’</p> |
|             | <p>Page 29 – Objective 6: Guide to How Objectives Can Be Achieved</p> <p>Suggest change –<br/>           ‘Obtain all necessary approvals in the event of an accidental/unavoidable site disturbance.’</p> <p>Suggest add –<br/>           ‘Contact Yandruwandha Yawarrawarrka Traditional Owners (YY) to identify an appropriate course of action. Options include risk managing the area with YY’s assistance or applying for a section 23 authorisation under the <i>Aboriginal Heritage Act 1988</i> if the discovery is not already covered by one.’</p> <p>Comment –<br/>           Heritage mitigation measures are applied to minimise damage. A section 23 authorisation should be sought prior to works where damage is possible or unavoidable.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Line updated to;<br/>           Obtain all necessary approvals in the event of an accidental/unavoidable site disturbance, including contact Yandruwandha Yawarrawarrka Traditional Owners (YY) to identify an appropriate course of action. Options include risk managing the area with YY’s assistance or applying for a section 23 authorization under the <i>Aboriginal Heritage Act 1988</i> if the discovery is note already covered by one.</p>                                                                  |
|             | <p>Page 29 – Objective 6: Guide to How Objectives Can Be Achieved</p> <p>Suggest change –<br/>           ‘Seek advice from relevant authorities for remediation of site, if required.’</p> <p>Suggest replace with –<br/>           ‘Where damage, disturbance or interference to Aboriginal heritage has occurred, report the discovery to AAR as soon as practicable and contact YY to identify an appropriate course of action.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Line updated to;<br/>           Where damage, disturbance or interference to Aboriginal heritage has occurred, report the discovery to the relevant authority as soon as practicable and contact YY to identify an appropriate course of action</p>                                                                                                                                                                                                                                                                     |

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | APA Response                                                                                                                                                                                                        |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Page 29 – Objective 6: Guide to How Objectives Can Be Achieved</p> <p>Suggest change –<br/> ‘Induction/training to include heritage management requirements.’</p> <p>Suggest replace with –<br/> ‘Induction/training for all personnel on Aboriginal cultural heritage as well as their obligations under the <i>Aboriginal Heritage Act 1988</i>.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Line updated to;<br/> Awareness training to cover cultural heritage management requirements and obligations.</p>                                                                                                 |
|             | <p>Page 29 – Objective 6: Assessment Criteria</p> <p>Suggest change –<br/> ‘Any new sites, remains or objects are identified are [sic] reported to appropriate authority and recorded, consistent with the <i>Aboriginal Heritage Act 1988</i>.’</p> <p>Suggest replace with –<br/> ‘If Aboriginal sites, objects and remains are discovered, the discovery is reported to AAR, consistent with the <i>Aboriginal Heritage Act 1988</i>.’</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Line updated to; ‘Any Aboriginal heritage sites, objects and remains discovered during operations will be appropriately reported and responded to, consistent with the <i>Aboriginal Heritage Act 1988</i>.’</p> |
|             | <p><b>The <i>Aboriginal Heritage Act 1988</i> (SA)</b></p> <p>The <i>Aboriginal Heritage Act 1988</i> (SA) (Heritage Act) applies to the entirety of the Project area and provides for the protection of all Aboriginal sites, objects and remains, including recorded, reported or undiscovered heritage. This protection extends to Aboriginal sites, objects and ancestral remains, which may exist in areas that have been disturbed in the past and/or are subject to a cultural heritage survey or work area clearance.</p> <p>Section 20 of the Heritage Act provides that if Aboriginal sites, objects or remains are discovered in the Project area, APA is required to report such discoveries to the Minister responsible for the administration of the Act (the Premier) through AAR as soon as practicable. AAR can be contacted on (08) 8226 8900 or via email at <a href="mailto:DPC-AR.HeritageSites1@sa.gov.au">DPC-AR.HeritageSites1@sa.gov.au</a>.</p> <p>In the event that Aboriginal sites, objects or remains are discovered, all work in the area must cease and the site should be avoided. Authorisation from the Premier would then be required to ‘damage, disturb or interfere’ with the heritage under section 23 of the Heritage Act. Further, if skeletal remains are discovered, they must be reported to SAPOL immediately as required by the Coroners Act 2003.</p> | <p>NA. Information only.</p>                                                                                                                                                                                        |
|             | <p><b>The Central Archive and the Register of Aboriginal Sites and Objects</b></p> <p>AAR administers a Central Archive that contains the Register of Aboriginal Sites and Objects. As advised in September 2018, there is one Aboriginal site located within the QSN Link Pipeline corridor that is entered on the Central Archive. This site is ‘Moomba-Wilton Site 14’ (Central Archive number: 6941-2851). Any disturbance, damage or interference with site 6941-2851 by APA would place it in breach of the Heritage Act.</p> <p>Please note that the records held in the Central Archive are not exhaustive. Additional undiscovered or unrecorded heritage may exist within the Project area, even within areas that have been significantly altered by past activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Search results have now been included within the documentation.</p> <p>Further emphasis regarding engagement of Traditional Owners is included within the EIR.</p>                                               |

| Stakeholder | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | APA Response |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|             | <p>The Central Archive is regularly updated with new site records. AAR recommends periodic searches of the archive as part of APA's risk management strategy. A search of the Central Archive can be made through the AAR online portal Taa Wika. This can be directly accessed at: <a href="https://taawika.sa.gov.au/public/request-for-access/enter">https://taawika.sa.gov.au/public/request-for-access/enter</a>.</p> <p><b>Aboriginal Engagement and Heritage Management</b></p> <p>AAR notes that APA has previously engaged Yandruwandha Yawarrawarrka Traditional Owners (YY) to undertake a cultural heritage survey in 2007. However, the documents provide limited detail on any more recent consultation that APA has undertaken with YY. It would be prudent for APA to continue to consult and liaise with YY through the duration of the Project and ongoing operational and maintenance activities.</p> <p>AAR notes that heritage management provisions for the Project are touched upon in the EIR document, in section 6.7 Heritage Management and Appendix 2 Cultural Heritage Policy. It would be prudent for APA to develop an overarching Cultural Heritage Management Plan (CHMP) for the Project. A CHMP would augment APA's existing heritage management frameworks by specifying measures to be undertaken before, during and after Project activities to adequately manage Aboriginal heritage. APA should refer to Attachment 2 and Attachment 3 for factsheets.</p> |              |