EXECUTIVE SUMMARY

This Environmental Management Plan (EMP) has been developed for the works associated with the proposed Central Petroleum Limited (CP) field development for Palm Valley 13 (PV-13) well connection as well as the reinjection upgrade works located at Palm Valley 02 (PV-02) within CP's Operating License 3 (OL3). The proposed field development works will involve:

- PV-13 Connection
  - Installation of approximately 800m of steel DN150 schedule 40 API 5LX42 flowline above ground from PV-13 to PV-07
  - Installation of the pig launcher and receiver
  - Refurbishment and relocation of the surface skid from PV-09 to PV-13
  - Installation of 2 x 30kL HDPE tanks for produced water storage
  - Construction of a plastic lined earthen bund to house tanks

- PV-02 Reinjection System Upgrade -
  - Installation of 4 x 30kL HDPE tanks for produced water storage
  - Tie-in PV-02 wellhead to storage tanks to allow direct transfer of produced water
  - Tanker loading facilities for transfer of produced water from all other wellheads (produced water collected locally and transported to the storage facility via water tanker)
  - Installation of dosing skid for storage of self-bunded chemicals used in filtration
  - Installation of produced water filtration system including flowmeters and chemical dosing pumps
  - Installation of new reinjection high and low pressure pumps
  - Connect storage tanks to PV-04 using existing flowlines

- Temporary Construction Camp
  - Construction and operation of a temporary camp for the completion of the works included in this EMP. No clearing will be required as the camp will be placed in an already cleared area in the same vicinity as the existing camp.

These activities shall herein be referred to as the Works.

It is important to note that the operation of PV-13 as a production well is not covered by this EMP. The operations of PV-13 will be covered in line with the other production wells in the OL3 area, as described in the PVGF FEMP. The operations of the upgraded PV-04 reinjection skid is also included in the PVGF FEMP

The proposed Works are located within the Palm Valley Gas Field (PVGF) in operating license 3 (OL3) as indicated in Figure-1; as such all activities will comply with the PVGF Field Environment Management Plan (FEMP). This EMP provides management practices for environmental risks associated with the proposed Works with reference to the PVGF FEMP as appropriate or by detailed environmental measures where the activity is not already covered by the existing PVGF FEMP.

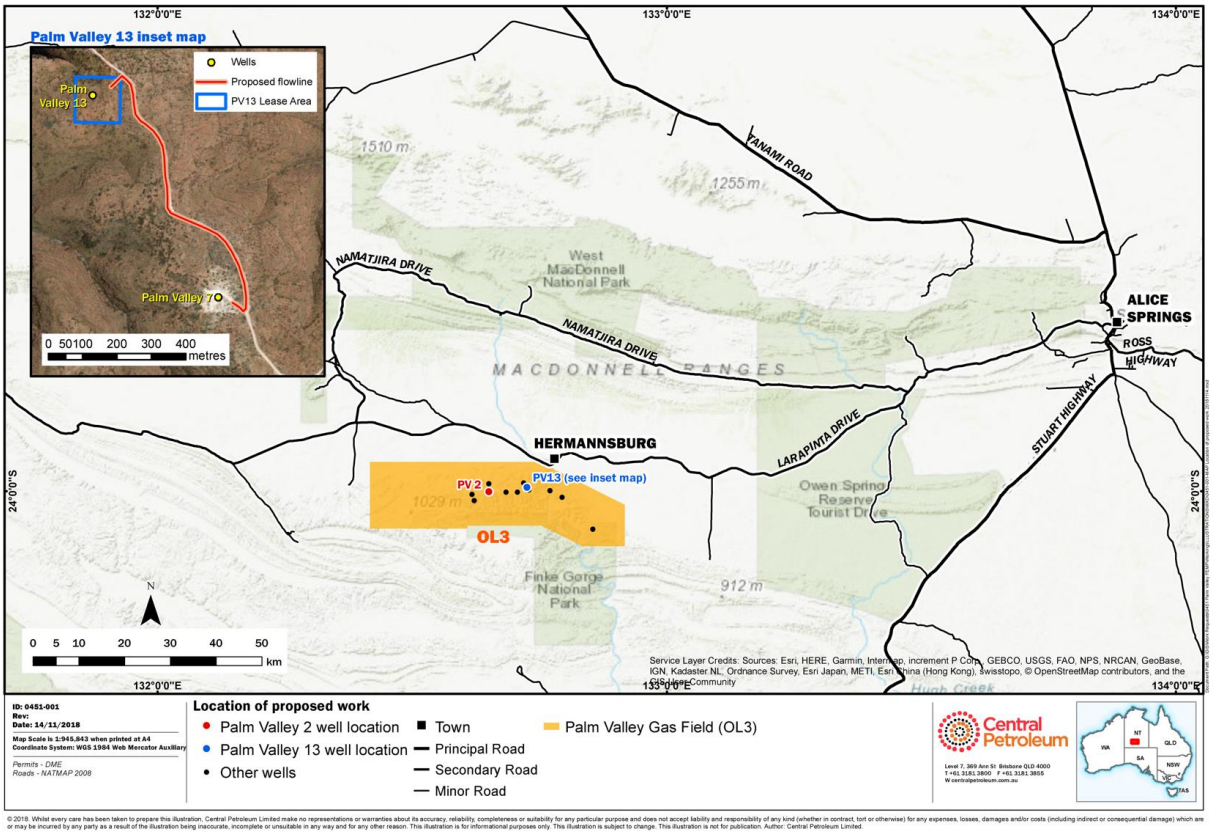

Figure-1 Location of the Works at PV-02 and PV-13 within the OL3 Consent area

The existing environment is well known, the area has been surveyed and described for the PVGF FEMP, PV-13 hydrocarbon exploration well EMP and previous developments and management of the PVGF since the mid-1980s. The area in which the proposed Works will take place are on previously cleared and disturbed areas.

The key environmental risks associated with the Works and CP's mitigation and preventative measures to reduce these risks to ALARP are shown in **Table-1**.

Table-1 Key Risks and CP Mitigation

Key Risks	Key Mitigation
Introduction of biosecurity threats	*Biosecurity Management* • Activities will adhere to the guidelines within the NT Weed Management Handbook • Weed desktop and field-based surveys undertaken to identify existing weed areas • Vehicle and machinery to undergo weed free checks and compliance before mobilised to site • Vehicles and/or equipment coming from a weed invested area is required to be weed free and needs to provide a weed free certificate before entry • Major equipment moves will be planned from weed-free areas to infested areas and not the other way around • Inspections and periodic audits will be conducted to identify and report weed outbreaks • New activities will be planned to address prevention of weed or non-indigenous plant spread • Weeds will be actively controlled in cleared/ hardstand areas • Ensuring all material imported to or between sites is free of weeds • Baseline training for staff members responsible for preventing, identifying and managing weeds undertaken • Vegetation survey conducted before and after any disturbance or clearing operations to determine

	if new noxious species present • Only drive on approved tracks.
Bushfires from hot works	*Bushfire Prevention* • Fire extinguishers to be fitted to all vehicles • No unauthorised burning of waste onsite • Only diesel vehicles to be used • Appropriate firefighting equipment available and serviced • Staff trained in the emergency response procedures and basic firefighting skills • Availability of water to assist in fire control • Designated smoking areas with appropriate waste receptacles • No open flames or fires outside of designated areas • Ensure vegetation stockpiles are stored away from ignition sources and in low profile mounds
Disturbance of indigenous artefacts	*Cultural Heritage and Sacred Sites Preservation* • Activities do not require any new disturbances. • All activities to stay within the approved areas within OL3 (per the Sacred Site Clearance Certificate (ref. C2015-035 and C2018-091)). • Adhere to permit to work system, which ensures that all activities stay within the approved operating areas • No clearing • No unauthorised third-party access • Exclusion zones • No driving off unformed tracks.

All risks associated with the Works have been successfully mitigated with CP's control measures, as seen in **Table-2** which provides an overview of the residual risks associated with the Works at PVGF. This summary indicates that the controls are effective, have been successfully managed to ALARP and therefore the residual risk has been accepted by CP.

Table-2 Residual Risks for the Works at PVGF

	Residual Risk			
	Low	**Moderate**	**High**	**Critical**
Count	12	0	0	0

The identified stakeholders for this operation are the Ntaria Aboriginal Land Trust, Central Land Council and Department of Primary Industry and Resources (DPIR).

CP will follow the current and ongoing consultation process as outlined in the PVGF FEMP Section 12. A record of which is shown in Appendix 2 of this EMP.

Key contact details for the project are:

Company Name	Central Petroleum Limited
ACN/ABN	ABN: 95 009 718 183
Street Address	Level 7/369 Ann Street
Postal Address	PO Box 292 Brisbane, Qld 4000
Telephone	+61 (0)7 3181 3800
Facsimile	+61 (0)7 3181 3855
Key Contact	Ben Visser
Email	info@centralpetroleum.com.au
Website	www.centralpetroleum.com.au

ENVIRONMENT MANAGEMENT PLAN

PALM VALLEY GAS FIELD

Construction Environmental Management Plan for PV-13 Connection and PV-02 Reinjection System Upgrade, Palm Valley NT

January 2019

Review record

Date	Reason for issue	Author	Reviewer	Approver
15/11/2018	Draft EMP released for comment	R. Ully	D. Gomez	B. Visser
21/11/2018	Approved for release	R. Ully	D. Gomez	B. Visser
17/01/2019	Submitted for approval	R. Ully	D. Gomez	B.Visser

DOCUMENT CONTROL

DISCLAIMER

This is a Central Petroleum Limited (CP) document and it has been prepared using the skill and care expected from professional scientists to provide factual and technical information and reasonable solutions to identified risks.

DOCUMENT APPROVALS

Approvals	Company	Name	Signature	Date
Author:	Enviro-Value Pty. Ltd.	Rob Ully		21/11/18
Reviewer:	Central Petroleum Limited	Diana Gomez		17/01/19
Approver:	Department of Primary Industry and Resources			
Custodian:	Central Petroleum Limited	Ben Visser		17/01/19

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16/11/18	Draft_V1	Document Finalised	Rob Ully	Enviro-Value
21/11/2018	Final_V1	Document submitted	Ben Visser	Central Petroleum
17/01/2019	V2	Document updated with DPIR feedback	Ben Visser	Central Petroleum

GLOSSARY	
AAPA	Aboriginal Areas Protection Authority
ALARP	As Low As Reasonably Practicable
APPEA	Australian Petroleum Production and Exploration Association
API	American Petroleum Institute
ASC	Australian Soils Classification
ASX	Australian Securities Exchanges
bbls	Barrels
bgl	Below ground level
BOP	Blowout protector
CBL	Cement bond log
CLC	Central Land Council
CP	Central Petroleum Limited
Cr	Critically endangered
DD	Data deficient
DPIR	Department of Primary Industry and Resources
EPBC	Environmental Protection and Biodiversity Conservation
EMP	Environmental Management Plan
EcSD	Ecologically Sustainable Development
En	Endangered
EW	Extinct in the Wild
EX	Extinct
FEMP	Field Environment Management Plan
FIT	Formation integrity test
HS&E	Health, Safety and the Environment
km	Kilometres
KW	Kilowatts
L	Litres
kl	Kilolitres
lbs	Pounds
m	Metres
Mi	Migration (EPBC listed)
Ma	Marine (EPBC listed)

GLOSSARY	
mm	millimetres
NT	Northern Territory
Nt	Near threatened
OL	Operating Licence
P&A	Plugged and Abandoned
PMSR	Protected Matters Search Report
PMST	Protected Matters Search Tool
psi	Pounds per square inch
PV-13	Palm Valley 13 (well)
PVGF	Palm Valley Gas Field
RPM	Rotations Per Minute
SoBS	Sites of Botanical Significance
SoCS	Sites of Conservation Significance
TPWC	Territory Parks and Wildlife Conservation
TO	Traditional Owner
Vu	Vulnerable

1 EXECUTIVE SUMMARY

This Environmental Management Plan (EMP) has been developed for the works associated with the proposed Central Petroleum Limited (CP) field development for Palm Valley 13 (PV-13) well connection and the upgrade works at Palm Valley 2 (PV-2) within CP's Operating License 3 (OL3) . The proposed field development works will involve:

- PV-13 Connection
  - Installation of approximately 800m of steel DN150 schedule 40 API 5LX42 flowline above ground from PV-13 to PV-07
  - Installation of the pig launcher and receiver
  - Refurbishment and relocation of the surface skid from PV-09 to PV-13
  - Installation of 2 x 30kL HDPE tanks for produced water storage
  - Construction of a plastic lined earthen bund to house tanks

- PV-02 Reinjection System Upgrade -
  - Installation of 4 x 30kL HDPE tanks for produced water storage
  - Tie-in PV-02 wellhead to storage tanks to allow direct transfer of produced water
  - Tanker loading facilities for transfer of produced water from all other wellheads (produced water collected locally and transported to the storage facility via water tanker)
  - Installation of dosing skid for storage of self-bunded chemicals used in filtration
  - Installation of produced water filtration system including flowmeters and chemical dosing pumps
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  - Connect storage tanks to PV-04 using existing flowlines

- Temporary Construction Camp
  - Construction and operation of a temporary camp for the completion of the works included in this EMP. No clearing will be required as the camp will be placed in an already cleared area in the same vicinity as the existing camp.

These activities shall herein be referred to as the Works.

It is important to note that the operation of PV-13 as a production well is not covered by this EMP. The operations of PV-13 will be covered in line with the other production wells in the OL3 area, as described in the PVGF FEMP. The operations of the upgraded PV-02 reinjection skid is also included in the PVGF FEMP

The proposed Works are located within the Palm Valley Gas Field (PVGF) in operating license 3 (OL3) as indicated in Figure 1-1; as such all activities will comply with the PVGF Field Environment Management Plan (FEMP). This EMP provides management practices for environmental risks associated with the proposed Works with reference to the PVGF FEMP as appropriate or by detailed environmental measures where the activity is not already covered by the existing PVGF FEMP.

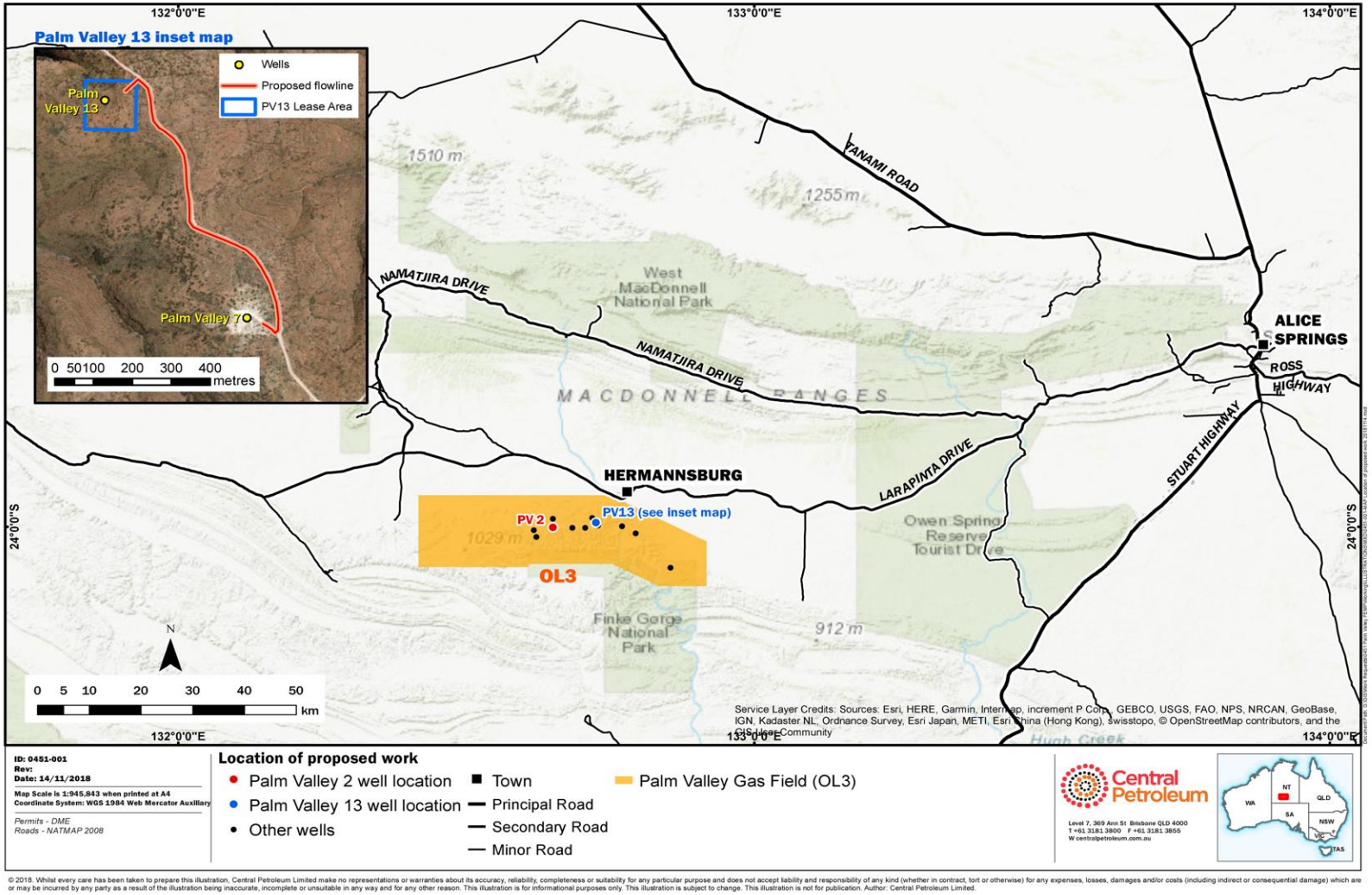

Figure 1-1 Location of the Works at PV-02 and PV-13 within the OL3 Consent area

The existing environment is well known, the area has been surveyed and described for the PVGF FEMP, PV-13 hydrocarbon exploration well EMP and previous developments and management of the PVGF since the mid-1980s. The area in which the proposed Works will take place are on previously cleared and disturbed areas.

The key environmental risks associated with the Works and CP's mitigation and preventative measures to reduce these risks to ALARP are shown in Table 1-1.

Table 1-1. Key Risks and CP Mitigation

Key Risks	Key Mitigation
Introduction of biosecurity threats	*Biosecurity Management* • Activities will adhere to the guidelines within the NT Weed Management Handbook • Weed desktop and field-based surveys undertaken to identify existing weed areas • Vehicle and machinery to undergo weed free checks and compliance before commenced to site • Vehicles and/or equipment coming from a weed invested area is required to be weed free and needs to provide a weed free certificate before entry • Major equipment moves will be planned from weed-free areas to infested areas and not the other way around • Inspections and periodic audits will be conducted to identify and report weed outbreaks • New activities will be planned to address prevention of weed or non-indigenous plant spread • Weeds will be actively controlled in cleared/ hardstand areas • Ensuring all fill material imported to or between sites is free of weeds (e.g. crusher dust) • Drive on existing authorised tracks only
Bushfires from hot works	*Bushfire Prevention* • Fire extinguishers to be fitted to all vehicles • No unauthorised burning of waste onsite • Only diesel vehicles to be used • Appropriate firefighting equipment available and serviced • Staff trained in the emergency response procedures • Availability of water to assist in fire control • Designated smoking areas with appropriate waste receptacles • No open flames or fires outside of designated areas • Ensure vegetation stockpiles are stored away from ignition sources and in low profile mounds
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All risks associated with the Works have been successfully reduced to ALARP with CP's existing control measures, as seen in Table 1-2 which provides an overview of the residual risks associated with the Works at PVGF. The residual risk has been accepted by CP.

Table 1-2 Residual Risks for the Works at PVGF

	Residual Risk			
	Low	Moderate	High	Critical
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The identified stakeholders for this operation are the Ntaria Aboriginal Land Trust, Central Land Council and Department of Primary Industry and Resources (DPIR).

CP will follow the current and ongoing consultation process as outlined in the PVGF FEMP Section 12. A record of which is shown in Appendix 2 of this EMP.

Key contact details for the project are:

Company Name	Central Petroleum Limited
ACN/ABN	ABN: 95 009 718 183
Street Address	Level 7/369 Ann Street
Postal Address	PO Box 292 Brisbane, Qld 4000
Telephone	+61 (0)7 3181 3800
Facsimile	+61 (0)7 3181 3855
Key Contact	Ben Visser
Email	info@centralpetroleum.com.au
Website	www.centralpetroleum.com.au

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3 INTRODUCTION

3.1 Project Outline

Central Petroleum Limited (CP), as owner and operator of Operating License 3 (OL3), proposes to connect the newly drilled Palm Valley 13 (PV-13) well to the Palm Valley Gas Field (PVGF) and install a new produced water re-injection system adjacent to Palm Valley 02 (PV-02) to allow for reinjection at PV-04. This document is the Environmental Management Plan (EMP) for the connection and reinjection system upgrade works.

3.2 Proponent

Central Petroleum is an Australian Securities Exchange (ASX) listed exploration and production company, registered on the 7th March 2006 under the Corporations Act 2001. Central Petroleum operates the largest holding of prospective onshore acreage in Australia totalling over 229,000km^2, predominantly in the Northern Territory, with smaller holdings in Western Australia, South Australia and Queensland.

Table 3-1. Central Petroleum company details

Company Name	Central Petroleum Limited
ACN/ABN	ABN: 95 009 718 183
Street Address	Level 7/369 Ann Street
Postal Address	PO Box 292 Brisbane, Qld 4000
Telephone	+61 (0)7 3181 3800
Facsimile	+61 (0)7 3181 3855
Key Contact	Ben Visser
Email	info@centralpetroleum.com.au
Website	www.centralpetroleum.com.au

3.3 Purpose

The purpose of this EMP is to:

- Provide information to the NT Department of Primary Industry and Resources (DPIR) - Energy Directorate as required under Section 45 (1) (f) of the *Petroleum Act*;
- Provide additional information as outlined in the NT Petroleum (Environment) Regulations 2016;
- Provide information to the Northern Territory Environment Protection Authority (NT EPA) to make an assessment under the *Environmental Assessment Act*, if required;
- Communicate environmental aspects, risks, management measures and responsibilities to CP personnel and contractors.

3.4 Structure

This EMP has been developed to meet the requirements of an Environmental Management Plan, as per Schedule 1 of the NT Petroleum (Environment) Regulations 2016.

Table 3-2 NT Petroleum (Environment) Regulations requirements and the corresponding section in this EMP

Regulation Requirements		EMP
Schedule 1		
Part 1		
1. Description of Activity	a. Location	Section 6.1
	b. General layout	Section 6.2.1 and 6.2.2
	c. Outline of proposed activities	Section 6.2.1 and 6.2.2
	d. Hydraulic fracturing	Not applicable
2. Description of the Existing Environment	a. Description of existing environment that may be affected by activities	Section 7
	b. Details of any potential values or sensitivities	Section 7
	c. Identification of knowledge gaps/ uncertainty in relation to the existing environment	Section 7
3. Assessment of Environmental Impacts and Risks		Section 8
1. A plan must include:	a. Details of environmental risk and impacts	Section 8
	b. Description of methodologies used to determine the risk assessment	Section 8
2. The assessment in subclause (1) must be of:	a. Aspects of activities and emergencies	Section 8
	b. Cumulative effects	Section 8
4. Environmental Outcomes and Performance Standards	a. Environmental outcomes in relation to the regulated activity	Section 9
	b. Performance standards against which performance against achieving outcomes can be measured	Section 9
	c. Measurement criteria to ensure outcomes and standards are met	Section 9
Part 2 Implementation		
5. Requirements for the implementation strategy		Section 10
6. Details of systems, monitoring, tests etc.		Section 10
1. An implementation strategy must provide:	a. Ongoing monitoring and review	Section 10
	b. Monitoring, audit and review of non-conformance and environmental penalties	Section 10

Regulation Requirements		EMP
2. The implementation strategy must give details of:	a. Specific systems, practices and procedures to ensure outcomes and performance standards are met	Section 10
	b. i) Monitoring of environmental impacts	Section 10
	ii) Monitoring of emissions and discharges	Section 10
	iii) Carrying out and recording of the monitoring in an accurate, auditable way.	Section 10
	iv) Test of equipment to carry out monitoring and interval of testing	Section 10
7. Personnel	a. Clear chain of command including during emergencies	Section 10
	b. Roles and responsibilities of personnel in relation to implementation, management and review of the FEMP.	Section 10
	c. Each employee/contractor is aware of their responsibilities to the FEMP and has appropriate competences and training	Section 10
8. Emergency Contingency Plan	a. Specifies arrangements for emergency	Section 10
	b. Provision for implementation of plan	Section 10
Part 3 Other Matters		
9. Stakeholders		Section 11
1. Engagement	a. List of stakeholders	Section 11
	b. Copy of information provided from stakeholder engagement	Appendix 2
	c. Summary of any matters discussed	Appendix 2
	d. Assessment of merit of an objection or claim	NA
	e. Statement of intent holder's response	NA
	f. Record of communication	Appendix 2
	g. Details of changes due to engagement	Appendix 2
2. Future engagement plans		Section 11
10. Legislative Requirements	a. Specify any legislative requirements	Section 5
	b. Outline how these will be met	Section 5
11. Recording, Monitoring and Reporting		Section 10
1. A plan must specify	a. Arrangements for recording monitoring and reporting the details of information about the regulated activity so that the Minister	Section 10

Regulation Requirements		EMP
arrangements for:	can see the environmental outcomes and performance standards are being met	
	b. Interval of reporting (at least annually)	Section 10
2. All reports plus any other law in force in the NT need to be recorded		Section 10

3.5 Scope

This EMP covers the environmental hazards and management measures relevant to activities relating to the field development activities conducted by CP personnel and contractors hired by CP to work on site. This EMP has been designed to work under the existing PVGF FEMP to cover additional environmental impacts that may be posed by the construction activities. Where any aspect of the works has been covered, the PVGF FEMP will be referenced.

This EMP specifically covers the field development activities associated with connecting the recently drilled PV-13 well to the existing PVGF gathering system and installing a new reinjection system at the PV-02 site to allow for reinjection of produced water at PV-04.

The main activities associated with these two projects are as follows:

- PV-13 Connection
  - Installation of approximately 800m of steel DN150 schedule 40 API 5LX42 flowline above ground from PV-13 to PV-07
  - Installation of the pig launcher and receiver
  - Refurbishment and relocation of the surface skid from PV-09 to PV-13
  - Installation of 2 x 30kL HDPE tanks for produced water storage
  - Construction of a plastic lined earthen bund to house tanks

- PV-02 Reinjection System Upgrade
  - Installation of 4 x 30kL HDPE tanks for produced water storage
  - Tie-in PV-02 wellhead to storage tanks to allow direct transfer of produced water
  - Tanker loading facilities for transfer of produced water from all other wellheads (produced water collected locally and transported to the storage facility via water tanker)
  - Installation of dosing skid for storage of self-bunded chemicals used in filtration
  - Installation of produced water filtration system including flowmeters and chemical dosing pumps
  - Installation of new reinjection high and low pressure pumps
  - Connect storage tanks to PV-04 using existing flowlines

- Temporary Construction Camp
  - Construction and operations of a temporary camp to accommodate up to a maximum of 42 people.

- Temporary camp to be placed adjacent to the existing Palm Valley camp in previously disturbed area (no clearing required)
- Temporary camp to be tied into the existing camp facilities including sewerage and potable water

These activities shall herein be referred to as the Works.

This EMP does not cover operation or decommissioning of the PV-13 well, flowlines, bunds or PV-02 reinjection infrastructure as aspects are covered in the PVGF FEMP. Upon completion of the Works, the PVGF FEMP will cover the environmental aspects of the operations of the installed infrastructure.

3.6 Objectives

Central Petroleum has a strong commitment to the development of, and adherence to, environmental work practices. This EMP has been developed in accordance with CP's Health, Safety and Environment Management System as referred to in Section 9.1 of the PVGF FEMP.

4 CORPORATE ENVIRONMENT POLICY

4.1 Central's Commitment to the Environment

Central Petroleum has a high standard of environmental responsibility implemented through operational quality and integrity measures above and beyond industry standards. The Environmental Policy endorsed by the Board is shown in Figure 4-1 and the corporate Health, Safety and Environment (HS&E) policy is provided in Figure 4-2.

Central Petroleum

Central Petroleum Limited

CENTRAL PETROLEUM LTD
ENVIRONMENTAL PROTECTION POLICY

Central Petroleum Limited considers protection of the natural and social environment to be of the highest priority in all its activities, both domestic and international, and conducting its operations in an environmentally responsible manner.

It is Central Petroleum's policy to:

- Comply, at a minimum, with applicable laws, regulations, standards, codes and guidelines for the protection of the environment and cultural heritage, and in their absence, adopt the best practicable means to prevent or minimise adverse environmental and cultural heritage impacts;
- Cooperate with governments and industry in the formulation of rational and practical environmental and cultural heritage guidelines and legislation;
- Continuously develop the company's environmental management system and cultural heritage management plans to identify, control and monitor risks and compliance with government regulations and industry guidelines, utilising the most appropriate technology available;
- Commit all levels of management to accept responsibility for environmental and cultural heritage management in all Central Petroleum activities;
- Promote environmental and cultural heritage awareness in all Central Petroleum employees and contractors through induction and training programs;
- Maintain cooperative and positive relationships with indigenous people with custodial responsibility for the land where Central Petroleum operates to minimise the impact of those operations on the cultural heritage of the indigenous people, and cooperate with other legitimate land users so that, where appropriate, multiple land use is possible;
- Conduct all Company operations in such a way as to minimise disturbance to the environment, protect native flora and fauna, avoid the pollution of land, water and air, and avoid disturbance of known sites of archaeological, cultural heritage, historical, natural or scientific significance; and
- Maintain an active rehabilitation program that will restore operational areas to a condition which is compatible with the prior land use.

Richard Cottee
Managing Director
1st March 2017

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Figure 4-1. Central's environmental protection policy

Central Petroleum Limited

CENTRAL PETROLEUM LTD
HSSE POLICY

Central Petroleum Limited believes that effective management of Health, Safety, Security and Environmental (HSSE) issues is essential for success in its business, by:

- Providing leadership and commitment to HSE issues and communicating our expectations to employees, contractors and other stakeholders;
- Providing clear direction and monitoring of a zero drug and alcohol tolerance to all contractors and employees whilst involved in drilling, seismic or production activities (Operations) on site or when binding decisions relevant to Operations are required to be made;
- Zero tolerance to smoking in any workplace, except designated areas;
- Complying with national, state and local legislation;
- Providing a safe working environment for all employees, contractors and third party personnel;
- Minimising the impact of our activities on the environment;
- Selecting and managing contractors to ensure their HSE performance meets our and statutory requirements;
- Carrying out risk assessments and taking effective measures to reduce risks to as low as reasonably practicable on all our operations;
- Providing sufficient training, resources, equipment and personnel to achieve our HSE objectives;
- Maintaining appropriate HSE documentation;
- Monitoring HSE performance-investigating and reporting all incidents and accidents regularly to the Board of Directors as well as relevant authorities;
- Striving for continuous improvement;
- Ensuring effective emergency response procedures are in place;
- Supporting wherever possible the advancement of local communities in areas where we operate; and
- Conducting audits and reviews to assess compliance with this policy.
- Implementing and using management systems for integrity management of plant, pipelines and equipment.

It is the responsibility of all employees and contractors to comply with this policy and to assist Central Petroleum Limited in its implementation.

Richard Cottee
Managing Director
1st March 2017

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Figure 4-2. Central's corporate HSSE policy

5 ENVIRONMENTAL LEGISLATION AND OTHER REQUIREMENTS

Central Petroleum understands the Legislation required to undertake the Works and will manage these obligations during the construction period using the controls identified in Section 9 of this EMP. The key pieces of relevant legislation relevant to the Works are shown in Table 5-1.

Table 5-1 Environmental Legislation and Other Requirements

Description	Legislation / Title
Commonwealth	*Aboriginal Land Rights (Northern Territory) Act 1976*
	Native Title Act 1993
	Aboriginal and Torres Strait Islander Heritage Protection Act 1984
	National Environmental Protection Council Act 1994
	National Greenhouse and Energy Reporting Act 2007
	Australian Heritage Council Act 2003
	Environmental Protection and Biodiversity Conservation Act 1999
Northern Territory	*Aboriginal Land Act 2013*
	Work Health and Safety (National Uniform Legislation) Act 2016
	Public and Environmental Health Regulations 2018
	Plant Health Act 2015
	Petroleum (Prospecting and Mining) Regulations 2001
	Biological Control Act 2018
	Northern Territory Aboriginal Sacred Sites Act 2013
	Bushfires Management Act 2016
	Control of Roads Act 2018
	Dangerous Goods Act 2012
	Energy Pipelines Act 2015
	Environmental Assessment Act 2013
	Environmental Offences and Penalties Act 2011
	Fire and Emergency Act 2016
	Heritage Act 2016
	Petroleum (Environmental) Regulations 2016
	Petroleum Act 2016
	Public and Environmental Health Act 2016
	Public and Environmental Health Regulations 2018
	Schedule of Onshore Petroleum Exploration and Production Requirements 2016 (under the *Petroleum Act 2016*)
	Soil Conservation and Land Utilisation Act 2016
	Parks and Wildlife Commission Act 2013
	Territory Parks and Wildlife Act 2014
	Waste Management and Pollution Control Act 2016
	Water Act 2016
	Weeds Management Act 2013
Operating Consents	OL3
Other Regulatory Instruments	Australian Petroleum Production and Exploration Association (APPEA) Code of Environmental Practice, October 2008
	Schedule of Onshore Petroleum Exploration and Production Requirements 2017
	AS2885: Pipelines – Liquid Petroleum and Gas

	American Society of Mechanical Engineers B31.3 Process Piping Code (ASME B31.3)
	Australian Pipeline Industry Association (APIA) Code of Environmental Practice – Onshore Pipelines, October 2013
	National Environment Protection (Assessment of Contaminated Sites) Measure 1999
	National Environment Protection (Movement of Controlled Wastes between States and Territories) Measure 1998
	National Environment Protection (National Pollution Inventory) Measure 1998
	AAPA Land Access Agreements Approval and Certificates
Other References (Non-regulatory)	ICEA Best Practice Erosion and Sediment Control Guidelines
	Risk Assessment Standards AS/NZS ISO 31000:2009 and HB 203:2006
	Central Petroleum MSTD09-01 v1 – Hazard Identification, Risk Management and Control
	Central Petroleum Central Petroleum Environmental Protection Policy 2016

5.1 Environmental Assessment Act

Under the *Environmental Assessment Act*, proposed projects that may have a significant effect on the environment are to be referred to the NT EPA for assessment. Central Petroleum has conducted a self-assessment using the NT EPA Guideline *Referring a Proposal to the NT EPA* (2018). The assessment is based on consideration of the potential impacts of the activities on environmental factors and objectives as outlined in the guideline.

The evaluation in Table 5-2 shows that the Works do not pose any significant impacts or risks to the environment. The Works are being carried out on previously disturbed area designated for petroleum activities and all the risks have been highlighted within this EMP and are to be managed to ALARP. Central Petroleum has determined that the activities for the proposed Works covered by this EMP do not trigger referral to the NT EPA

Table 5-2 Environmental Factors and Objective Assessment

Aspects	Environmental Factor	Objectives	Impacts and Mitigation Measures
LAND	*Terrestrial Flora and Fauna*	No significant impact to conservation of significant fauna No significant impact to conservation of significant fauna habitat No significant impact to conservation of significant flora	The operational activities under this EMP are unlikely to result in significant impacts to terrestrial flora and fauna given the existing operational footprint will not be increased, petroleum activities are a previously approved land use and management measures are in place. Residual risks to flora and fauna have been assessed as low. The Works are unlikely to impact any area or species of flora of conservation significance as no species have been recorded in the area and the works do not involve clearing of vegetation. There are no listed threatened ecological communities within the PVGF area. The PVGF is located within the Greater MacDonnell Ranges Site of Conservation Significance and Finke Gorge National Park. Potential impacts to the Site of Conservation Significance or National Park are considered to be unlikely as the Works will be conducted on an existing footprint and management measures are in place. The PVGF is located within the Palm Valley Site of Botanical Significance Potential impacts to the Palm Valley Site of Botanical Significance is considered unlikely as the Works will be conducted on an existing footprint and management measures are in place. Weeds are actively managed within the operational areas. Biosecurity risks are considered low with management measures in place.
	Terrestrial Environmental Quality	No significant impact to terrestrial environmental quality	Impacts to terrestrial environmental quality are considered minimal given activities conducted under this EMP are to take place within the existing footprint.
	Landforms	No erosion and sedimentation	The Works will not require land disturbance beyond the existing footprint. Erosion potential for soils in the PVGF area are low to moderate. Risks to soils and landform have been classified as low with management measures in place.

Aspects	Environmental Factor	Objectives	Impacts and Mitigation Measures
WATER	*Hydrological processes (Groundwater and Surface water)*	No degradation to surface water quality or drainage No detrimental impact to groundwater dependant ecosystems	The Works are unlikely to impact on ground or surface water hydraulic processes as works are to be conducted within the existing footprint. Activities are to avoid waterways and manage any erosion and sedimentation issues that may arise, noting that generally the area has a low to medium erosion potential.
	Inland Water Environmental Quality	No degradation to water quality	
	Aquatic ecosystems	No degradation to aquatic ecosystems	
AIR	*Air Quality and Greenhouse Gases*	No deterioration to air quality due to construction activities Minimisation of greenhouse gases emissions	The risks to air quality from the Works are considered low given the isolated location of the field away from sensitive receptors and the management measures in place. Greenhouse gas emissions are considered to be low risk with management measures in place such as routine maintenance of plant and equipment.
PEOPLE AND COMMUNITIES	*Social, Economic and Cultural Surroundings*	No unauthorised disturbance to identified cultural and heritage significant sites and/or objects No nuisance complaints from sensitive receptors	There are no publicly listed heritage sites within the PVGF area. The area has been previously surveyed and does not contain any significant archaeological materials. Central Petroleum has a current CLC Sacred Site Clearance Certificate for the drilling of PV-13 (C2018-091) and CLC sacred sites clearance certificate for the operational areas of OL3 (C2015-035). No additional site clearance is required as all activities under this EMP will be conducted within the existing footprint. Nuisance risks to people and communities are considered low. Nuisance impacts from the Works are unlikely given its location away from populated areas and management measures in place. Impact to human health is considered low given the existing control measures deployed in the PV FEMP
	Human Health	No impact to human health	

6 DESCRIPTION OF ACTIVITY

6.1 Location

The Works are located at PV-02 and PV-13, which are within the PVGF OL3 consent area. OL3 is in the Amadeus Basin, approximately 130km west of Alice Springs in the Northern Territory (NT) (Figure 6-1). Further information on the PVGF area is provided in the PVGF FEMP, Section 1.

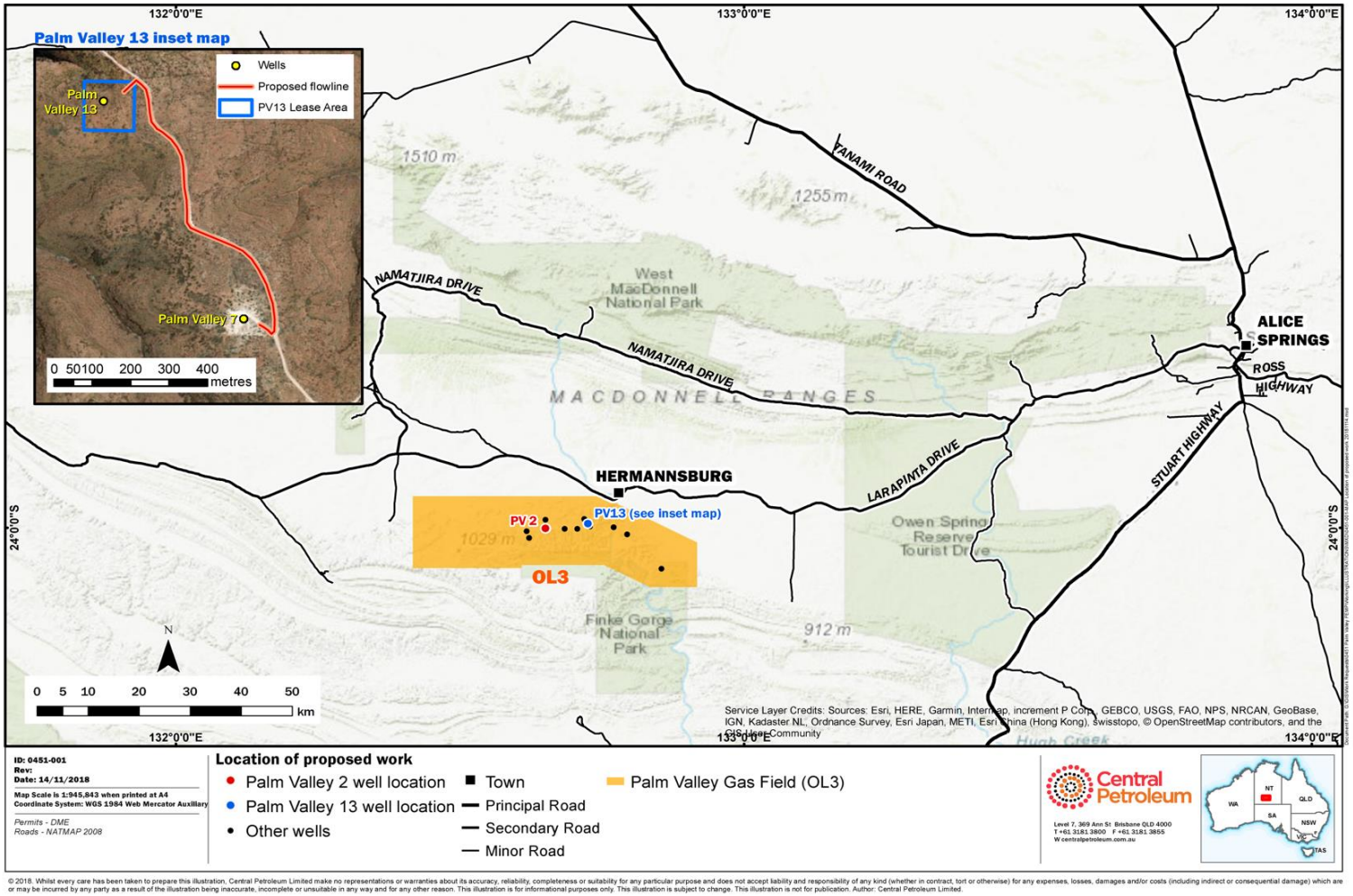


Figure 6-1 Location of the Works at PV-02 and PV-13 within the OL3 Consent area

6.2 Proposed Activities

6.2.1 PV-13 Connection

PV-13 has been drilled as sub horizontal production well through the Lower Stairway Sandstone Reservoir. As gas flow rates to the surface are satisfactory, the connection works will allow for completion as a production well. A summary of the activities is provided in Table 6-1

6.2.1.1 PV-13 Connection Design Parameters

The selection of the PV-13 flowline route as indicated in Figure 6-4 parallels the central petroleum access track to reduce environmental impacts and requires no additional clearing. The pipeline design parameters complies with AS2885-2012 and validated through a HAZOP to ensure flowline integrity during operations. The flowline will be protected by an external coating and cathodic protection to reduce integrity issues from corrosion. The flowline route crosses a track, for protection of the flowline the minimum cover will be 1400mm or 150mm with mesh concrete slap protection. The flowline supports design have considered operational loads, wind loads, earthquake loads and the geotechnical conditions.

The surface facilities for PV-13 will be installed on the existing 150 x 150 m lease. The PV-09 above ground facilities are being repurposed for use at PV-13. These include a separation skid and associated instrumentation. New equipment to be installed are instrument controls, solar panels and batteries and interface into the existing SCADA system for communications.

Produced water production at site is estimated to be max 12 m3/day and the produced water storage and management has been designed to accommodate this production. The produced water management designs have considered the risks and mitigations highlighted in the PVGF FEMP. The installation includes a tank farm with two HDPE tanks to store approximately 50.6kL of produced water, equivalent to approximately 4 days of produced water from PV-13 well. The tank farm is to be located on a plastic lined earthen bund designed to hold 120% of a single tank volume.

6.2.1.2 Construction Activities

Table 6-1 provides a summary of the construction activities required to connect PV-13 to the PVGF.

Table 6-1 Works Summary for the PV-13 Connection

Well Name and Number:	Palm Valley-13 (PV-13)	
Designation:	Petroleum Well	
Permit:	OL 3 (Northern Territory)	
Basin:	Amadeus Basin	
Location: (MGA94, Zone 52)	Latitude	23° 59' 50.94" S (GDA94)*
	Longitude	132° 43' 45.27" E (GDA94)*
	Easting	268.993.45 m E (MGA94, Zone 52)*

	Northing	7,344,189.73 m N (MGA94, Zone 52)*
	Map of location in Figure 6-3	
Well Pad area:	Construction pad area 120m x 120m for these works and well servicing.	
Timing and duration	Construction Start: January 2019 (Upon receiving EMP approval) Construction end: June 2019	
Engineering Contractor:	OSD Pty Ltd	
Construction Contractor	Currently under tender	
Work Activities :	• Installing above ground steel pipeline to connect the new PV-13 flowline into the existing PV-7 flowline. Figure 6-2 provides a visual of a typical flowline at PVFG and Figure 6-4 provides the flowline alignment from PV13 to PV-07. • Approximately 800m in length of DN150 schedule 40 API 5LX42 pipe. • Flowline will be designed to AS 2885 with a minimum design pressure (MOAP) of 6000 kPag. • The flowline will be installed above ground on the existing road verge except for one section where it will be buried to cross the road via trenching. • Pig launcher and receiver installed. • Installation of 2 x 30kL HDPE tanks for produced water storage • Construction of a plastic lined earthen bund to house tanks • Move surface skid facilities from PV-09 to PV-13 (some upgrade and work will be required on the PV-09 equipment which will be conducted offsite in Brisbane) • All works and laydown areas required will be utilised within existing PVGF facilities and designated areas • No vegetation clearing will be required as the works will be contained within the existing PV-13 drill pad and on existing roads.	
Access	No additional roads or tracks are required	
Camp	Existing and temporary camp facility will accommodate staff and contractors	
Staging area	The required steel DN150 flow line will be shipped to site and stored within the cleared PV-13 drill site area.	
Water use	• Water will be needed for dust suppression and construction • Water is also required for hydro testing. Post hydro test the water will be transferred to the PV-09 evaporation pond Water to be used for the hydro testing will be potable water only (sourced from Alice Springs from a licenced supplier) with no added additives. The calculated volume of water to be used for the hydro	

	testing is approximately 15 kl and current PV-04 pond freeboard capacity is 1500 kl. Before commencing with the hydro test, CP will ensure the freeboard capacity for PV-09 pond will not exceeded after release of water.
Waste water disposal	Waste water as defined in Section 6.4.9 of the PVGF FEMP is unlikely to be generated during the activities. However, if there is any production of waste water it will be managed according to the approved PV FEMP
Sewage water disposal	All sewerage water produced at the camp will be treated by an onsite treatment plant for disposal or removed by a licenced contractor to a licenced facility and in accordance with the PVGF FEMP Section 8.2.4.
Waste management	Waste will be managed according to Section 8.2.4 of the PVGF FEMP
Produced water storage	Predicted water production from PV-13 is 12 m3/day, the lined bunded area and tanks have been sized accordingly. The water quality is typical of the PVGF and it will be treated as outlined in the PVFEMP section 6.4.11
Storage of hazardous fluids chemicals	Diesel will be used to fuel plant and equipment and will be stored at existing storage facilities and refuelling areas on site.
Chemicals used	Diesel
Closure and rehabilitation	Closure and rehabilitation is not addressed as part of this EMP. Final rehabilitation and closure will occur upon cessation of operations as per the PVGF FEMP Section 8.2.6.

Table 6-2. PV-13 civil construction crew and equipment (estimate)

Task	Proposed Contractor	Crew List	Equipment and Machinery
Civil Construction	QPS Construction	1 x CP Supervisor 1 x Project Manager/Project Engineer (Contractor) 30 x Skilled Labour (max) 3 x equipment operators	• Excavators • Graders • Bobcat • Water Carts • Haulage truck • Light 4wd vehicles • Mobile welding units • Loaders • Flatbed truck

Figure 6-2 Example of a completed flowline and associated pipe stands at the PVGF

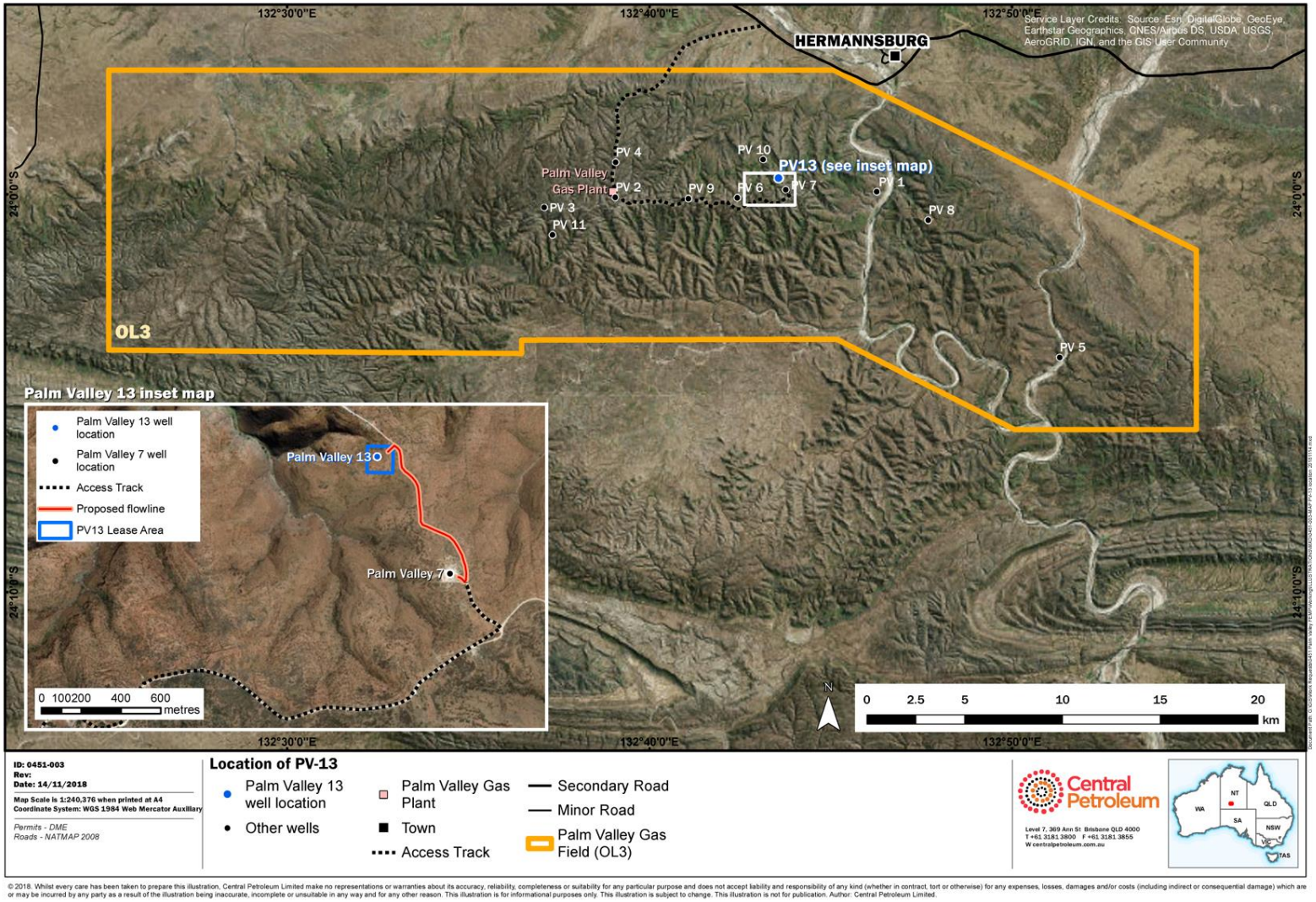


Figure 6-3 Location of PV-13 in relation to existing wells in the PVGF area and the Works location

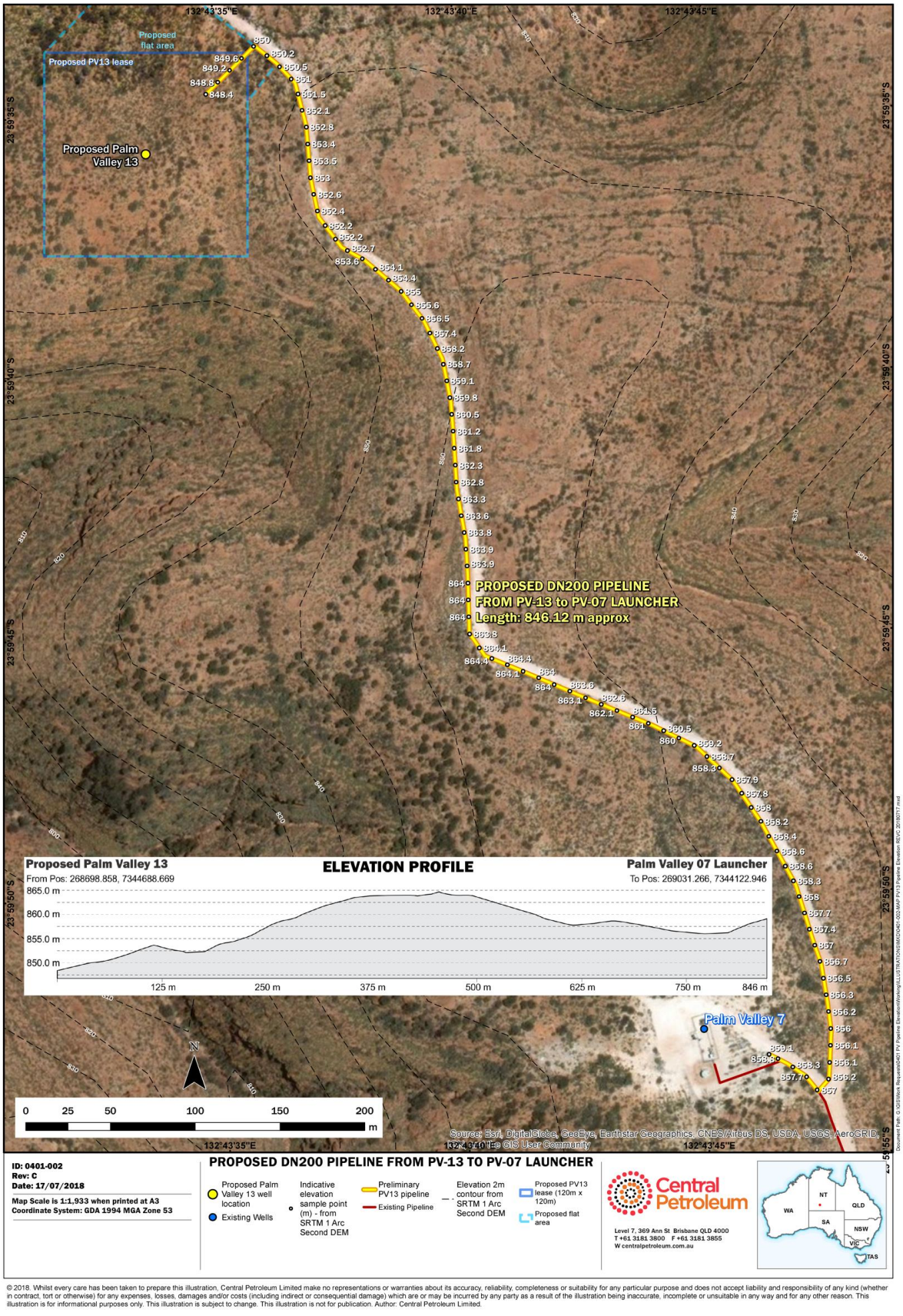


Figure 6-4. PV-13 Flowline route

6.2.2 PV-02 Reinjection System Upgrade

The proposed reinjection system upgrade involves installing new produced water storage tanks, water treatment facilities and reinjection equipment adjacent to the PV-02 wellsite to allow for reinjection of produced water at PV-04. The reinjection activities will be undertaken in accordance with the approved PVFEMP section 6.4.11.1

Figure 6-3 shows the location of PV-02 and PV-04 within the PVGF and Figure 6-5 and Figure 6-6 shows the layout of the new infrastructure to be installed.

6.2.2.1 PV-02 Reinjection System Design Parameters

The reinjection system upgrade has been initiated to replace the existing redundant injection skid located at PV-04.

The new reinjection system includes a tank farm with four HDPE tanks to store approximately 100kL of produced water, equivalent to approximately 1.5 days of produced water collected from all PVGF wellheads. The tank farm is to be located on a plastic lined earthen bund designed to hold 120% of a single tank volume.

Prior to reinjection, produced water is treated with biocide, scale inhibitor and periodic tracer chemicals. These chemicals are to be self bunded and stored at the facility. Storage is considered to be minor storage under the applicable Australian Standards. Storage of biocide and scale inhibitor is to be separated by greater than 10m.

Central Petroleum propose to reuse an existing flowline between PV-04 and the reinjection system at PV-02 to transport the produced water.

Operation of the reinjection system is manual and no remote monitoring is available. The high and low voltage pumps are fitted with automatic shutdown for dry runs and shut in protection and motors have a thermal overload limit.

The system will rely on daily maintenance checks of tank levels, flow rate readings, pump and reinjection operating pressures, filter differential pressures and inspections to ensure operation to the required specifications.

6.2.2.2 Construction Activities

Table 6-3 provides a summary of the construction activities required to install the new reinjection system at PV-02.

Table 6-3. Works Summary for Reinjection System Upgrade at PV-02

Well Name and Number:	Palm Valley-02 (PV-02)	
Designation:	Petroleum Well	
Permit:	OL 3 (Northern Territory)	
Basin:	Amadeus Basin	
Location: (MGA94)	Latitude Longitude	24° 0' 3.952" S(GDA94)* 132° 39' 3.485" E (GDA94)

	Easting Northing	261034.360 (MGA94,Zone 5) 7343658.643 (MGA94,Zone 5)
	Map of location provided in Figure 6-5	
Well Pad area:	Located within the Palm Valley Gas Plant, 14207m^2 cleared	
Indicative timelines and milestones:	Construction Start: Construction end:	January 2019 (Upon receiving EMP approval) June 2019
Engineering Contractor	AGM Engineering Solutions	
Construction Contractor	Aspum Civils	
Work Activities:	• Installation of 4 x 30kL HDPE tanks (effective capacity 25.3kL) for produced water storage • Tie-in PV-02 wellhead to storage tanks to allow direct transfer of produced water • Tanker loading facilities for transfer of produced water from all other wellheads (produced water collected locally and transported to the storage facility via water tanker) • Flushing connection at storage tank facility for flushing of lines following shutdown / maintenance • Installation of produced water filtration system (filtration to 1 micron) including flowmeters and solar/battery operated chemical dosing pumps • Installation of dosing skid for storage of self-bunded 1kL bulk chemicals (biocide, scale inhibitor, tracer chemical e.g. lithium chloride) • Installation of new reinjection high pressure (1 x 7.5 kW 415V) and low pressure (2 x 1.1kW 240V) pumps • Power sourced from PV-02 well site • Connect storage tanks at PV-02 to PV-04 using existing flowline • No vegetation clearing required as facilities to be installed within the existing disturbance footprint	
Access	No additional roads or tracks are required	
Camp	Existing and temporary camp facilities will accommodate staff and contractors	
Staging area	Fill sourced from Alice Springs, tanks and associated construction materials stored on the PV-02 lease pad.	
Water use	Water will be needed for dust suppression and construction and will be sourced from the council in Alice Springs and trucked in by local registered water carters.	
Waste water disposal	Waste water as defined in Section 6.4.9 of the PVGF FEMP will not be generated during the activities.	

Sewage water disposal	All sewerage water produced at the camp will be treated by an onsite treatment plant for disposal or removed by a licenced contractor to a licenced facility and in accordance with the PVGF FEMP Section 8.2.4.
Waste management	Waste will be managed according to Section 8.2.4 of the PVGF FEMP.
Produced water storage	Produced water will not be generated as a direct result of the construction activities. The project does allow for the storage of approx. 100 kL produced water in tanks prior to reinjection. Tank bunding has been designed to accommodate for the failure of one tank only. Tank unloading facilities will be equipped with drip trays.
Storage of hazardous fluids chemicals	Storage of chemicals not required for construction. A self-bunded 1kL bulk chemical storage to be and located on the dosing skid. Storage is to be in accordance with the PVGF FEMP Section 8.8.2.
Chemicals used	Diesel fuel for plant and equipment used for construction.
Closure and rehabilitation	Closure and rehabilitation is not addressed as part of this EMP. Closure and rehabilitation of the infrastructure to be as per PVGF FEMP Section 8.2.6

Table 6-4. PV-02 civil construction crew and equipment (estimate)

Task	Proposed Contractor	Crew List	Equipment and Machinery
Civil Construction	Aspum Civils	1 x CP Supervisors 5 x plant operators 1 x truck drivers	• Excavators • backhoe • bobcats • rollers • water truck • gravel truck • Light 4wd vehicles

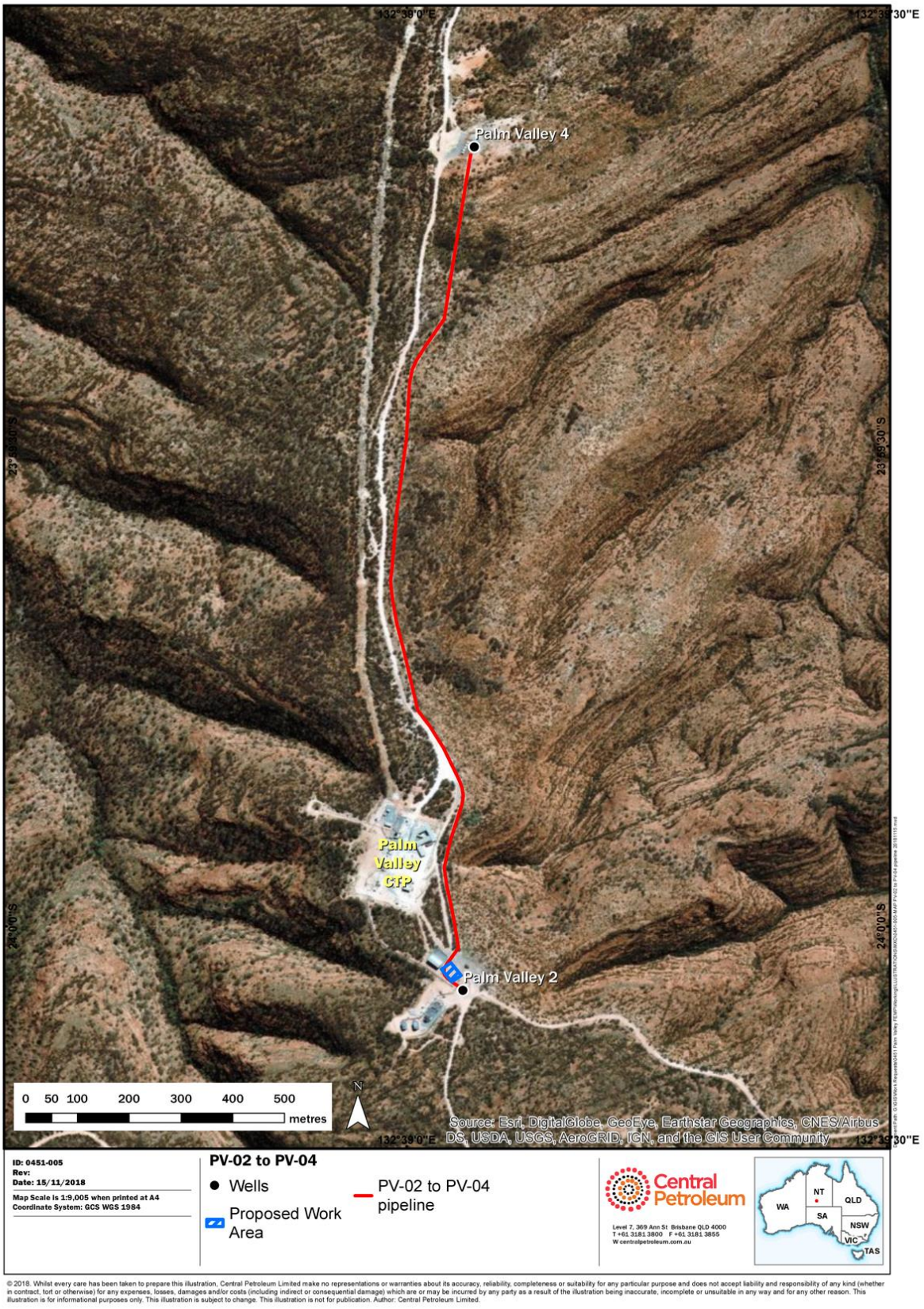


Figure 6-5 Location of the new reinjection system at PV-02 which will be connected to the existing pipeline from PV-02 to PV-04

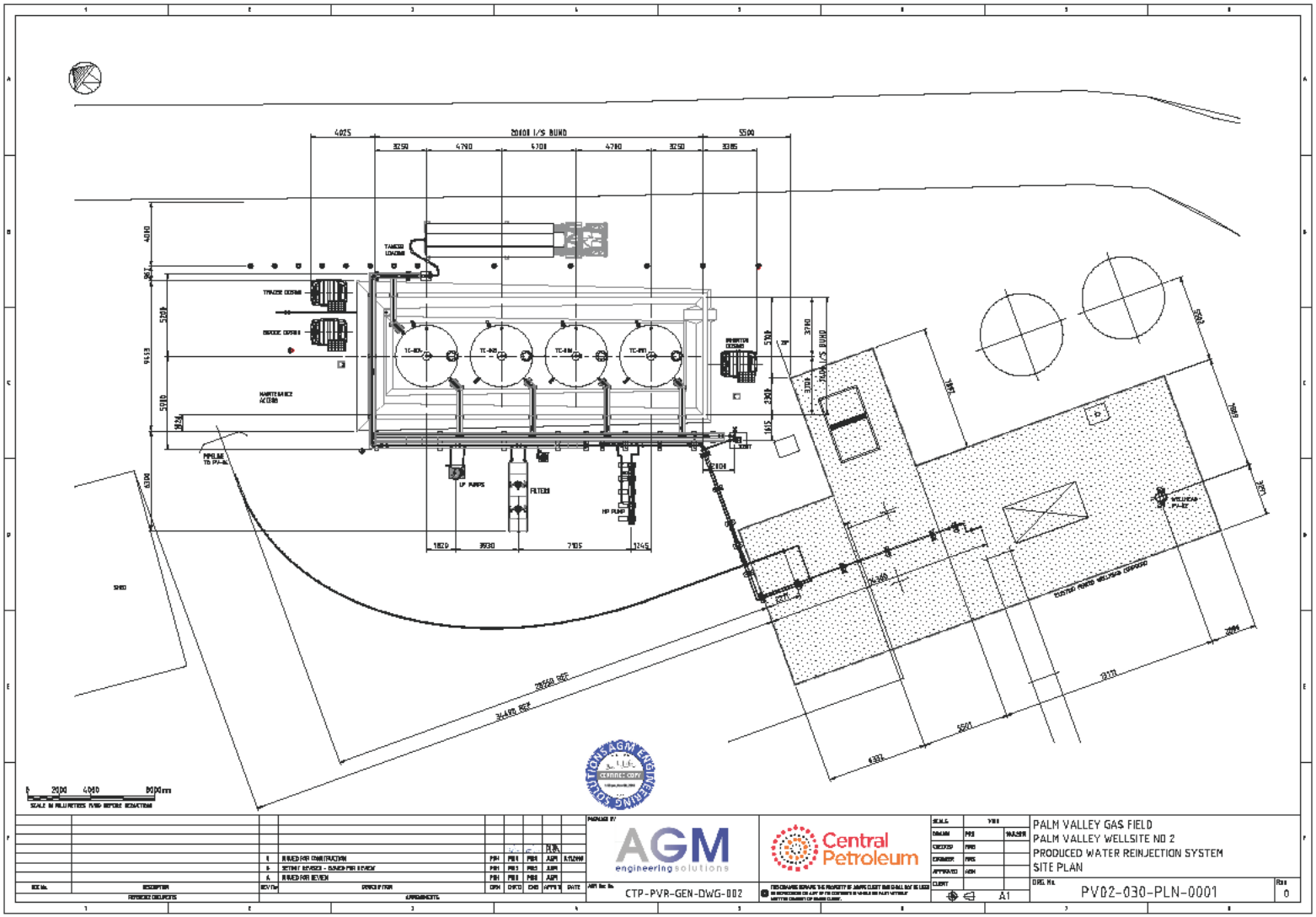


Figure 6-6 New reinjection system infrastructure adjacent to PV-02

6.2.3 Temporary camp

The temporary camp will be located adjacent to the existing camp in a cleared area with no additional clearing required (Figure 6-7). The camp will have the capacity to accommodate up to 42 people. The camp will be connected to the existing sewerage system from the main camp. Potable water required for accommodation/messing and construction activities will be managed in accordance to the PV FEMP Section 6.4.14.1. Figure 6.7 indicates proposed sites for the placement of the additional units.

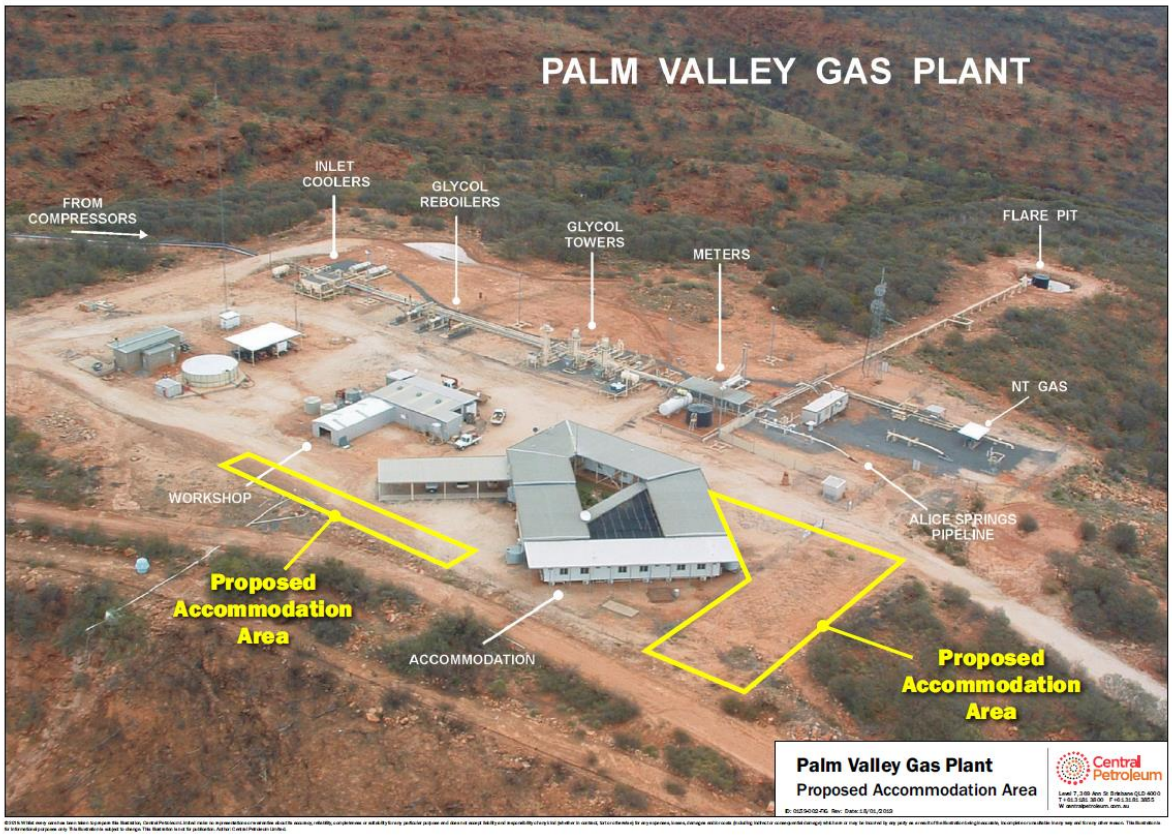
6.2.3.1 Sewage Water Disposal

All sewerage produced at the temporary camp will be treated by the onsite existing septic system. Due to the increase in volume as a result of the increase in accommodation it is expected that the systems will need to be de-sludged more frequently until the temporary camp is decommissioned after the completion of the construction activities.

6.2.3.2 Waste management

Waste generated from the camp will be managed in accordance to Section 6 of the PV FEMP.

Figure 6-7. Proposed camp area



7 DESCRIPTION OF THE ENVIRONMENT

This section references the physical, biological and social characteristics of the project environment as detailed in the PVGF FEMP Section 5. A flora and fauna study was conducted in 2018 by Low Ecological Services (Appendix 1) for the drilling of PV-13 and has been used to supplement the information provided in the PVGF FEMP. No site specific studies have been conducted for the reinjection system project area at PV-02 as there is no increase to the disturbance footprint. Studies of the existing environment conducted to date will inform environmental management measures as appropriate to the Works.

7.1 Physical Environment

Physical Environment	Description	PVGF FEMP Reference
Climate	Semi-arid	Section 5.1.1
Bioregion	MacDonnell Ranges Bioregion	Section 5.1.2
Sites of Conservation Significance	Greater MacDonnell Ranges and Palm Valley Site of Botanical Significance	Section 5.1.3
Finke Gorge National Park	National Park located adjacent to OL-3	Section 5.1.4
Land Systems	Krichauff land system	Section 5.1.5
Geology	Amadeus Basin geological region	Section5.1.6
Soils	BA28 – low to moderate erosion risk	Section 5.1.7
Surface Hydrology	Finke River Basin	Section 5.1.8
Hydrogeology	Shallow porous sandstone aquifer above impermeable Stairway and Pacoota formations	Section 5.1.9
Vegetation Communities	Mainly low open woodlands. No Threatened Ecological Communities identified within 20km of the Works area.	Section 5.1.10
Flora of Conservation Significance	No Flora of Conservation Significance considered likely to occur within the PVGF	Section 5.1.11, supplemented by Appendix 1 of this EMP
Introduced Flora and Weed Species	NT declared weed, Mexican Poppy identified	Section 5.1.12, supplemented by Appendix 1 of this EMP

	on site. No WoNS identified.	
Native Fauna	Several Fauna Species of Conservation Significance potentially occur within the PVGF – Slater's skink, Black-footed rock wallaby and four snail species	Section 5.1.13, supplemented by Appendix 1 of this EMP
Introduced Fauna and Pest species	Several pest fauna species identified as potentially occurring within the PVGF	Section 5.1.14 , supplemented by Appendix 1 of this EMP
Fire History	Generally low risk due to low fire fuel load	Section 5.1.15

7.2 Social Environment

Social Environment	Description	PVGF FEMP Reference
Surrounding Land Tenure	Finke Gorge National Park adjacent to PVGF	Section 5.2.1 supplemented by Figure 7-1 below
Surrounding Populated Places	Hermannsburg, 14km NE	Section 5.2.2
Cultural Heritage	No listed heritage sites	Section 5.2.3
Heritage Areas identified EPBC Protected Matters Search Report	No National Heritage Place within PVGF operational areas	Section 5.2.4
Archaeological Surveys	No additional surveys required as no disturbance beyond existing footprint	Section 5.2.5
CLC Sacred Sites Clearance Certificate	Central Petroleum has a current CLC Sacred Site Clearance Certificate for the drilling of PV-13 (C2018-091) and CLC sacred sites clearance certificate for the operational areas of OL3 (C2015-035).	Section 5.2.6

7.2.1 Ecological Sustainable Development

The impact of the proposed work has been assessed against the principles for Ecological sustainable development as described in section 4 of the Petroleum (Environmental) Regulations.

Due to the limited nature of activities included in scope of this EMP, it is not foreseen that the works will have any significant impact on the long-term or short-term economic, environmental or social aspects for the region.

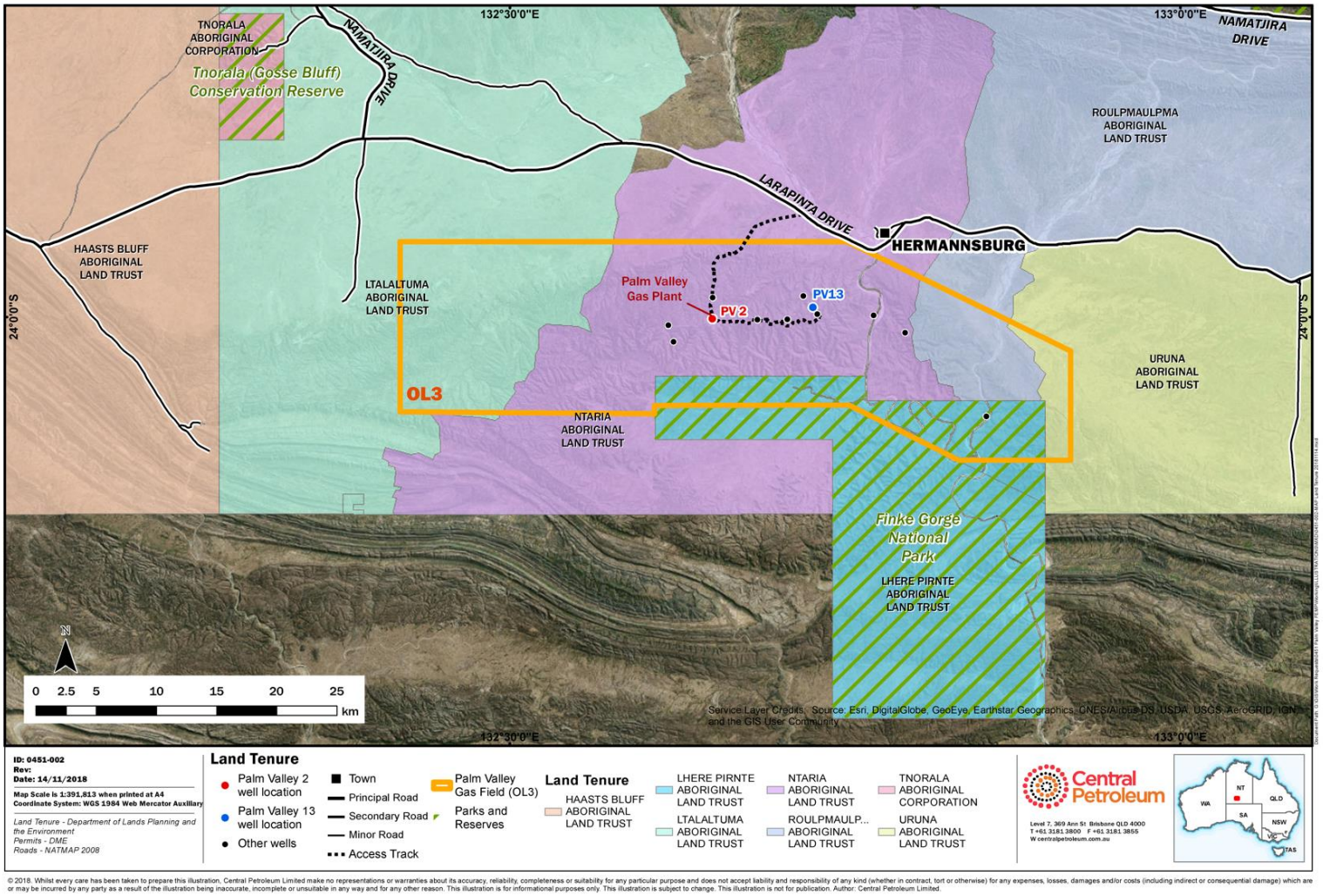


Figure 7-1 Land Tenure of the PVGF

8 ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

The environmental risk assessment (ERA) for the proposed Works has been conducted in accordance with CP's risk management approach, risk acceptance threshold, 'as low as reasonably practicable' (ALARP), and risk management methodology as detailed below.

The ERA scope covers all aspects of the Works as detailed in Section 3.4 and Section 6. The scope of the environmental impact and risk assessment covers all aspects of the activities associated with proposed Works and aligns with the risk assessment in the PVGF FEMP.

8.1 Central Petroleum's Risk Management Approach

Central Petroleum ensures that risks to its business are systematically managed. Risks associated with all aspects of company operations will be:

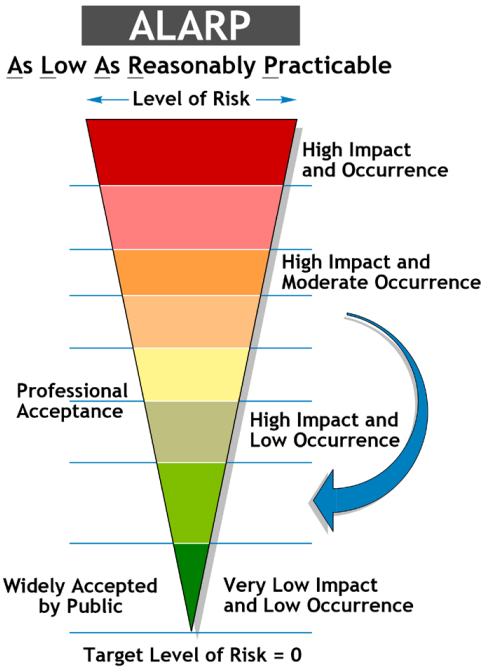
- Identified
- Analysed and evaluated
- Entered into a suitable Risk Register (as appropriate)
- Treated in a manner commensurate with the level of risk (formal risk management plans, detailed risk treatments, routine management)
- Communicated to key stakeholders
- Monitored and reviewed in a manner commensurate with the level of risk, and the retained consequences

Risk management processes are mandated through the CP management system, which includes a risk analysis process as outlined in Table 8-1. The CP risk analysis process complies in all material aspects of ISO 31000 and addresses risk identification, assessment and management.

Assessment of risk are completed using CP's Risk Matrix (Table 8-1) to assess and rate risks by assessing the combination of frequency of occurrence and the severity of the outcome of an event. This allows quantification of the risk and determination can then be made about whether the risk can be accepted, or whether further mitigation is required.

CP's risk management processes requires regular review of unmitigated risk from an activity, the residual risk once controls are applied and the likelihood and consequence of a risk event. The review includes the effectiveness of the risk controls/mitigation measures to meet CP's objective of ALARP. The CP Operations Manager is the owner of the risks associated with PVGF operational activities and is responsible for risk acceptance.

8.2 ALARP and Risk Acceptance



As part of CPs risk assessment process, each risk is mitigated to ALARP. A risk can be considered to have been reduced to ALARP when all reasonably practicable control measures have been identified and implemented to reduce the risk of identified hazards. As described in numerous ALARP guidance documents, ALARP is demonstrated when good practice is followed, where good practice is defined as the recognised risk management practices and measures that are used by competent organisations to manage well understood hazards arising from their activities. ALARP is not a final position over the life of an asset or project.

As part of CPs risk process, risk acceptance is completed following each ALARP assessment. CPs risk acceptance considers the impact of the hazard on the environment (nature and extent), the overall social or economic benefits of the operation, feasibility of new technologies, and effectiveness of the mitigation measures to achieve the outcomes and do the mitigation measures meet the expectations of the community

It is important to note when discussing ALARP and risk acceptance that practicability and the reasonability of control measures can change over time due to changes in technology, industry standards and community acceptance.

8.3 Cumulative Impacts

Cumulative impacts of the proposed Works area are low due to the lack of surrounding developments and industry.

8.4 Risk Assessment and Mitigation Measures

Table 8-1 Risk Assessment Matrix

Risk = Consequence X Likelihood

The fundamental rule is to define the consequence first, as different consequences have different likelihood.

Likelihood	Consequence				
	1 - Minor	2 - Medium	3 - Serious	4 - Major	5 - Catastrophic
A - Almost Certain	Moderate	High	Critical	Critical	Critical
B - Likely	Moderate	High	High	Critical	Critical
C - Possible	Low	Moderate	High	Critical	Critical
D - Unlikely	Low	Low	Moderate	High	Critical
E - Rare	Low	Low	Moderate	High	High

Note: All risks that have a Critical risk classification from a qualitative analysis (using the risk determination matrix) must be re-evaluated using a Level 3 quantitative analysis.

*Special attention needs to be paid to any risks assessed as having a very high consequence but very low likelihood (e.g. multiple fatalities, catastrophic chemical release causing severe public health affects or environmental harm). They should be treated as special cases and only referred for Level 3 assessment if event is deemed credible.

Maximum Reasonable Outcome (MRO)

The MRO is based on the maximum reasonable consequence and the likelihood of that consequence occurring.

The maximum reasonable consequence is the largest realistic or credible consequence from an event, considering the credible failure of controls.

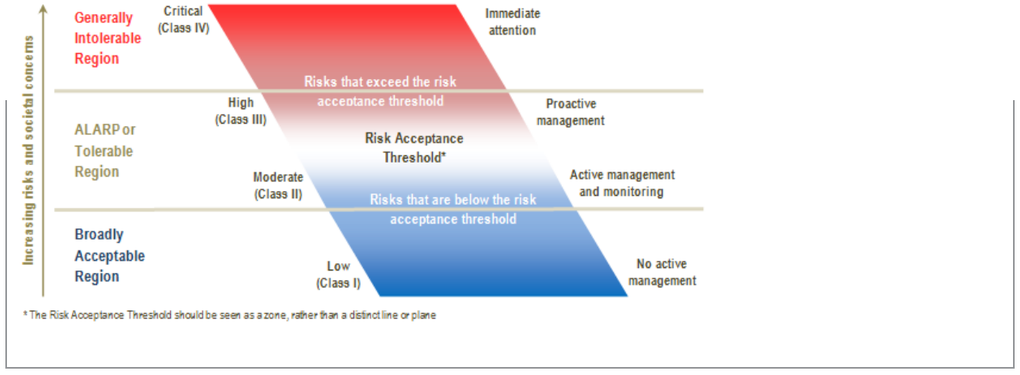
It is generally a higher consequence than the “most likely” consequence and less severe than the “worst case” consequence, which considers the failure of all controls.

Likelihood Descriptors

Likelihood	Likelihood description	Frequency	Substance Exposure
ALMOST CERTAIN	Recurring event during the life-time of an operation / project	Occurs more than twice per year	Frequent (daily) exposure at > 10 x OEL
LIKELY	Event that may occur frequently during the life-time of an operation / project	Typically occurs once or twice per year	Frequent (daily) exposure at > OEL
POSSIBLE	Event that may occur during the life-time of an operation / project	Typically occurs in 1-10 years	Frequent (daily) exposure at > 50% of OEL Infrequent exposure at > OEL
UNLIKELY	Event that is unlikely to occur during the life-time of an operation / project	Typically occurs in 10-100 years	Frequent (daily) exposure at > 10% of OEL Infrequent exposure at > 50% of OEL

Risk Acceptance Threshold

- Low (Class I): Risks that are below the risk acceptance threshold and do not require active management.
- Moderate (Class II): Risks that lie on the risk acceptance threshold and require active monitoring.
- High (Class III): Risks that exceed the risk acceptance threshold and require proactive management.
- Critical (Class IV): Risks that significantly exceed the risk acceptance threshold and need urgent and immediate attention.



Consequence	MINOR	MEDIUM	SERIOUS	MAJOR	CATASTROPHIC
Non-Economic (Social And Environmental)					
HEALTH (employees, contractors or public)	Reversible health effects of little concern, requiring first aid treatment at most. Can include minor irritations of eyes, throat, nose and or skin, or minor unaccustomed muscular discomfort.	Reversible health effects of concern that would typically result in medical treatment. Can include temperature effects; travel effects; stress; and sunburn.	Severe, reversible health effects of concern that would typically result in a lost time illness. Can include acute / short-term effects associated with extreme temperature effects; or musculo-skeletal effects; vibration effects; nervous system effects; some infectious diseases; and non falciparum malaria.	Single fatality or irreversible health effects or disabling illness. Can include effects of suspected carcinogens, mutagens, teratogens and reproductive toxicants, progressive chronic conditions and/or acute / short-term high-risk effects.	Multiple fatalities or serious disabling illness to multiple people. Can include effects of known human carcinogens, mutagens, teratogens and reproductive toxicants, and life-threatening respiratory sensitisation and falciparum malaria
SAFETY (employees, contractors or public)	Low level short term subjective inconvenience or symptoms. Typically a first aid injury and no medical treatment.	Reversible injuries requiring treatment, but does not lead to restricted duties. Typically a medical treatment.	Reversible injury or moderate irreversible damage or impairment to one or more persons. Typically a lost time injury.	Single fatality and/or severe irreversible damage or severe impairment to one or more persons.	Multiple fatalities or permanent damage to multiple people.
ENVIRONMENT (on site)	Near-source confined and promptly reversible impact (typically a shift).	Near-source confined and short-term reversible impact (typically a week).	Near-source confined and medium-term recovery impact (typically a month).	Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years).	Impact that is widespread-unconfined and requiring long-term recovery, leaving major residual damage (typically years).
(off site)	Not applicable.	Near-source confined and promptly reversible impact (typically a shift).	Near-source confined and short-term reversible impact (typically a week).	Near-source confined and medium-term recovery impact (typically a month)	Impact that is unconfined and requiring long-term recovery, leaving residual damage (typically years).

Economic (Operational)					
Catastrophic					Financial loss in Excess of $50 Million
Major				Financial loss $10 Million to $50 Million	
Serious			Financial loss from $1.0 Million to $10 Million		
Medium		Financial loss from $0 to $1.0 Million			
Minor	Minor equipment damage / no delay in operations				

Consequence	MINOR	MEDIUM	SERIOUS	MAJOR	CATASTROPHIC
Non-Economic (Social And Environmental)					
COMMUNITY (community trust)	Tangible expressions of trust / mistrust amongst a handful of community members with no influence on public opinion and decision-makers.	Tangible expressions of trust / mistrust amongst a few community members with some influence on public opinion and decision-makers.	Tangible expressions of trust / mistrust amongst some community members with moderate influence on public opinion and decision-makers.	Tangible expressions of trust / mistrust amongst most community members with significant influence on decision-makers.	Widespread loss / gain of trust across the community setting the agenda for decision-makers and key stakeholders.
COMMUNITY (stakeholders)	Key civil/political stakeholder(s) express support / dissatisfaction informally.	Key civil/political stakeholder(s) express support / dissatisfaction formally.	Key civil/political stakeholder(s) threaten to oppose or disengage / strengthen offers to support or engage.	Key civil/political stakeholder(s) actively oppose or actively refuse to engage / actively support and engage.	Key civil/political stakeholder(s) oppose and actively get others to oppose / engaged and actively get others to support.
COMMUNITY (cultural heritage)	Reparable damage to site or item of low cultural significance.	Irreparable damage to site or item of low cultural significance.	Repairable damage to site or item of cultural significance.	Irreparable damage to site or item of cultural significance.	Irreparable damage to site or item of international cultural significance.
REPUTATION	Community complaint resolved via existing site procedures. Impact on reputation of several work areas within an operation. One off public exposure in local media, word of mouth or local mythologies.	Impact on reputation of Business Unit. Significant public exposure in local media.	Impact on reputation of Product Group. Comment from national NGO which impacts credibility with neighbours / regional government. Public exposure in national media.	Impact on reputation of Rio Tinto Group. Comment from international NGO. Public exposure in international media.	Severe impact on reputation of Rio Tinto Group. Severe prolonged comment from international NGO. Greater than three year's public exposure in international media.
CONFORMANCE /COMPLIANCE	Non-conformance with internal requirement with very low potential for impact. Non-compliance with external / community commitment goes unnoticed by external party/parties, requiring minimal effort to correct.	Non-compliance with external or non-conformance with internal requirement with low potential for impact. Non-compliance with community commitment, requiring limited effort to correct.	Non-compliance with external or non-conformance with internal requirement with moderate potential for impact. Moderate penalties for breach of legislation, contract, permit or licence. Non-compliance with community commitment reported formally, requiring significant effort to correct.	Breach of licences, legislation, regulation or repeated non-compliance with high potential for prosecution. Breach of contract with significant penalty clauses imposed. Systemic non-conformance with Rio Tinto work cycles or standards with high potential for impact. Breach of community commitment with high potential to cause business interruption, requiring significant effort to correct.	Suspended or severely reduced operations imposed by regulators. Breach of community commitment results in direct loss of established consents with widespread secondary effects.

Table 8-2 Detailed risk assessment for the proposed Works operations

Environmental Aspect	Potential impact	Causes	Consequence	Risk Analysis C	Risk Analysis L	Risk Analysis Risk Rating	Existing Control Measures	Residual Risk C	Residual Risk L	Residual Risk Risk Rating	ALARP	Accepted
Water	Activities adversely affect surface water and groundwater	**(1)** • Flow line and piping failures during hydrotest	• Contamination surface water body with potable water used during hydro testing	Minor	Possible	Low	**Asset Integrity** • Assets design developed using industry accepted standards (pipeline : AS2885 – 2012) • Installation approved in accordance with design by a suitably qualified person • Assets monitored for early indication of integrity threats prior to and during hydro test • Planned response to emergent integrity threats • Asset protection (Fencing, bollards and traffic controls) • Emergency Response Plan in place and all staff trained and inducted in their use	Minor	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
		(2) • Spill of fuel ○ transport ○ Lack of appropriate bunding around storage and refuelling areas ○ Inappropriate storage of fuel, oil containers ○ Inappropriate handling of fuel or oil during use	• Loss of containment of fuel and oils • Contamination of soil, shallow groundwater or surface water body	Medium	possible	Moderate	**Fuel storage and handling** • Refer to PV FEMP Table 7.1 section 2 "Spill of chemical/hazard material"	Minor	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
		(3) • Inappropriate management of waste including; ○ Waste receptacles not adequately secure ○ Wastes not removed frequently enough, overfill ○ Inappropriate disposal of waste oil ○ Unauthorised onsite disposal ○ Waste not separated and stored appropriately ○ Hydrotesting water	• Contaminated land, surface water, shallow groundwater • Encouragement of pest species to waste sites	Medium	Possible	Moderate	**Waste management** • Refer to PVFEMP Table 7.1 section 4 "Waste Management" • Water from hydro test (potable water with no additives) will be transported to PV-09 pond • Excess spoil from construction of the PV13 flowline and surface facilities to be used for construction of the PV13 tank bund and any excess to be stockpiled on the PV13 lease	Medium	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
Land	Activities adversely affect landform and soils	**(4)** • Soil erosion from erosion sediment control failure ○ Flow concentration points not removed ○ Change in natural waterways and drainage channels	• Soil erosion and sedimentation • Flooding • Impacts to flora and fauna • Impacts to waterways from sedimentation • Loss of soil productivity	Minor	Unlikely	Low	**Erosion and sediment control** • Refer to PVFEMP section 5 "Erosion and sediment control"	M	U	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
		(5) • Soil Contamination	• Localised soil contamination	Medium	Possible	Moderate	• Refer to PVFEMP section 2 "Chemical and hazardous material storage" and section 4 "Waste management"	Medium	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y

Environmental Aspect	Potential impact	Causes	Consequence	Risk Analysis C	Risk Analysis L	Risk Analysis Risk Rating	Existing Control Measures	Residual Risk C	Residual Risk L	Residual Risk Rating	ALARP	Accepted
	Activities adversely affect Flora and Fauna	**(6)** • Introduction and spread of weeds, pathogens and invasive species via vehicles or equipment • Introduction and spread of weeds, pathogens and invasive species via contaminated fill • Increased occurrence of introduced and predator species ○ Standing water sites left unfenced ○ Food sources available	• Introduction or spread of weeds impacting native flora and fauna • Increased introduced species and predator species impacting on Flora and Fauna • Introduction of weeds impacts productivity of neighbouring properties	Serious	Likely	High	**Biosecurity Management** *Flora and Fauna* • Refer to PVFEMP section 8 "Biosecurity management"	Minor	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
		(7) • Fauna Strike from: ○ Unpredictable movement of animals ○ Vehicles travelling at high speeds ○ Vehicles travelling at dawn or dusk or in times of poor visibility	• Fauna death • Fauna injury	Minor	Likely	Moderate	• Refer to PVFEMP section 9 "Traffic and transport Management"	Minor	Possible	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
		(8) • Civils works required for reinstatement • Civils activities impacting on water movement across the site (eg. drains, hardstands, erosion and sediment controls)	• Disturbance of fauna • Loss or endangerment of threatened species • Loss of habitat • Increased intensity of flooding can lead to vegetation degradation and habitat modification	Medium	Possible	Moderate	**Biodiversity Management** • Adhere to permit to work system, which ensures that all activities stay within the approved area • No unauthorised clearing. • Refer to "traffic and transport management" for driving control measures • Refer to "Erosion Sediment Controls" for flooding control measure	Medium	Rare	Low	Marking sensitive areas in the surrounding area prior to civil maintenance activities will reduce the potential consequence of civil maintenance activities on habitats, fauna and therefore reduce the risk to Low. This measure will be implemented as part of Palm Valley's Environmental Improvement Plan. The use of fauna spotter catcher will be reviewed on a case by case basis.	Y
		(9) • Bushfire associated with CP activities including; ○ Spill and ignition of flammable hazardous substance ○ Increased number of ignition sources ○ Increased fuel loads from civils activities ○ Hot work (eg. welding)	• Increased incident and intensity of bushfires leading to vegetation degradation and habitat modification • Native fauna fatality	Serious	Possible	High	**Bushfire Prevention** • Refer to PVFEMP section 11 "Bushfire prevention"	Medium	Rare	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
Air	Activities adversely affect air quality and climate	**(10)** • Vehicle movements on unsealed roads • Civil equipment	• Release of atmospheric contaminants from exhausts • Dust emissions	Minor	Possible	Low	**Air Quality Protection Measures** • Vehicles and equipment maintained and regularly serviced • Reduce speeds on unsealed roads • Monitor road conditions to ensure deterioration with possible increase in dust creation does not occur and undertake road rehabilitation as required • Dust control for civil works if required • Watering of roads when appropriate	Minor	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y

Environmental Aspect	Potential impact	Causes	Consequence	Risk Analysis C	Risk Analysis L	Risk Analysis Risk Rating	Existing Control Measures	Residual Risk C	Residual Risk L	Residual Risk Rating	ALARP	Accepted
People and Communities	Activities adversely affect sensitive receptors	**(11)** • Increased traffic due to construction activities • Movement of heavy machinery on public roads • Release of waste without stakeholder engagement • Introduction of weeds from vehicles and equipment not properly inspected • Noise generated during civils work. • Bushfire from civil activities • Increased intensity of flooding from civil activities • Untidy site	• Local community and landowners discontent • Increased potential for accidents and damage to infrastructure (eg arising from. Goods transportation and driver behaviours), • Increased occurrence of weed species • Noise generation causing a nuisance • Damage to or loss of public infrastructure, private infrastructure and equipment or community lands • Loss of visual amenity impacting landholder, tourists or the wider community	Medium	Possible	Moderate	**Traffic and Transport Management** • No unauthorised third-party access. • Ensure vehicles are inspected regularly and have working lights and/or spot lights. • Zero off road driving • No speeding: Limit vehicle speeds to 60km/h on the access track, 40km/h between facilities and 10km/h around camp and facilities, except in the event of an emergency • Refer to "Fuel storage and handling" for transport • Staff to plan journey in accordance to the CP Journey Management Plan • Driving at dawn and dusk to be avoided **Community Impact Minimisation** • Refer to PVFEMP section 13 "Community impact minimisation" *Visual* • Refer to "Waste Management" for spills, waste storage and transport. • Refer to "Fuel Storage and Handling" for spills, handling and transport • Refer to "Erosion and Sediment Controls" for disturbance • Refer to the "Biodiversity Management" for weed impacts *Noise* • Refer to "Air Quality Protection Measures" for vehicle servicing	Medium	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y
	Activities adversely affect Indigenous heritage sites	**(12)** • Onsite indigenous heritage sites not previously determined during ethnographic study • Civil activities undertaken outside of the operating areas (per the Sacred Site Clearance Certificate (ref. C2015-035 and C2018-091)). • Bushfire from civil activities • Increased intensity of flooding from civil activities	• Disturbance to cultural heritage sites • Loss or destruction of cultural heritage sites	Serious	Possible	High	**Cultural Heritage and Sacred Sites Preservation** • Activities do not require any new disturbances. • All activities to stay within the approved OL3 areas (per the Sacred Site Clearance Certificate (ref. C2015-035 and C2018-091)). • Adhere to permit to work system, which ensures that all activities stay within the approved operating areas • No unauthorised third-party access • Exclusion zones • No driving off unformed tracks. • Refer to "Bushfire prevention" • Refer to "Erosion and Sediment Controls" for flooding	Minor	Unlikely	Low	Any potential future mitigation options will be reviewed as part of Central Petroleum's continual improvement activities in order to maintain risk reduction to ALARP.	Y

8.5 Risk Summary

The key environmental risks associated with the works is:

- the introduction of weeds from vehicle movements or equipment coming in from other regions,
- bushfires from hot works, and
- disturbance of indigenous artefacts.

These risks have been reduced to ALARP with CP's control measures, as seen in Table 8-3, which provides an overview of the residual risks associated with the Works at PVGF. This summary indicates that the controls are effective, have been successfully managed to ALARP and therefore the residual risk has been accepted by CP.

Table 8-3 Residual Risks for the Works at PVGF

	Residual Risk			
	Low	Moderate	High	Critical
Count	12	0	0	0

9 ENVIRONMENTAL MANAGEMENT

In line with Section 8 of the PVGF FEMP, this EMP has been developed using the principles of Ecologically Sustainable Development. This will ensure that the proposed construction activities within OL3 area will have as minimal negative environmental impact as possible, and the at the completion of the works, the area will be suitable for the sustainable operation of the gas field.

9.1 Environmental Outcomes, Performance Measures and Management Controls.

The following section outlines the management controls that CP will employ during the Works to protect environmental values associated with:

- Asset Integrity
- Fuel Storage and Handling
- Waste Management
- Erosion and Sediment Controls
- Biosecurity Management
- Biodiversity Management
- Bushfire Prevention
- Air Quality Protection Measures
- Traffic and Transport Management
- Community Impact Minimisation
- Cultural Heritage and Sacred Sites Preservation

Successful implementation of the controls will be measured against the given performance measures. Record keeping requirements are also provided

9.1.1 Asset Integrity

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified in the ERA. Risks to the environment from asset integrity issues are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-1.

Table 9-1 Environmental Values and Objectives – Asset Integrity

Environmental Values	Protection of the ecosystem and human health values from uncontrolled discharges associate with asset integrity failures		
Management Objectives	• Minimise impacts to ecosystem, land productivity and human health values		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	
• Flow line and piping failures during hydrotest	• Contamination of surface water body	• Assets design developed using industry accepted standards (pipeline : AS2885 – 2012) • Installation approved in accordance with design by a suitably qualified person • Assets monitored for early indication of integrity threats prior to and during hydro test • Planned response to emergent integrity threats • Asset protection (Fencing, bollards and traffic controls) • Emergency Response Plan in place and all staff trained and inducted in their use	
Performance Measures	• No uncontrolled releases		
Records	• Asset installation records • Records of inspections, monitoring testing and maintenance • Training and induction records • Emergency response plans • Records of releases, leaks and associated clean ups are to be managed using Central Petroleum's incident reporting system		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.2 Fuel Storage and Handling

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified Section 8. Risks to the environment from chemical and hazardous materials are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-2 in the OL3 area.

Table 9-2 Environmental Values and Objectives – Fuel Storage and Handling

Environmental Values	• Protection of ecosystems and human health values from uncontrolled releases of fuels and oils		
Management Objectives	• Minimise impacts to ecosystem, land productivity and human health values • To minimise impacts on soil, surface water and groundwater		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	

• Spill of fuel
  ○ transport
  ○ Lack of appropriate bunding around storage and refuelling areas
  ○ Inappropriate storage of fuel, oil containers
  ○ Inappropriate handling of fuel or oil during use
	• Loss of containment of chemicals and hazardous materials
	• Contamination of soil, shallow groundwater or surface water body
		Fuel storage and handling
		• Register of hazardous materials maintained on site
		• All hazardous materials stored in appropriately bunded areas
		• Chemicals and hazardous goods stored in accordance with Dangerous Goods and Chemical Management procedure (MSTD09-PC019)
		• All chemicals and hazardous materials to be managed in accordance with Chemical/ Hazardous Materials Management Procedure (MSTD11-PC002)
		• Spill kits are available where hazardous materials are used and personnel trained in their correct use
		• Spill response measures shall be implemented for spills or leaks.
		• Emergency response plan is in place for responding to contaminant releases
		• Spill areas will be Identified and remediated in accordance with the National Environmental Protection Measure (NEPM) requirements
		• Use of drip trays when refuelling equipment
		• Groundwater monitoring to detect any impacts to groundwater quality from CP activities
		• Plant and equipment inspected and maintained regularly to detect and prevent leakage of liquid contaminants (refer to maintenance management system)	

Performance Measures	• No uncontrolled releases of fuels and oils • No incorrect storage and use of fuels and oils		
Records	• Hazardous materials register to be maintained • Records of inspections, testing and maintenance to be maintained • Training and induction records to be maintained • Records of releases, leaks and associated clean ups are to be managed using Central Petroleum's incident reporting system		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.3 Waste Management

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified in the ERA. Risks to the environment from waste are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-3.

Table 9-3 Environmental Values and Objectives – Waste Management

Environmental Values	• Maintain the integrity of ecosystems and agricultural productivity • Minimise the amount of waste generated	
Management Objectives	• Minimise impacts to ecosystem, land productivity and human health values • To minimise impacts on soil, surface water, groundwater, sensitive habitat and air quality • To minimise waste generation through reduce, reuse, recycle programs	
Activity	**Potential Impacts without Management Controls**	**Management Controls**
• Inappropriate management of waste including; ○ Waste receptacles not adequately secure ○ Wastes not removed frequently enough, overfill ○ Inappropriate disposal of waste oil ○ Unauthorised onsite disposal ○ Waste not separated and stored appropriately	• Contaminated land, surface water, shallow groundwater	• Bunding for storage of regulated wastes material contained in drums with capacity of at least 25% of the total volume of stored material • No waste or hazardous material stored with potential for over flow impact on water courses • All liquid storage to maintain adequate freeboard for an ARI of 1 in 100 years • All waste stored appropriately and fitted with secure, fauna proof lids • All hazardous waste material separated in the appropriate area for disposal according to their SDS and the hazardous goods register • All waste handling (e.g. transport, storage, treatment, recycling and disposal) is approved, conducted by an appropriately licenced contractor and/or facility where appropriate. Records of transport and disposal to be kept • All Listed Wastes as per the Waste Management and Pollution Control (Administration) Regulations to be handled by a Listed Waste Company as per the NT EPA website (https://ntepa.nt.gov.au/waste-pollution/approvals-licences/listed-waste) • For waste transported across state or territory borders, the National Environment Protection Measure (NEPM) 2013 Guidelines for Waste Transport will be adhered to • Sewage treated and solids disposed off-site by licensed contractor, with water released into rubble drains onsite • Regular inspection of waste containers to ensure no leaks. • Assess all spills and/or leaks for appropriate remediation action in conformance to NEPM 2013 guidelines. • No incineration of waste • Relevant staff trained and inducted into the storage, handling and transport of hazardous wastes
Performance Measures	The outcomes of waste management practices can be assessed against the performance criteria for: • Absence of domestic waste remaining onsite at completion of activities (i.e. general rubbish, waste chemicals, workshop wastes including oily rags, containers etc.). • No unregulated waste handling.	

	• All waste certificates to be noted and accounted for		
Records	• Waste registers to be maintained • Waste disposal records to be maintained (all waste certificates to be noted and accounted for) • Records of waste storage site inspections to be maintained • Incidents of uncontrolled waste releases will be reported in CP's incident reporting system and corrective action initiated. Reportable incident records and regulatory notifications will be maintained. • Regulatory reporting under the NPI		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.4 Erosion and Sediment Control

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified the ERA. Risks from erosion and sedimentation in the OL3 area are managed to ALARP in order to meet the CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-4.

Table 9-4 Environmental Values and Objectives – Erosion and Sediment Control

Environmental Values	• Suitability and stability of land for existing uses (Erosion and Sediment Controls implemented) • Stability of land to preserve existing water quality, landscapes and ecosystems	
Performance Objectives/Outcomes	• Minimise disturbance to land and land use (including soils and terrain, flora and fauna) • Minimise erosion (via water or wind) and sediment releases • Protection of waterways. • Protect the productivity of the land for its intended land use	
Activity	**Potential Impacts without Management Controls**	**Management Controls**

• Soil erosion from erosion sediment control failure
  ○ Flow concentration points not removed
  ○ Change in natural waterways and drainage channels
	• Soil erosion and sedimentation
	• Flooding
	• Impacts to flora and fauna
	• Impacts to waterways from sedimentation
	• Loss of soil productivity
		• Erosion and sediment control devices installed where necessary in conformance with the DENR (https://nt.gov.au/environment/soil-land-vegetation/soil-management-erosion-sediment-control) and International Erosion Control Association (IECA) guidelines
		• Proposed activity that has the potential for erosion and the movement of sediment, a specific erosion and sediment plan will be developed by a suitably qualified person. All controls within the site specific plan will be auditable.
		• After significant rainfall rehabilitated surfaces and disturbed areas inspected to confirm.
		  ○ No erosion;
		  ○ No sedimentation;
		  ○ No blocking of drainage lines; and

		○ An indication of vegetation growth. • Landform consistent with surrounding environment, no blocking of drainage channels or water courses • No driving off unformed tracks • Restricted third party access • No unauthorised clearing
Performance Measures	• No land disturbace • Minimum incidences of erosion and sedimentation occurring • Areas left safe, stable and non-polluting • No new erosion flow paths originated from site	
Monitoring and Records	• Monitoring for soil erosion and related issues is best undertaken at critical stages, such as: ○ During siting of access track, pipeline right of ways, laydown yards, camps and associated petroleum infrastructure– this is when there is greatest opportunity to avoid erosion problems ○ After completion of the Works all areas disturbed should be inspected for early signs of compaction, erosion and soil degradation (generation of bulldust) ○ When accessing the site after the wet season look for signs of erosion. If significant impacts are identified remediation works may need to be conducted prior to continued vehicular access. ○ After more than 20 mm of rainfall	

Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.5 Biosecurity Management

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified in the ERA. Risks to biosecurity are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-5.

Table 9-5 Environmental Values and Objectives – Biosecurity Management

Environmental Values	• Maintain the integrity of significant ecosystems and agricultural productivity	
Management Objectives	• Avoid the introduction of weeds and pest fauna • Avoid the spread of existing weeds and pest fauna	
Activity	**Potential Impacts without Management Controls**	**Management Controls**

• Introduction and spread of weeds, pathogens and invasive species via vehicles or equipment
• Introduction and spread of weeds, pathogens and invasive species via contaminated fill
• Increased occurrence of introduced and predator species
  ○ Standing water sites left unfenced
  ○ Food sources available
	• Introduction or spread of weeds impacting native flora and fauna
	• Increased introduced species and predator species impacting on Flora and Fauna
	• Introduction of weeds impacts productivity of neighbouring properties
		Flora
		• Activities will adhere to the guidelines within the NT Weed Management Handbook and "Preventing weed spread is everybody's business" (https://denr.nt.gov.au/__data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf)
		• Weed desktop and field-based surveys undertaken to identify existing weed areas
		• Vehicle and machinery to undergo weed free checks and compliance before mobilised to site
		• Vehicles and/or equipment coming from a weed invested area is required to be weed free and needs to provide a weed free certificate before entry
		• Major equipment moves will be planned from weed-free areas to infested areas and not the other way around
		• Inspections and periodic audits will be conducted to identify and report weed outbreaks
		• New activities will be planned to address prevention of weed or non-indigenous plant spread
		• Weeds will be actively controlled in areas impacted by this works
		• Ensuring all material imported to or between sites is free of weeds
		• Baseline training for staff members responsible for preventing, identifying and managing weeds undertaken
		• Vegetation survey conducted before and after any disturbance or clearing operations to determine if new noxious species present
		• Driving only on approved access tracks
		
		Fauna
		• Refer to "Waste Management" for waste storage
		• No feeding of local fauna
		• All standing water fenced, where practicable
		• Standing water removed if no longer required
		• All food stored inside or in sealed containers
		• Personnel and contractors will be prohibited from bringing domestic pets onto the Program area
		• If any threatened species is recorded on site, report the siting to the CP Supervisor

Performance Measures	• No introduction or spread of declared weeds and/or pest fauna resulting from Central Petroleum's activities		
Records	• Records of weed distribution will be maintained within CP's GIS and if required provided to the Weeds Officer at DENR & DPIR • Records of weed inspections will be maintained • All weed outbreak and pest fauna incidents will be reported in Central Petroleum's incident reporting system and corrective action initiated • It is noted that under the Weeds Management Act that: *'The owner and occupier of land must… within 14 after becoming aware of a declared weed that has not previously been, or known to have been, present on the land, notify and officer of the presence of the declared weed'*		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.6 Biodiversity Management

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified the ERA. Risks to flora and fauna are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-6..

Table 9-6 Environmental Values and Objectives – Biodiversity Management

Environmental Values	• Maintain the integrity of significant ecosystems and agriculture productivity • Maintain habitat elements for native flora and fauna, including species protected by EPBC Act and TPWC Act		
Management Objectives	• Minimise disturbance to flora and fauna • Minimise disturbance to sensitive areas		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	

• Civils works required for reinstatement
• Civils activities impacting on water movement across the site (eg. drains, hardstands, erosion and sediment controls)
• Fauna Strike from:
  ○ Unpredictable movement of animals
  ○ Vehicles travelling at high speeds
  ○ Vehicles travelling at dawn or dusk or in times of poor visibility
	• Disturbance to environmentally sensitive areas and/or flora and fauna species
	• Disturbance of fauna
	• Loss or endangerment of threatened species
	• Loss of habitat
	• Increased intensity of flooding can lead to vegetation degradation and habitat modification
	• Fauna death or injury
		• Civil activities to avoid clearance of vegetation
		• Adhere to permit to work system, which ensures that all activities stay within the approved area
		• No unauthorised clearing.
		• Refer to "traffic and transport management" for driving control measures
		• Refer to "Erosion Sediment Controls" for flooding control measure	

Performance Measures	• Monitoring Works area to minimise impacts to fauna habitat and sensitive vegetation. • No native fauna impacts (injury or fatality). • No loss of sensitive vegetation resulting from CP's activities.		
Records	• Records of inspections will be maintained. • All incidents will be reported in CP's incident reporting system and corrective action initiated.		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.7 Bushfire Prevention

The following table outlines mitigation measures and their implementation to reduce the risks, identified in the ERA. Risks from fire on environmental aspects in the OL3 area are managed to ALARP in order to meet the CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-7.

Table 9-7 Environmental Values and Objectives – Bushfire Prevention

Environmental Values	• Maintain a natural fire regime of the region • Protection of public, private infrastructure and equipment		
Management Objectives	• Minimise the risk of causing bushfires from CP's activities • To minimise impacts on environmental habitat and fauna, soil erosion, impacts on stakeholders, impacts on culturally significant sites, public infrastructure and community lands • To prevent accidental fire risk and ensure safe storage of fuels		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	
• Bushfire associated with CP activities including; ○ Spill and ignition of flammable hazardous substance ○ Increased number of ignition sources ○ Increased fuel loads from civils activities ○ Hot work (eg. welding)	• Increased incident and intensity of bushfires can lead to vegetation degradation and habitat modification • Native fauna fatality	• Fire extinguishers to be fitted to all vehicles • No unauthorised burning of waste onsite • Only diesel vehicles to be used • Appropriate firefighting equipment available and serviced • Staff trained in the emergency response procedures and basic firefighting skills • Availability of water to assist in fire control • Designated smoking areas with appropriate waste receptacles • No open flames or fires outside of designated areas • Ensure vegetation stockpiles are stored away from ignition sources and in low profile mounds	
Performance Measures	• Successful fire management will be indicated by having no uncontrolled fires occurring as a result CP activities.		
Records	• All incidents of fire to be recorded in CP's incident reporting system and corrective action initiated.		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.8 Air Quality Protection Measures

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified in the ERA. Risks to air quality are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-8.

Table 9-8 Environmental Values and Objectives – Air Quality Protection Measures

Environmental Values	• Rural air environment with qualities conducive to suitability for the life, health and wellbeing of humans and ecosystems		
Management Objectives	• Minimise environmental nuisance due to dust for sensitive receptors resulting from Central Petroleum's activities • Minimise atmospheric emissions		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	
• Vehicle movements on unsealed roads • Civil equipment	• Release of atmospheric contaminants from exhausts • Dust emissions	• Vehicles and equipment maintained and regularly serviced • Reduce speeds on unsealed roads • Monitor road conditions to ensure deterioration with possible increase in dust creation does not occur and undertake road rehabilitation as required • Dust control for civil works if required • Watering of roads when appropriate	
Performance Measures	• No complaints regarding dust/air quality • Amicable resolution of complaints.		
Records	• Records of routine inspections for leaks will be maintained • All complaints and subsequent actions are to be recorded in Central Petroleum's incident reporting system and corrective action initiated		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.9 Traffic and Transport Management

The following table outlines mitigation and preventative measures and their implementation to reduce the risks as identified in the ERA. Risks from traffic and transport are managed to ALARP in order to meet CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-9.

Table 9-9 Environmental Values and Objectives – Traffic and Transport Management

Environmental Values	• Livelihood and well-being of local communities and towns	
Management Objectives	• Minimise impacts upon environmental values of the local community • Minimise impacts on cultural heritage • Minimise safety risks to the public and other third parties • Maintain and enhance partnerships with the local community, including using local contractors • No loss to the aesthetic or enjoyment factor for the community	
Activity	**Potential Impacts without Management Controls**	**Management Controls**
• Increased traffic due to construction activities • Movement of heavy machinery on public roads • Introduction of weeds from vehicles and equipment not properly inspected	• Local community and landowners discontent • Increased potential for accidents and damage to infrastructure (eg arising from. Goods transportation and driver behaviours), • Increased occurrence of weed species • Loss of visual amenity impacting landholder, tourists or the wider community • Damage to or loss of public infrastructure, private infrastructure and equipment or community lands • Fauna strikes / fauna fatality • Environmental harm from traffic erosion or incident	• Consult with surrounding stakeholders when major operation will occur • No unauthorised third-party access. • No driving under the influence of alcohol or drugs • Ensure vehicles are inspected regularly and have working lights and/or spot lights. • Zero off road driving • No speeding: Limit vehicle speeds to 60km/h on the access track, 40km/h between facilities and 10km/h around camp and facilities, except in the event of an emergency • Refer to "Fuel Storage and Handling" for transport • Refer to "Biosecurity Management" for vehicle weed management • Staff to plan journey in accordance to the CP Journey Management Plan • Driving at dawn and dusk to be avoided
Performance Measures	• An absence of issues raised by the community as indicator for successful communication • No unresolved complaints • The community is highly consulted with and all comments provided are assessed and those viable implemented • High level of satisfaction by the community • No vehicular accidents	
Records	• Register kept of all incidences relating to access issues, unauthorised access and requirements of pastoralists, recognising that these requirements may change seasonally • Track fauna strike/ near miss in the wild animal control register to enable knowledge sharing across CP personnel	

	• Complaints register • Record of stakeholder engagement • Record of environment compliance • All traffic and transport incidents related to any contamination to the environment, erosion or loss of fauna to be recorded in CP's incident reporting system • Corrective actions to be closed out and recorded		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.10 Community Impact Minimisation

The following table outlines mitigation measures and their implementation to reduce the risks as identified in the ERA. Risks to community in the OL3 area are minimised to ALARP in order to meet the CP's objective and successfully deliver the detailed environmental outcomes as shown in Table 9-10.

Table 9-10 Environmental Values and Objectives – Community Impact Minimisation

Environmental Values	• Livelihood and well-being of local communities and towns	
Management Objectives	• Minimise impacts upon environmental values of the local community • Minimise impacts on cultural heritage • Minimise safety risks to the public and other third parties • Maintain and enhance partnerships with the local community, including using local contractors • No loss to the aesthetic or enjoyment factor for the community	
Activity	**Potential Impacts without Management Controls**	**Management Controls**
• Increased traffic due to construction activities • Movement of heavy machinery on public roads • Release of waste without stakeholder engagement • Introduction of weeds from vehicles and equipment not properly inspected • Noise generated during civils work. • Bushfire from civil activities • Increased intensity of flooding from civil activities • Untidy site	• Local community and landowners discontent • Loss of visual amenity impacting landholder, tourists or the wider community • Noise generation causing a nuisance • Light pollution impacting sensitive receptors • Damage to or loss of public infrastructure, private infrastructure and equipment or community lands	• All activities to stay within the approved operating areas (per the Sacred Site Clearance Certificate (ref. C2015-035)). • Where possible, employee local and/or Indigenous people. • Active stakeholder engagement and complaints management which includes consultation with surrounding stakeholders when operations likely impact on lighting, noise, vibration and visual amenity values (e.g. during shut down periods, major projects) • Refer to "Bushfire prevention" • Ensure that all CP's environmental standards, plans and procedures are met to not cause any impact to the community • All personnel and site visitors will complete the appropriate inductions *Visual* • Refer to "Waste Management" for spills, waste storage and transport. • Refer to "Fuel Storage and Handling" for spills, handling and transport • Refer to "Erosion and Sediment Controls" for disturbance • Refer to the "Biodiversity Management" for weed impacts

		Noise • Refer to "Air Quality Protection Measures" for vehicle servicing
Performance Measures	• An absence of issues raised by the community as indicator for successful communication • No unresolved complaints • The community is highly consulted with and all comments provided are assessed and those viable implemented • High level of satisfaction by the community • No vehicular accidents • No off site release of contamination from road corridors	
Records	• Register kept of all incidences relating to access issues, unauthorised access and requirements of pastoralists, recognising that these requirements may change seasonally • Land access agreements closed out at completion. • Complaints register • Record of stakeholder engagement • All traffic and transport incidents related to any contamination to the environment, erosion or loss of fauna to be recorded in CP's incident reporting system. Corrective actions to be closed out and recorded	

Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

9.1.11 Cultural Heritage and Sacred Sites Preservation

The following table outlines mitigation measures and their implementation to reduce the risks as identified in the ERA. Risks to heritage and cultural aspects in the OL3 area are managed to ALARP in order to meet the CP's management objective and successfully deliver the detailed environmental outcomes as shown in Table 9-11.

Table 9-11 Environmental Values and Objectives – Cultural Heritage and Sacred Sites Preservation

Environmental Values	• Maintain cultural heritage values of the region, both Indigenous and non-Indigenous		
Management Objectives	• To avoid disturbance of or damage to Aboriginal or cultural heritage artefacts or Sacred Sites • To minimise impacts upon or disruption to activities of Indigenous stakeholders in culturally significant areas • To ensure adequate background information and training is provided to employees and contractors working in culturally significant areas • To ensure that the health and safety of workers and the community is not compromised through management of cultural and environmental awareness		
Activity	**Potential Impacts without Management Controls**	**Management Controls**	
• Onsite indigenous heritage sites not previously determined during ethnographic study • Activities undertaken outside of the approved OL3 areas (per the Sacred Site Clearance Certificate (ref. C2015-035 and C2018-091)). • Bushfire from civil activities • Increased intensity of flooding from civil activities •	• Disturbance to cultural heritage sites • Loss or destruction of cultural heritage sites	• Activities do not require any new disturbances. • All activities to stay within the approved OL3 areas (per the Sacred Site Clearance Certificate (ref. C2015-035 and C2018-091)). • Adhere to permit to work system, which ensures that all activities stay within the approved operating areas • No unauthorised clearing • No unauthorised third-party access • Exclusion zones • No driving off unformed tracks. • Refer to "Bushfire prevention" • Refer to "Erosion and Sediment Controls" for flooding	
Performance Measures	• No incidences of disturbance of archaeological sites or sites of cultural significance		
Records	• A register is kept of all occurrences of archaeological sites identified for provision to the NLC, the AAPA and Heritage Branch within DLPE • Ensure that site personnel and contractors report all new discoveries of archaeological or cultural artefacts. Cease work and effect practical protection measures until the area can be assessed by appropriate personnel		
Residual Risk	**Low**	**Risk Control Effectiveness**	**Effective**
Risk Accepted	**Yes**		

10 IMPLEMENTATION STRATEGY

Central Petroleum's Health, Safety and Environment Management System (HS&E MS) forms the foundation for the implementation of measures to ensure environmental performance during the Works. Table 10-1 provides an outline of the implementation strategy and provides a brief description with reference to the relevant section in the PVGF FEMP which discusses the strategy components in full detail.

Table 10-1 Implementation Strategy for the Works

Implementation Strategy Component	Description	PVGF FEMP Reference
Health, Safety and Environment Management System, Practices and Procedures	Works to be managed using the CP HS&E MS framework	Section 9.1
Roles and Responsibilities	All CP employees and contractors are responsible for implementing the CP Environmental Protection Policy and HSE Policy	Specific roles and responsibilities outlined in Section 9.2
Training and Competencies	All CP employees and contractors must participate in HS&E MS and competency training	Section 9.3
Monitoring	The Central Supervisor is responsible for organising and reporting on all conformance monitoring and auditing as provided in Section 9 and Table 10-2 of this EMP	NA
Auditing	The Central Supervisor is responsible for organising and reporting on all conformance monitoring and auditing as provided in Section 9 and Table 10-2 of this EMP An environmental audit will be conducted during operations by a suitable qualified person to ensure that these outcomes of this EMP are being met	NA
Continuous Improvement	Corrective actions raised from audits and inspections are entered into the audit database for action assignment, tracking of action progress and will form the basis of continuous improvement	Section 9.4.2
Incident and Non-Conformance Management	Near misses and incidents are to be recorded, investigated and reported, if	Section 9.4.4

	required, in accordance with the HS&E MS	
Emergency Contingency Plan	CP has an array of emergency response mechanisms including ERP, trained response personnel, stimulation training exercises, preventative maintenance programs	Section 9.5
Record Keeping	Records will be kept as per Section 9 of this EMP to demonstrate conformance and general environmental due diligence. Examples records include monitoring and auditing results, incidents and near misses, fuel usage, maintenance records, trainings, water usage	Section 9.6
Reporting	Reporting to DPIR on the Works will be provided in the Annual Report and any reporting required due to an environmental incident	Section 10.1
Incident Reporting	For environmental incidents defined under Section 14 of the *Waste Management and Pollution Control Act,* CP will report to the NT EPA on their Pollution Hotline **1800 064 567** as soon as practicable For incidents that cause or have the potential to cause material or serious environmental harm, CP will notify the DPIR via the Operations Team Emergency number: **1 300 935 250** as soon as practicable but no later than 2 hours after the first occurrence of the incident or after the time CP becomes aware of the incident	Section 10.2
Rehabilitation Management	The Works will result in permanent infrastructure used as part of the ongoing PVGF operations. Any rehabilitation and/or decommissioning works will be conducted in accordance with the PVGF FEMP	Section 8.2.6 and Section 11

Table 10-2 Monitoring and auditing requirements for the Works

Activity	Monitoring		Auditing	
	Action	Frequency	Internal/External	Frequency
ALL				
Site inductions	Records of site inductions show 100% participation by all personnel, contractors and visitors	For all new staff members and visitors before access to the site	Internal audit	At beginning of the Works
SOIL AND TOPOGRAPHY				
Erosion and sedimentation on site	Records of location and size	Site inspection at beginning of the Works and then following any significant rainfall events (>10mm in 24 hours)	Internal audit	During Works
Erosion control	Visual inspection ensuring adequate control devices in place in accordance with DENR and IECA best practice guidelines No erosion occurring	Site inspection at beginning of operation Then following any significant rainfall events (>10mm in 24 hours)	Internal audit	During Works
Soil contamination	Soil testing on any area of remediation following spill or leak if applicable	A soil sampling event directly after clean up at any location where spill has occurred Follow up sampling if required until soil is classified as remediated in accordance with the NEPM 2013 guidelines for contaminated sites	Internal audit	If required.
SURFACE WATER				
Surface water contamination	If water course or drainage line in the area appears contaminated or is believed to potentially be contaminated, then soil to be tested	Directly after rehabilitation of contaminated soil Then one year later	External audit	If required
AIR QUALITY				
Dust suppression	Evidence of dust suppression activities in daily reports	Daily records taken when applicable	Internal audit	During or at completion of Works
Complaints	Records of complaints from surrounding land users in regard to air quality or visual amenity	Records kept when applicable	Internal audit	At completion of Works
FIRE				
Hotworks	Check local weather condition and fire danger warnings from internet sites daily	Daily check during proposed hot works	Internal audit	Check records at completion of Works
NOISE AND VIBRATIONS				

Activity	Monitoring		Auditing	
	Action	Frequency	Internal/External	Frequency
Vehicle servicing	Compliance with vehicle manufactures specifications	Before mobilisation of vehicle to site as required	Internal audit	At completion of Works
Complaints	Records of complaints from surrounding land users in regard to noise and vibrations from operations	Records kept of any incident when applicable	Internal audit	At completion of Works
CULTURAL HERITAGE				
Interference with Aboriginal sacred sites, places or objects of archaeological significance.	Records kept of any incidents	Records kept of any incident when applicable	Internal audit	At completion of Works
FLORA				
No unauthorised land clearing	No clearing beyond existing footprint	Once prior to proposed Works	Internal audit	At completion of proposed Works check records
No unauthorised off-road driving, all drivers inducted into the potential impacts of off road driving on soil	Records kept of any incidents	Daily site inspection	Internal audit	At completion of Works
Weed wash downs	Every vehicle to have approved weed free certificate (if from a weed invested area)	Once before mobilisation to site	Internal audit	At completion of Works
FAUNA				
Presence of introduced fauna	Record number and location	During Works as required	Internal audit	At completion of Works
Fauna strike	Records kept in a fauna register of any sightings, near misses or strikes	During Works as required	Internal audit	At completion of Works
Zone designated speed limits	Records of any failures to comply and corrective action taken	During Works as required	Internal audit	At completion of Works
WASTE				
Waste streams	Records kept of quantities in and out from site	During Works as required	Internal audit	At completion of Works
Waste receptacles	Visual inspection of waste receptacles to ensure no	Daily inspection during proposed Works	Internal audit	At completion of Works

Activity	Monitoring		Auditing	
	Action	Frequency	Internal/External	Frequency
	fauna accessing waste storage locations			
Clean up materials	Records of when clean-up material was removed from site	As required when applicable	Internal audit	At completion of Works
FUEL MANAGEMENT				
Storage of fuel and oils	Visual inspection to ensure adequate bunding and containment strategies implemented	During Works	Internal audit	At completion of Works
Spills and leaks fuel and oils	Routine visual inspection of storage areas to ensure no leaks or spills	Weekly during proposed Works operations	Internal audit	At completion of Works
	Records kept of location, clean-up procedure and communication with DPIR regarding any leaks or spills	As required when applicable		

11 STAKEHOLDER CONSULTATION

CP is committed to upholding its reputation with a range of stakeholders including:

- Community
- Landholders (in this case indigenous (CLC))
- Indigenous
- Government
- Other key non-commercial external stakeholders (e.g. NGOs and industry bodies)
- Industrial Relations stakeholders
- Other commercial external stakeholders
- Internal stakeholders

CP seeks to establish and maintain enduring and mutually beneficial relationships with the communities of which it is a part; ensuring that our activities generate positive economic and social benefits for and in partnership with these communities.

Stakeholder consultation has been completed in accordance to Section 12 of the FEMP. Table 11-1 provides an overview of the specific stakeholder engagement for the Works.

Table 11-1 Stakeholder Management for the Construction EMP for PV-13 Connection and PV-02 Reinjection Upgrade.

Activity	Description
Stakeholder/Community Consultation	Central Petroleum is actively engaged with all relevant stakeholders for the OL3. A communication log has been developed and will be maintained detailing all stakeholder consultations for the proposed Works. The communications log is in Appendix 2.
Government Consultation	• It has been determined that the Works are unlikely to cause a significant impact on species of conservation significance and therefore the *EPBC Act* will not be triggered and referral to the Commonwealth Government is not required (Refer to PV FEMP) • The Works in the PVGF area are undergoing approvals process as required under the Petroleum (Environmental) Regulations and the Schedule of onshore petroleum exploration and production requirements (2017) and as stated in the PVGF FEMP as the specific activities are not covered by the PVGF FEMP. As such additional project-specific information has been provided to the DPIR and approvals are being sought. • CP has met with DPIR to brief the Department on the Works to ensure both parties are clear on the scope and objectives of the EMP and approval of the Works.

Traditional Owners Consultation	Consultation with TO's has taken place for the Works. The Works have been completed in accordance with the PVGF Agreement (C2015-035) and PV-13 agreement (C2018-091). All communications with TO's in relation to the proposed developments can be found in the communication log in Appendix 1.

12 REFERENCES

Central Petroleum Limited, 2019. *Palm Valley Gas Field – Field Environmental Management Plan,* Central Petroleum, Brisbane.

Low Ecological Services 2018 Flora and Fauna Assessment of PV-13

APPENDICIES

Appendix 1. Communications Log for all communication with relevant Traditional Owners regarding proposed Works

COMMUNICATION LOG				
(Palm Valley)				
Date	**Topic**	**Type of engagement (e.g. email)**	**CP contact**	**Stakeholder**
26/05/2018	Central Petroleum Board and Management - meeting with Traditional Owners in Hermannsburg. Operations and PV 13 drilling discussed.	Lunch and general discussion at the Hermannsburg Mission	Richard Cottee, Mike Herrington, Central's Board and James van Rooyen	Representation from the Community and Contrad Ratara - Local Elder
7/06/2018	Palm Valley #13 2nd option	Phone Call	James van Rooyen	CLC - Julie Ann Stoll
18/06/2018	Palm Valley #13 2nd option	Phone call	Rolf Schulte	CLC David Young
18/06/2018	Palm Valley #13 2nd option	Phone Call	James van Rooyen	CLC - Julie Ann Stoll
25/06/2018	Palm Valley #13 2nd option.	Site Visit PV-13	James van Rooyen / Mark Hensell	CLC - Brian Connelly and Local representatives form Hermannsburg - Including senior T/O's
27/06/2018	Palm Valley #13 2nd option. Consoltation with Local Traditional owners, CLC and Central Petroleum	Sacred site certificate	James van Rooyen	CLC - Brian Connelly and Local representatives form Hermannsburg - Including senior T/O's
2/07/2018	Local activities	Community stall at Alice Springs Show	James van Rooyen / Dominic Cottee	Alice springs Community
9/07/2018	Update on Palm valley, projects and operations recommencing	Email	James van Rooyen	CLC - Julie Ann Stoll
23/07/2018	Meeting with CLC in Alice Springs to Review activities	Alice Springs Meeting - CLC	James van Rooyen / Ben Visser	CLC - Julie Ann Stoll
14/09/2018	Community awareness Bulletin	Notices for public area's at Hermannsburg	James van Rooyen	Hermannsburg Lcoal community

17/09/2018	Annual Liaison Committee meeting	Site visit held at Palm Valley	Mike Herrington, Ben Visser, James van Rooyen	CLC, Conrad Ratara (T/O Elder) and representatives from Hermannsburg T/O stakeholders