Barrow Island Joint Venture Environment Plan Bridging Document – Bioremediation Facility Construction

Environment Plan Summary

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1.0 Introduction

This public disclosure summary document of the *Barrow Island Joint Venture (BWIJV) Environment Plan (EP) Bridging Document – Bioremediation Facility Construction* has been submitted to comply with Regulation 11(8) of the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012.

The Barrow Island (BWI) oilfield is operated by Chevron Australia Pty Ltd (Chevron) on behalf of the BWIJV. The non-operating Joint Venture Partners are Santos Offshore Pty Ltd and Mobile Australia Resources Company Pty Ltd. Petroleum exploration and production operations are conducted on BWI and surrounding areas within petroleum titles L1H (R2), TL/3, L10, EP/61, EP/62, and WA-7-L.

This document summarises the *Barrow Island Joint Venture (BWIJV) Environment Plan (EP) Bridging Document – Bioremediation Facility Construction* (ABU170800792 Revision 1) (the Plan) which was submitted to the Western Australian Department of Mines, Industry Regulation and Safety.

The purpose of the Plan is to:

- define the activity of constructing the bioremediation facility, which will be completed in addition to the ongoing BWIJV EP activities
- identify the potential environmental impacts and risks associated with constructing the bioremediation facility in addition to those impacts and risks already identified in the BWIJV EP
- identify the management strategies that will be implemented to reduce the potential impacts of the construction of the bioremediation facility to as low as reasonably practicable (ALARP) and to an acceptable level.

Chevron has an on-going requirement for the bioremediation of hydrocarbon impacted soils associated with the WA Oil operation on BWI.

In 1998, the Department of Environmental Protection (DEP) (now the Department of Water and Environmental Regulation (DWER)) approved the establishment of a bioremediation facility on BWI. The purpose of the facility was to remediate hydrocarbon contaminated soils and tank bottom sludges associated with the BWI oilfield operations.

In 2013, Chevron commenced construction of a new bioremediation facility to meet regulatory requirements and internal Chevron standards and completion was delayed due to operations constraints. Chevron now intends to finalise this construction. Vegetation clearing and bulk earthworks for the new bioremediation facility have been completed. The remaining construction works include finishing earthworks and the construction and installation of the liner system and additional infrastructure.

The new bioremediation facility will be used to treat low-level hydrocarbon impacted soils originating from leaks, spills and legacy sites associated with the oilfield operations; it will not treat tank bottom sludges.

1.1 Scope

Vegetation clearing and bulk earthworks for the bioremediation facility were completed in 2013 under DWER Works Approval W5261/2012/1 and the previous bridging Environment Plan (EP) (Environmental Bridging Plan Document BWIJV Bioremediation Facility, ABU130100073).

This Plan has been prepared to address the proposed next phase of construction and the scope includes the following construction activities:

- transport of equipment, material and personnel to worksite

- earthworks including final trimming of batters and surface finishing
- installation of the liner system
- construction of stormwater diversion bunds which will also act as internal vehicle barriers
- installation of fencing and signage.

1.2 Location

BWI is located approximately 1,300 km north of Perth and 56 km from the nearest point on the mainland. The island is approximately 25 km in length and 10 km wide, covering an area of 23,483 ha.

The bioremediation facility is to be located on the eastern coast of BWI, within the L1H Petroleum Lease. The proposed site is within the northern part of the Terminal Tank Bund Area, approximately 600 m to the north-west of the existing bioremediation facility (Figure 1-1).

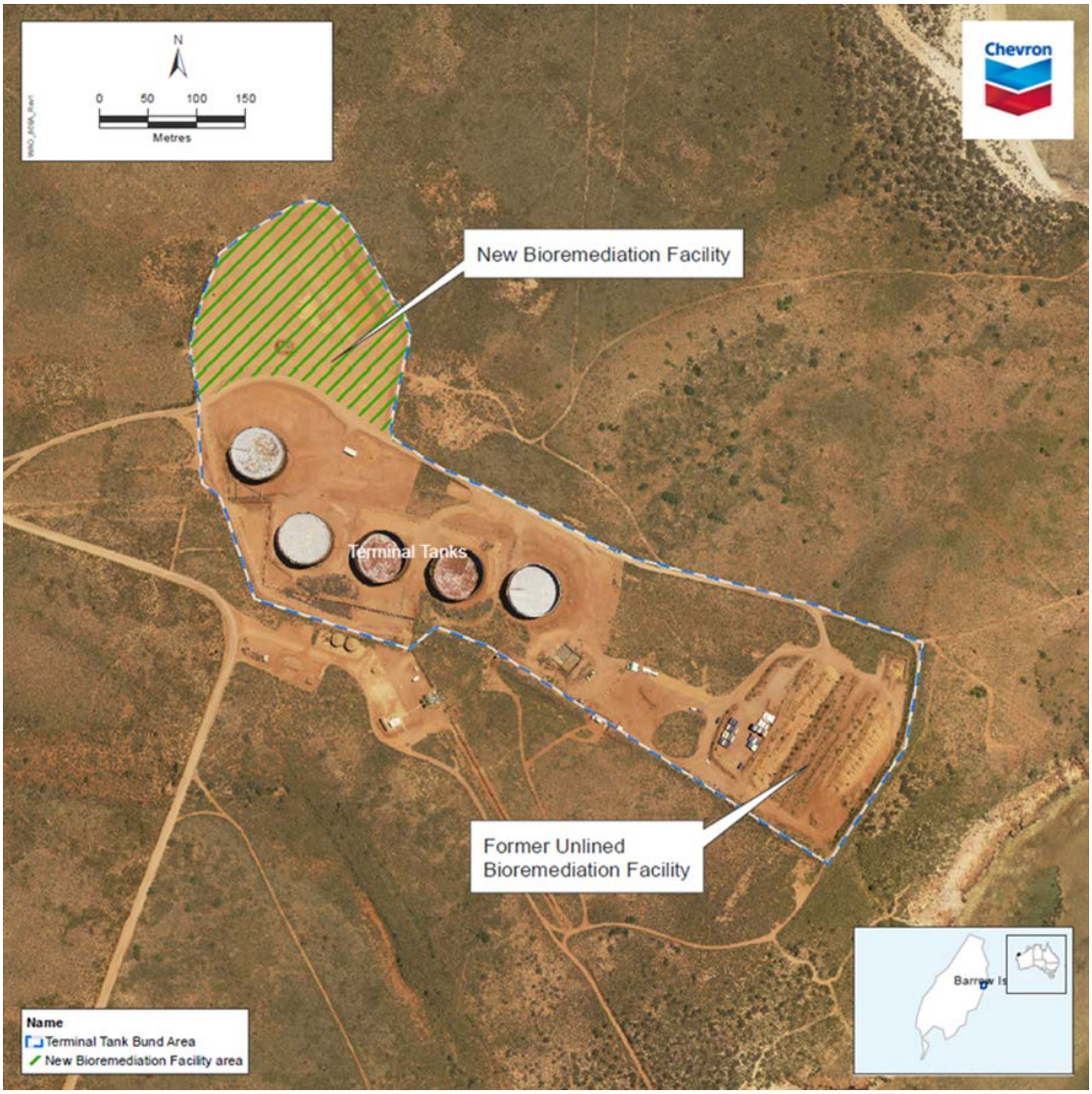

Figure 1-1: Location of the Bioremediation Facility on Barrow Island

1.3 Timeframes

Civil construction for the bioremediation facility is scheduled to commence in Quarter 2 2018. This scope is expected to be completed by the end of 2018. Civil construction will be completed in stages, with hold points as required for the completion of compaction testing and weld testing.

1.4 Nominated Operator Contact Details

Chevron is the operator of the Barrow Island oil field and associated decommissioning activities, on behalf of the BWI JV. The Joint Venture consists of Chevron, Santos Offshore Pty Ltd and Exxon Mobil Australia Resources Company Pty Ltd.

In accordance with Regulation 38 (a) of the Petroleum Regulations, details of the operator's nominated liaison person are listed in Table 1-1.

Table 1-1: Nominated Operator Contact Details

Company Name	Chevron Australia Pty Ltd
Contact Person	Cara Babb
Business Address	GPO Box S1580, Perth WA 6845
Telephone Number	08 9216 4000
Email Address	ask@chevron.com

2.0 Description of the Petroleum Activity

The project involves finalising the construction of a lined bioremediation facility, which will have a footprint of approximately 3 ha. The facility has been designed to treat low-level hydrocarbon impacted soils originating from leaks, spills and legacy sites associated with the WA Oil operations. No liquid hydrocarbon waste or tank bottom sludge will be treated in the facility.

Construction commenced in 2013 in accordance with the DWER Works Approval W5261/2012/1 and the previous bridging EP (Environmental Bridging Plan Document BWIJV Bioremediation Facility, ABU130100073). Vegetation clearing and bulk earthworks for the bioremediation facility are complete and the remaining construction activities are described in Section 2.2.

2.1 Description of Site Facilities

2.1.1 Liner System

The base and bunding of the facility will be lined in accordance with Water Quality Protection Note 26: Liners for containing pollutants, using synthetic membranes (WQPN 26) (Department of Water, 2009).

The liner system will consist of the following components (from bottom up):

- prepared surface (natural rock surface and general fill as required) to obtain a slope which will allow drainage of run-off water to the stormwater management facility
- cushion geotextile to protect the liner system
- geosynthetic clay liner (GCL) will form part of the composite liner system
- geomembrane consisting of high density polyethylene (HDPE)
- cushion geotextile
- geocells filled with cement stabilised fine grained
- cement stabilised wearing course to act as the pavement layer and protection layer to the liner system.

2.1.2 Stormwater Management Facility

The bioremediation facility has been designed to direct runoff from the treatment cells to an impermeable (lined) stormwater management facility, at the eastern side of the facility within the bund wall. Bulk earthworks for the stormwater management facility have been completed.

The liner system for the stormwater management facility will be installed as part of this project and will be similar to the liner system for the rest of the facility as detailed in Section 2.1.1.

The stormwater management facility has been designed in accordance with WQPN 26 (Department of Water, 2009).

2.2 Construction Activities

2.2.1 Transport of equipment, materials and personnel to the worksite

Materials and personnel will be transported to and on BWI as per the BWI Quarantine Management System (QMS) and existing supply chain. No new roads or access tracks are required for this project. All materials transport and construction activities will be

completed during the day. Personnel will include earthworks crew, liner installation specialists and support personnel who will travel to the work site using existing light vehicles / minibuses on existing roads.

2.2.2 Earthworks

Major earthworks were completed in 2013. Remaining earthworks includes minor clearing of regrowth vegetation in within the facility footprint, finishing earthworks required for the installation of the composite liner system, placement of liner system overburden protection materials and formation of internal stormwater diversion bunds. No blasting is required for this project. An excavator (and rock-breaker if required) will be utilised for the finishing earthworks. All material generated by the final trimming of the batters will be utilised in the construction of the facility, including general fill requirements and formation of internal stormwater diversion bunds. It is not anticipated that any material will need be to be transported off site

2.2.3 Installation of liner system and additional infrastructure

Following completion of the earthworks, the liner system will be installed. The liner system will extend to the crest of the bund wall to maintain environmental containment. The liner will be placed in an anchor trench within the crest of the peripheral bund to maintain integrity and ensure the liner is securely fixed. Due to the size of the facility, the individual liner system components will be rolled out and joined on-site:

- the transverse or end overlaps of individual GCL sections will be sealed using a bentonite paste
- the HDPE membrane will be double track fusion welded on site
- heat bonding using an open flame will be used to join adjacent sections of geotextile.

Onsite non-destructive and destructive weld testing, and laboratory destructive weld testing will be undertaken in stages in accordance with the technical specifications.

The final cement stabilised material layer is proposed to be mixed manually on site or utilising the existing BWI batch plant depending on final contracting arrangements. If the cement stabilised soil is manually mixed, this will occur at the construction site or within the Terminal Tank Bund Area, adjacent to the stockpile of granular fine fill, and stored cement. Hydration of the cement will be achieved by the addition of potable water using a water cart during the mixing process. Once placed, the mixture will be immediately compacted to produce a firm surface that will cure in-situ to form a hardened soil-cement that will not deform or consolidate further under traffic.

Additional infrastructure to be installed includes:

- internal stormwater diversion bunds which will also act as internal vehicle barriers
- permanent fencing (1.2 m high) of stormwater management facility to prevent fauna access
- installation of road markers and signage as required.

2.2.4 Support Services

Support services such as accommodation, amenities (toilets and crib) and chemical storage will be managed in accordance with the BWIJV EP.

Existing offices and crib facilities will be utilised.

There will be no requirement for on-site storage of chemicals or hazardous materials during the construction of the bioremediation facility. No fuel will be stored at the

facility and all light vehicles will be refuelled in Chevron's designated refuelling bay on BWI (managed under the BWIJV EP). Machinery may be refuelled on-site, using a mobile fuel truck.

Waste generated during construction will predominantly include off-cuts of liner materials. Wastes generated (such as off-cuts, oily rags, packaging etc..) will be managed as per existing processes detailed in the BWIJV EP.

3.0 Description of the Environment

Barrow Island is gazetted as a Class A Nature Reserve for the protection of native flora and fauna, vested in the Conservation Commission of Western Australia, and managed by Parks and Wildlife. Barrow Island was first declared a Class A reserve in 1910 (Reserve No. 11648). The Australian Heritage Council has placed the BWI Marine Area on the Register of the National Estate. The BWI Marine Park and the BWI Marine Management Area were gazetted on 10 December 2004.

The bioremediation facility is located within the Terminal Tank Bund Area on the eastern side of BWI (Figure 1-1).

3.1 Environmental sensitivity

Areas of conservation significance on BWI are recognised and captured in the BWI geographic information system (GIS) Environmental Sensitivity Layer held within Chevron Australia's GIS system. The sensitivity of environmental receptors has been identified in consultation with government agencies, internal and external subject matter experts and drawing on environmental information from field surveys and studies.

The relative environmental 'sensitivities' of the landscape, such as vegetation, landforms, and habitat types are mapped into priority zones.

The BWI GIS Environmental Sensitivity Layer has categorised priority areas into four zones. For the purposes of GIS modelling and planning of operations these are described in the Permit to Clear Native Vegetation. The zones are:

- Priority 1 – Exclusion Zone
- Priority 2 – High Impact Zone
- Priority 3 – Moderate Impact Zone
- Priority 4 – Low Impact Zone

The bioremediation facility lies within a Priority 4 - Low Impact Zone.

3.2 Landform and Geomorphology

Three broad geomorphic units have been identified on BWI:

- limestone uplands;
- near coastal lowlands; and
- coastal fringe.

The site of the bioremediation facility lies within the near coastal lowland unit, on the eastern slopes of BWI, approximately 750 m from the coast. Outcrops of limestone are present as low ridges separated by sparse colluvial deposits and drained by a network of drainage channels.

In this area, soil development is influenced by quaternary material and, as such, the soils are generally coarse with coarse clayey sands, sandy loams and sandy clays dominating. In the lower lying areas, duplex soils are present. Surficial deposits are underlain by variably weathered and fractured limestone.

Topography at the site slopes gently eastwards from an elevation of approximately 14 m AHD to 11 m AHD, and is fully contained within the Terminal Tank Bund Area.

3.3 Vegetation and Weeds

The bioremediation facility site is a previously disturbed (Priority 4) area. The area was historically used for a variety of purposes, including materials laydown.

The vegetation cleared from the site for construction in 2013 was regrowth within a land system dominated by spinifex (*Triodia spp*) grasslands and occasional low clumps of native figs.

The bioremediation facility does not lie within a Weed Hygiene Zone.

3.4 Fauna and Fauna Habitats

There are no significant (Priority 1) fauna habitats located in close proximity to the bioremediation facility.

Fauna habitats in the wider area include:

- a boodie (*Bettongia lesueur*) warren located approximately 300 m from the facility
- nesting area for green turtles (*Chelonia mydas*) and flatback turtles (*Natator depressus*) at Terminal Beach located approximately 750 m south-east of the Terminal Tanks

Fauna observed in the vicinity of the bioremediation facility and regularly observed in the Terminal Tank Bund Area include the:

- white-winged fairy-wren (*Malurus leucopterus edouardi*), which is an endemic subspecies that is abundant and widespread on BWI. It is listed under Schedule 1 of the *Wildlife Conversation Act 1950* (WC Act) and as a threatened species (Vulnerable) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- BWI euro (*Macropus robustus isabellinus*), listed as Vulnerable under both the WC Act and EPBC Act.
- perentie (*Varanus gigantus*), which has no conservation status but is recognised as having ecological importance on BWI.

3.5 Groundwater and Surface Water

There are no permanent or freshwater seeps or other surface water bodies located in close proximity to the bioremediation facility. The closest water body is the ocean, which lies at a distance of approximately 750 m to the south-east.

A shallow, unconfined (watertable) aquifer, located predominantly within tertiary limestone, extends over almost the entirety of BWI and forms a lens of less saline groundwater floating upon denser, more saline seawater. Recharge to the aquifer is principally from rainfall. Groundwater discharge is predominantly to the ocean, although given the high evaporation rates, some loss of groundwater is expected to occur from evaporation in areas where the watertable is shallower than about 2 m below the ground surface.

The unconfined aquifer lies at a depth of 10-11 m below the bioremediation facility. Semi-diurnal and seasonal tidal influences result in watertable fluctuations of 0.4-0.5 m in this area. Groundwater flow is towards the coast in an easterly to south-easterly direction.

Groundwater beneath the Terminal Tank Bund Area is currently monitored as part of Chevron's EP Act License (L4467/1972/14) and the monitoring program has collected approximately 14 years of monitoring data and is managed in consultation with the DWER Conaminate3d Sites Branch.

3.6 Cultural Heritage

No sites of cultural heritage significance have been identified within or in the vicinity of the proposed bioremediation facility. All work will be completed within a previously disturbed area.

4.0 Major Environmental Hazards and Controls

The risk assessment for the bioremediation facility construction activities was undertaken in accordance with the Chevron Health, Environment, and Safety (HES) Risk Management Process. This approach is consistent with the processes outlined in ISO 31000:2009 Risk Management – Principles and Guidelines and Handbook 203:2012 Managing Environment-related Risk.

The bioremediation facility construction activities were reviewed against the activities, risk sources and the potential impacts assessed as per Chevron's risk management process detailed in the current BWIJV EP.

Aspects associated with the bioremediation facility construction activities have been subject to an impact and risk assessment to understand the potential environmental risks associated with the activity and identify relevant controls to reduce impacts and risks to as low as reasonably practicable (ALARP) and an acceptable level.

The environmental impact identification and risk assessment process comprised the following components:

- identification of petroleum activities
- identification of particular environmental values and sensitivities within the environment that may be affected
- identification of relevant aspects with the potential to pose a hazard to identified particular environmental values and sensitivities
- evaluation of the potential consequences to the identified values and sensitivities without controls
- identification of control measures to reduce the potential likelihood of the consequence occurring
- evaluation of the likelihood of the consequence occurring with planned and confirmed control measures in place
- quantification of the risk ranking with controls in place
- determination of whether the potential environmental impacts and risks are ALARP after considering the effectiveness of the identified controls
- determination of whether the potential environmental impacts and risks are acceptable.

The following aspects are already identified in the BWIJV EP and also apply to the bioremediation facility construction activities:

- quarantine – in relation to supply chain and logistics
- vegetation and habitat – in relation to clearing regrowth vegetation within the bioremediation facility
- solid and liquid wastes – in relation to generation of minor wastes (material off-cuts, recyclables, oily rags, packaging etc.)
- emergency response – in relation to hot works and potential fires.

The new risk sources identified as specific to the bioremediation facility construction activities:

- terrestrial fauna – in relation to potential impacts from increased vehicle / equipment movement and noise and vibration during the construction period
- emissions to air – in relation to a localised increase in air emissions (greenhouse gases and dust)

- Spills and releases – minor leaks and spills from machinery and equipment and testing of the liner system.

Environmental Performance Standards were identified to ensure identified risks were reduced to ALARP and of an acceptable level. Environmental Performance Standards were considered in terms of both preventing the impact occurring, and mitigating the severity of the consequence, drawing on the hierarchy of controls, identified as Elimination, Substitution, Isolation, Engineering, and Administration and Procedures.

A summary of the major environmental hazards and controls in place to manage each environmental aspect is detailed in Table 4-1.

Table 4-1: Major Environmental Hazards and Controls

Source of Environmental Impact or Risk (Hazard)	Potential Environmental Impact or Risk (Consequence)	Environmental Performance Standards
Terrestrial Fauna		
Fauna strikes from vehicles and machinery	• Injury / mortality of fauna	• All personnel complete the project specific site induction prior to starting on the project, which includes wildlife conservation. • All entrapped, injured or deceased fauna is reported to the BWI WA Oil Environmental Specialist and recorded in the Wildlife Database. • All drivers have completed the Chevron Defensive Driver Training in accordance with ABU Motor Vehicle Safety Process (OE-03.07). • Vehicle speed restrictions will be in place when transporting personnel to and from the bioremediation site (daylight 60 km / hr and dusk to dawn 40 km / hr). • Only designated roads and tracks are used.
Fauna entrapment in anchor trenches within and surrounding the bioremediation facility	• Injury / mortality of fauna	• For trenches that remain open overnight, daily inspections will be carried out in accordance with the WA Oil BWI Environment – Vegetation Disturbance and Excavation Guideline (ABU141200103): - Inspections must be carried out at the start of each day, no later than three hours after sunrise, no earlier than four hours before sunset, and prior to work commencement. - Inspections must be tracked via the WA Oil Fauna Trench and Excavation Inspection Register Checklist (ABU141001345). • Fauna egress is provided at 25m intervals for excavations left open overnight. • Trained and licenced fauna handlers will remove fauna from trenches and worksites.
Disturbance to fauna from noise and vibration of machinery during earthworks	• Fauna disturbance / behavioural change due to noise and vibration from use of equipment	• Equipment is maintained in accordance with maintenance schedule • Construction activities are restricted to daylight hours only.

Source of Environmental Impact or Risk (Hazard)	Potential Environmental Impact or Risk (Consequence)	Environmental Performance Standards
Air Emissions*		
Emissions to air (dust) while transporting equipment, materials and personnel to and from the worksite.	• Reduced air quality due to increased air emissions (dust) • Dust smothering vegetation adjacent to the bioremediation facility	• All drivers have completed the Chevron Defensive Driver Training in accordance with ABU Motor Vehicle Safety Process (OE-03.07). • Vehicles will use designated roads and tracks only • Vehicle speed restrictions will be in place (daylight 60 km / hr and dusk to dawn 40 km / hr).
Emissions to air (dust) while undertaking earthworks	• Reduced air quality due to increased air emissions (dust) • Dust smothering vegetation adjacent to the bioremediation facility	• Stockpiles of material will be stored in the previously cleared Terminal Tank Bund Area and: - Stockpiles of fine grained material for the liner protection layers will be no more than 2m high. - Stockpiles of gravel material for the liner protection layers will be no more than 5m high • Water truck used in the bioremediation facility to minimise dust during earthworks.
Spills and Releases		
Hydrocarbon spill from vehicles / equipment leaks during transport or refuelling	• Reduction in groundwater quality • Reduction in soil quality / condition	• All personnel have completed the project specific environmental induction prior to working on the project, which includes spill response. • Refuelling undertaken in accordance with refuelling procedure, which includes the following safeguards: - use of spill tray during refuelling - monitoring of fuel tank levels to avoid overfilling - spill response equipment on-site during refuelling operations - any fuel spills are cleaned up immediately. • Daily pre-start inspections of heavy vehicles and equipment will be undertaken by the contractor to check for leaks. • All spills / leaks of hydrocarbons or lube/hydraulic fluid will be reported to the BWI WA Oil Environmental Specialist. • Equipment will be maintained as per the maintenance schedule. • A spill kit is maintained on-site during construction activities • All spills / leaks of hydrocarbons and lube/hydraulic fluid will be cleaned up immediately.

Source of Environmental Impact or Risk (Hazard)	Potential Environmental Impact or Risk (Consequence)	Environmental Performance Standards
Poor or inadequate installation of the liner	• Reduction in groundwater quality • Reduction in soil quality / condition	• Manufacturer certificates for the liner system. • Laboratory testing of liner materials confirms that on-site material is fit for purpose. • Onsite Construction Quality Assurance (CQA) is undertaken by an accredited independent consultant to confirm: - the liner system is installed by a competent, experienced liner installer - on site non-destructive and destructive testing of HDPE welds is completed - installation meets the manufacturers guideline - installation meets specification and design intent. • Offsite (destructive) testing of HDPE weld samples will be undertaken at a NATA laboratory to confirm welds are adequate. • Samples will be undertaken in accordance with the sample rate specified in the Barrow Island Bioremediation Facility Composite Liner System Technical Specifications.

**No new control measures were identified for greenhouse gas emissions during construction when compared to the BWIJV EP, therefore greenhouse gas emissions will be managed in accordance with the BWIJV EP.*

5.0 Implementation Strategy

The implementation strategy for the Plan is consistent with the BWIJV EP, which identifies the systems, practices, and procedures used to ensure the environmental impacts and risks of the activities are continuously reduced to ALARP and the environmental performance outcomes and standards are met.

Chevron is committed to conducting operations in an environmentally responsible manner and aims to implement best practice environmental management as part of a program of continual improvement. To meet this commitment, objectives have been defined that relate to the management of the identified environmental risks for activities.

The Chevron management strategies are implemented in accordance with Chevron's Operational Excellence Management System (OEMS). Table 5-1 outlines key components of the management system.

Table 5-1: Summary of Key Implementation Measures for BWIJV EP

Key Implementation Measures	Brief description
Roles & Responsibilities	Accountabilities and responsibilities are defined for personnel involved in the execution of WA Oil activities at BWI. Under the systematic approach to environmental management, WA Oil is required to establish a clear chain of command that sets out the roles and responsibilities of personnel in relation to the implementation, management and review of the EP.
Training and Communication	Detailed inductions are provided to educate personnel about environmental risks and requirements and specific management strategies required to be implemented. Together with further training as required for individual roles, and the communication of Chevron's environmental policy and procedures, this enables all employees and contractors involved with the activity to have awareness of their responsibilities in relation to the environment and gain the appropriate competencies and skills.
Emergency Response	Chevron's Emergency Response Procedures have been developed to manage potential emergencies. WA Oil maintains an up-to-date emergency management process manual for emergencies with environmental implications that includes detailed response and investigative arrangements.
Auditing and Inspections	A multi-tiered environmental compliance assurance program is implemented to verify compliance with the EP and applicable legislation, and to facilitate continuous improvement. This program addresses environmental legislation and internal processes applying to the operation by implementing a schedule of audits and inspections that is effective in verifying EP compliance. At the highest level, the operation is subject to external audits conducted either by regulatory authorities through operating license conditions and legislation or by Joint Venture Partners (JVPs).
Routine Reporting	Chevron has a number of internal and external environmental reporting requirements. Routine reporting provides information regarding Chevron's environmental performance to line management, Chevron or JVPs, or external stakeholders such as the DWER, DMIRS and APPEA. DMIRS reporting captures regular recordable incidents and emissions and discharges, and annual environmental reporting on all measurement criteria and controls in the EP.

Key Implementation Measures	Brief description
Monitoring	WA Oil conducts monitoring programs to verify the effectiveness of its management strategies and to form a baseline to provide historical information and reference points against potential environmental impacts. Monitoring is fit for purpose and regularly reviewed for improvement opportunities. High-risk elements of operation such as quarantine risks and contamination to the environment are scheduled for monitoring at appropriate intervals to meet the objectives of our management strategies.
Incident Reporting and Investigation	Chevron has a system in place for Incident Investigation and Reporting (II&R) which details expectations relating to incident notification, investigation reporting and competency of investigators, and complies with regulatory reporting requirements.
Continuous Improvements	Further implementation measures provide for the execution of improvement plans, implement corrective actions and schedule reviews of the EP to address continuous improvement. Construction of the bioremediation facility is anticipated to be completed in 2018, therefore the requirement for a five-year review under Regulation 20 of the Petroleum (Environment) Regulations is not relevant to this specific scope of work.

6.0 Stakeholder Consultation

In addition to consultation during formal assessment of the original and subsequent BWI oil field development proposals, Chevron has continually and actively consulted with Government, industry groups and the community. The project team has identified that the relevant stakeholders associated with this the construction of the bioremediation facility are DWER, Department of Biodiversity, Conservation and Attractions (DBCA) and DMIRS.

Consultation in regards to the previous bioremediation facility works approval and environment plan was undertaken during 2012 – 2016 with various government agencies. The most recent consultation in 2017 in regards to the bioremediation facility construction Plan is summarised in Table 6-1.

Table 6-1: Summary of Stakeholder Consultation

Stakeholder	Issues Discussed and Outcomes
DMIRS	A meeting with DMIRS was undertaken in October 2017 to discuss preparation of the construction EP for liner installation and inclusion of operations in the future update of the BWI JV EP.
DWER (Assessment Branch – Karratha)	Informed DWER of the intent to submit the licence amendment in December 2017. DWER confirmed that submission is appropriate and agreed to meet to discuss if required.
DBCA (Senior Reserves Officers – BWI)	DBCA were consulted in November 2017 to advise the Plan would be provided to them in early December for their review. DBCA were provided a copy of Rev 1 of the Plan for their review on 3 December 2017. DBCA provided written comments and the plan was updated: • to reflect behavioural impacts to fauna from transport activities • to describe noise and vibration impacts on fauna, confirm the fence to be constructed is a permanent fence and provided the fence specifications. • to describe the provision of fauna egress ramps at 25m intervals along trenches if left open overnight. • to reflect only trained and licenced fauna handers are authorised to remove fauna from trenches and worksites.