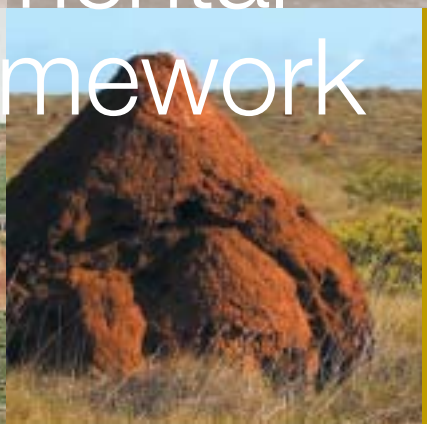
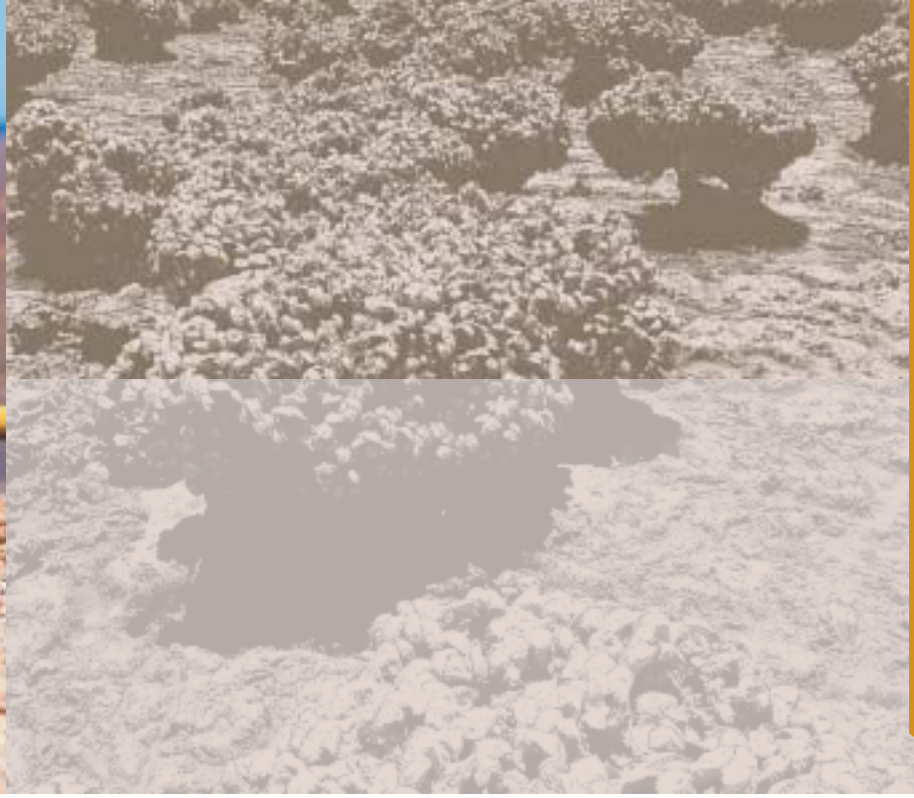
16: Environmental Management Framework



The Gorgon Joint Venturers are committed to conducting activities associated with the proposed Gorgon Development in an environmentally responsible manner; and intend to implement best practice environmental management as part of a program of continuous improvement. This will be achieved by addressing issues systematically, consistent with internationally accepted standards and the Chevron Operational Excellence Management System.

An important element of this systematic approach is the development of detailed environmental management procedures to guide construction, commissioning, operation and emergency response activities. These procedures will incorporate the proposed environmental management safeguards outlined in this Draft EIS/ERMP and will be documented in an integrated series of Environmental Management Plans EMPs. These Plans will be developed progressively though three related stages: A Framework EMP (Technical Appendix A1); the detailed EMP series; and Environmental Management Implementation Procedures to be developed by the engineering and construction contractor.

This chapter outlines the key elements of the proposed Environmental Management System and Environmental Management Plans and discusses the process through which they will be developed, implemented and maintained.



16.1 Introduction

The environmental impact assessment presented in this Draft EIS/ERMP has led to the development of numerous environmental management and mitigation measures covering all aspects of the Gorgon Development. As planning and design for the Development proceeds, these measures will be refined and supplemented with greater detail, technical input and practical application that is not available at this early stage of the Development. To ensure all appropriate measures are captured and implemented a robust management system is required. The purpose of the Environmental Management System (EMS) is to ensure that there is consistent application of appropriate management measures over the life of the Gorgon Development in order to protect the conservation values of Barrow Island and the Development area.

In this regard, the Joint Venturers propose to adopt an approach that is consistent with the recognised international standard AS/NZS ISO 14001:2004, Environmental Management Systems – Specification with Guidance for Use (ISO 14001). This standard has been selected because it is a proven method of establishing effective systems for environmental management generally, and contains all of the elements necessary to manage threats to the important conservation values of the Development area. It is also consistent with Chevron's Operational Excellence Management System (refer to Box 16-1).

The use of an environmental management framework, consisting of an ISO 14001-consistent management system and comprehensive series of Environmental Management Plans (EMPs), is a well-established practice that has been adopted in major resource projects throughout the world for over a decade. The key components of an EMS and EMPs, which are described later in this chapter, are now widely accepted and have been proven to achieve a high level of environmental performance. The EMS will apply to all Development activities. The Quarantine Management System, described in Chapter 12, is a subset of this. The Joint Venturers are confident that the development of the EMS and EMPs will provide effective methods for protecting the conservation values of Barrow Island and the proposed Development area.

Box 16-1:
Chevron Operational Management System

Operational Excellence is the systematic management of safety, health, environment, reliability and efficiency to achieve world-class performance. It is a common process applied to Chevron's operations around the globe in order to:

- achieve an injury-free work place
- eliminate spills and environmental incidents, and identify and mitigate key environmental risks
- promote a healthy workplace and mitigate significant health risks
- operate incident-free with industry leading asset reliability
- maximise the efficient use of resources and assets.

The Operational Excellence Management System consists of three parts:

Leadership Accountability
Leadership is the single largest factor for success in Operational Excellence. Leaders establish the vision and set objectives that challenge the organisation to achieve world-class results. They direct the Management System Process, setting priorities and monitoring progress on plans that focus on the highest impact items. Leaders visibly demonstrate their commitment through personal engagement with the workforce and showing a concern and caring for the health and safety of every individual.

Management System Process
A systematic approach used to drive progress toward world-class performance. The management system process is linked to the business planning process, and begins with defining a vision of success and setting objectives. Gaps between current performance and these objectives are identified during the assessment phase, then plans are developed to close the gaps, the plan is implemented and a review of the plan implementation and performance is completed.

Operational Excellence Expectations
Corporate expectations for Operational Excellence are detailed under 13 elements (listed below). The expectations are met through processes and programs put in place by local management. Many expectations are supported by corporate standards and Operational Excellence processes.

The 13 elements are:

- **Security of personnel and assets**: Provide a secure environment in which business operations may be successfully conducted.
- **Facility design and construction**: Design and construct facilities to prevent injury, illness and incidents and to operate reliably, efficiently and in an environmentally sound manner.
- **Safe operations**: Operate and maintain facilities to prevent injuries, illness and incidents.
- **Management of change**: Manage both permanent and temporary changes to prevent incidents.
- **Reliability and efficiency**: Operate and maintain facilities to sustain mechanical integrity and prevent incidents. Maximise efficiency of operations and conserve natural resources.
- **Third party services**: Systematically address and manage contractor conformance to Operational Excellence.
- **Environmental stewardship**: Strive to continually improve performance and reduce impacts from operations.
- **Product stewardship**: Manage potential risks of products throughout the product's life-cycles.
- **Incident investigation**: Investigate and identify root causes of incidents to reduce or eliminate systemic causes to prevent future incidents.
- **Community awareness and outreach**: Reach out to the community and engage in open dialogue to build trust.
- **Emergency management**: Prevention is the first priority, but be prepared for an emergency and mitigate any incident quickly and effectively.
- **Compliance assurance**: Verify conformance with company policy and government regulations. Ensure that employees and contractors understand their safety, health and environmental responsibilities.
- **Legislative and regulatory advocacy**: Work ethically and constructively to influence proposed laws and regulations, and debate on emerging issues.

16.2 Key Elements of the Environmental Management System

The elements of the proposed management system are based on the requirements of ISO 14001 and will be adapted to meet the specific requirements of the Gorgon Development.

16.2.1 Policy

As Chevron Australia is the operator of the Gorgon Development, established policy (Policy 530 Protecting People and the Environment), will be adopted as a key element of the management system (General Appendix A of this document).

16.2.2 Objectives and Targets

The Policy will be supported by a comprehensive set of environmental objectives and the Gorgon Development sustainability principles (Chapter 1). Where relevant, targets for measuring performance and the achievement of stated objectives will be established. Specific objectives for each environmental factor are outlined in the risk assessment tables in Chapters 10 to 13, respectively and collated in Box 16-2. Specific objectives for each social and economic factor are collated in Box 16-3.

Box 16-2:
Gorgon Development Environmental Management Objectives

Environmental Factor	Management Objective
Flora and Vegetation Communities	• To maintain the abundance, diversity, geographic distribution and productivity of flora through the avoidance or management of adverse impacts and improvement in knowledge. • To protect *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act)-listed threatened and migratory species. • To protect Declared Rare and Priority Flora, consistent with the provisions of the *Wildlife Conservation Act 1950* (WA).
Terrestrial Fauna	• To maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystems levels through the avoidance or management of adverse impacts and improvement in knowledge. • To protect EPBC Act-listed threatened and migratory species. • To protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act 1950*.
Subterranean Fauna	• To maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. • To protect EPBC Act listed threatened and migratory species. • To protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act 1950.*
Soil and Landform	• To maintain the integrity, ecological functions and environmental values of soil and landform.
Foreshore	• To maintain the integrity and stability of beaches.
Water (Surface or Ground)	• To maintain the quantity and quality of water so that existing and potential environmental values, including ecosystem function, are protected. • To minimise the potential for erosion due to stormwater flow.
Marine Fauna	• To maintain the abundance, species diversity, geographic distribution and ecological functions of marine faunal communities. • To ensure that any impacts on locally significant marine communities are avoided, minimised and/or mitigated. • To protect EPBC Act listed threatened and migratory species. • To protect Specially Protected (Threatened) Fauna consistent with the provisions of the *Wildlife Conservation Act 1950.*
Marine Flora (mangroves, corals, seagrasses and algae)	• To maintain the ecological function, abundance, species diversity and geographic distribution of mangrove, coral, seagrass and other benthic primary producer communities and their habitats.
Benthic Habitats Intertidal Zone	• To maintain the ecological functions and environmental values of marine benthic habitats and the subtidal and intertidal zones. • To protect EPBC Act listed threatened and migratory species.

Box 16-2: (continued)
Gorgon Development Environmental Management Objectives

Environmental Factor	Management Objective
Air Quality	• To ensure that atmospheric emissions do not adversely affect environment values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards.
Greenhouse Gas Emissions	• To minimise greenhouse gas emissions to levels as low as practicable on an ongoing basis and consider offsets to further reduce cumulative emissions.
Ozone Depleting Substances	• To minimise emissions of ozone depleting substances to levels as low as practicable on an ongoing basis.
Noise and Vibration	• To avoid adverse noise and vibration impacts to fauna. • To ensure that noise impacts emanating from the proposed plant comply with statutory requirements specified in the Environmental Protection (Noise) Regulations 1997.
Light	• To avoid or manage potential impacts from light overspill and comply with acceptable standards.
Liquid and Solid Waste Disposal	• To ensure that liquid and solid wastes do not adversely affect groundwater or surface water quality or lead to soil contamination.
Leaks and Spills	• To ensure hydrocarbons and other chemicals are handled and stored in a manner that minimises the potential impact on the environment through leaks, spills and emergency situations.

Box 16-3:
Gorgon Development Social and Economic Management Objectives

Social and Economic Factor	Social and Economic Management Objective
Local Communities	• To maximise social enhancement opportunities dependant on the Development while minimising and mitigating adverse impacts.
Cultural Heritage	• To avoid or minimise impacts to Aboriginal and non-Indigenous cultural heritage sites. • To ensure that the proposal complies with the requirements of the *Aboriginal Heritage Act 1972.* • To ensure that the proposal complies with the requirements of the *Heritage of Western Australia Act 1990.* • To ensure that the proposal complies with the requirements of the *Historic Shipwrecks Act 1976.*
Native Title	• To ensure that the proposal complies with the requirements of the *Native Title Act 1993.*
Workforce and Public Health and Safety	• To ensure that the risk to the workforce and public is as low as reasonably practicable.
Economic Development	• To maximise the contribution to economic development of the region, state and nation.
Community Development	• To maximise the contribution to community development.

16.2.3 Leadership and Commitment

The Joint Venturers are committed to conducting activities in an environmentally responsible manner and will ensure that adequate resources are assigned to implement and monitor an effective EMS. The visible commitment of senior management will demonstrate the importance of sound environmental management to employees, contractors, government and the community.

16.2.4 Organisation Structure and Responsibility

The EMS will clearly define the organisation for the overall management of activities and operations. The responsibilities and authorities for environmental management and control will principally occur through the standard Chevron Australia line-management functions which comprise the:

- Australasia Strategic Business Unit (ASBU) – The ASBU Executive Team, which includes the ASBU Managing Director, holds ultimate responsibility for ensuring that the Gorgon Development achieves its environmental objectives.
- Gorgon Area Gas Asset – The Gorgon Area General Manager is accountable to the ASBU Managing Director for the environmental performance of all development activities in the Gorgon Area.
- Gorgon Development Team – Specific functions of the Development Team include promoting and championing environmental responsibilities amongst the Development participants and ensuring that all contractors, sub-contractors and suppliers fulfil their environmental obligations.
- Gorgon Development Health, Environmental and Safety Team (HES Team) – This team of environmental and technical advisors is led by the Gorgon HES Manager. The HES Team's principal role is to provide expert advice, facilitate specialist studies, and further develop the EMS. The HES Team is also responsible for developing strategies, standards and implementation plans and monitoring performance against EMPs.

All personnel associated with the Gorgon Development are responsible for delivering HES performance. This explicitly includes the Gorgon Team, contractors, sub-contractors and suppliers.

16.2.5 Operational Control

Potential impacts on the conservation values of Barrow Island and the proposed Development area have been identified through a systematic risk assessment process involving specialist ecologists, environmental managers and engineering and construction personnel, as documented throughout this Draft EIS/ERMP. The objective of risk-based management is to adopt management strategies to reduce risks to an acceptable level; for example, reduction of light spill to turtles as outlined in Chapter 11.

A comprehensive series of EMPs will document procedures for the management of potential impacts on conservation values (refer to Section 16.3). The EMS will incorporate a documented program for implementation and maintenance of the system. Detailed procedures will support these processes. Adequate budgets and resources will be provided to enable effective system implementation; and employees and contractors will be required to comply with relevant aspects of the EMPs.

16.2.6 Documentation and Reporting

All elements of the EMS will be documented. In particular, all procedures for implementation and maintenance of the system will be recorded in an integrated and structured manner. Chevron Australia has a comprehensive document control system in place which will be utilised for the Gorgon Development.

A system of internal reporting (on-site and through to senior management) and external reporting (to government and other stakeholders) will be clearly documented. Of particular note, the Joint Venturers will develop a public reporting process to inform stakeholders of the status and progress of key environmental issues such as biodiversity protection, quarantine management and CO_2 injection.

16.2.7 Training, Awareness and Competence

The Joint Venturers will establish and maintain procedures for inducting and training all employees and contractors with regard to their environmental management responsibilities whilst working on the Gorgon Development.

Comprehensive training and induction programs will be developed which will address both administrative and technical environmental management procedures. These programs will be developed and implemented prior to the commencement of construction and operation phases. The programs will be tailored to meet the specific requirements of various roles that employees and contractors undertake for the proposed Development.

Induction programs will include, but are not limited to:

- conservation values of Barrow Island
- relevant legislation and government guidelines
- EMS and EMPs
- quarantine management
- industry codes of practice.

Training programs will include:

- environmental management requirements for various construction and operation activities
- training related to specific tasks
- general environmental awareness.

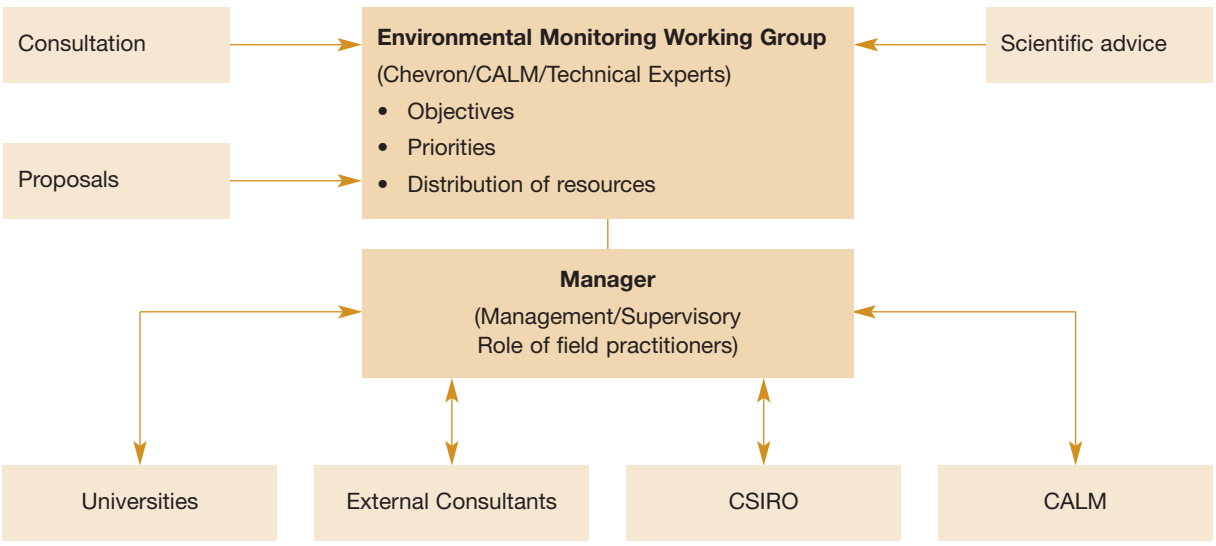
16.2.8 Monitoring

Environmental monitoring is an integral part of Development construction and operations. Detailed monitoring programs will be developed, in consultation with the Barrow Island Coordination Council (BICC), the Department of Environment (DoE), the Department for Conservation and Land Management (CALM) and the Conservation Commission of Western Australia (Conservation Commission), to address construction and operational activities which have the potential to adversely impact the environment. The Joint Venturers have developed a management structure to oversee and guide the design, implementation and interpretation of the proposed monitoring program (Figure 16-1). This model will draw on expert advice to develop a scientifically rigorous program to deliver the necessary confidence that monitoring will be effective.

The monitoring programs will be used to guide the management of environmental impacts. In particular, the programs will aid in the early identification of potential environmental issues and allow the effectiveness of management strategies to be evaluated and amended, if required. The programs will fulfil the due diligence requirements of the Joint Venturers to document effective environmental performance and to address any shortcomings. Specifically, the monitoring programs will aim to:

- detect environmental change and, specifically, identify those changes resulting from the Development

Figure 16-1:
Environmental Monitoring Structure



- determine actual versus predicted change
- contribute to the assessment of the effectiveness of environmental management procedures (including those related to quarantine risks)
- provide data for the assessment of adherence to EMPs and licence conditions.

Monitoring programs will be systematic, scientifically rigorous, statistically valid and conducted by appropriately qualified personnel. These programs will be periodically reviewed and modified to assure continued appropriateness. Such reviews will consider the required frequency and duration of monitoring and evaluate the ongoing need for individual programs. Records of all monitoring activities will be retained to facilitate the audit program (Section 16.2.9).

The programs will investigate a range of issues including:

- the volume and composition of waste discharges
- the volume and composition of air emissions, including greenhouse gas emissions
- ground level concentrations of critical pollutants
- noise emissions
- dredging effects
- the rate, extent and success of rehabilitation
- the control of potentially introduced animals, plants and diseases
- presence and abundance of rare fauna
- protection of sites of cultural significance.

The results of monitoring activities will be presented to senior management within the Joint Venturer companies for review.

16.2.9 Auditing

A detailed environmental audit program will be developed in consultation with the Environmental Audit Branch of DoE. This program will define the scope and timing of audits.

Audits will be conducted to:

- assess compliance with regulatory requirements, licence conditions, specific EMPs and the EMS
- evaluate the extent to which environmental objectives of the Development are being met.

Internal audits will be conducted by company personnel as part of the Gorgon Development Team's system of self-regulation. Audits will also be conducted periodically by specialist personnel from the Joint Venturers. Operations personnel will be involved in the planning and conduct of audits.

The Conservation Commission has a statutory function to assess and audit the implementation of management plans for nature reserves. The Joint Venturers will consult the Commission regarding the development and implementation of the internal audit program.

16.2.10 Non-Conformance and Corrective Action

Where monitoring and/or audits indicate that performance does not conform to environmental management requirements, or further improvement in performance standards is necessary, corrective action will be required. Investigation and corrective action procedures will be established to:

- determine the cause of non-conformance
- identify and implement corrective action
- initiate preventative actions
- apply controls to ensure that preventative actions are effective
- record any changes in written procedure resulting from the corrective action.

Corrective actions will include management responsibilities for addressing, tracking and close-out of incident investigations, audits, inspections and monitoring programs.

16.2.11 Emergency Preparedness and Response

The Joint Venturers will further develop and maintain the existing emergency response plan which clearly outlines how emergencies will be managed. Emergency response procedures will address stressors identified from site-specific risk and impact assessments. Procedures will be developed to ensure that emergency response teams are available, that employees and contractors are well versed in emergency response procedures and that documented plans and procedures are established and maintained. Emergency response procedures will be further developed and implemented through BICC.

16.2.12 Incident Reporting

Chevron Australia has a robust and proven incident management and investigation process. The Gorgon Development will revise and document this process where appropriate. This process will include:

- management roles and responsibilities in incident investigation
- root-cause analysis for significant events and near misses
- periodic evaluation of incident cause trends to determine where improvements in systems, processes, practices or procedures are warranted
- procedures for sharing of relevant lessons learned
- procedures for follow-up and closure of actions.

Copies of incident reports will be provided to regulatory agencies in accordance with statutory requirements.

16.2.13 System Review

The Joint Venturers will assess the adequacy and effectiveness of the management system annually during construction and the first few years of operation. Reviews will be based upon monitoring and auditing activities, internal changes (availability of new technology, organisational changes), and external drivers (access to new markets, regulatory requirements). These scheduled reviews will be undertaken to evaluate system performance and to explore opportunities to improve environmental performance and the protection of conservation values.

As part of this review, the policy, objectives, organisational structure, resource allocation, personnel responsibilities, procedures, training and document control will be considered. The review will recommend improvements and will outline a program and responsibilities for implementation.

16.3 Environmental Management Plans

Environmental Management Plans will form the cornerstone of the Gorgon Joint Venturers' EMS as they will document actions and responsibilities for protection of the conservation values of the Development area. The Plans will be developed in three related phases:

- Framework EMP
- detailed EMP series
- Contractors' Environmental Management Implementation Procedures (EMIPs) (Figure 16-2).

Environmental Management Plans will be developed and implemented such that the procedures adopted do not present any new stressors or result in impacts not foreshadowed in this Draft EIS/ERMP.

16.3.1 Framework EMP

The Framework EMP has been prepared as part of this Draft EIS/ERMP and is presented as Technical Appendix A1. The Framework EMP has two main purposes: to assist the reader by collating proposed management strategies in a more traditional format; and to simplify the production of the detailed EMP series during the current phase of design.

Due to the size and complexity of the Gorgon Development, potential environmental impacts and management strategies have been presented throughout this Draft EIS/ERMP by factor (e.g. terrestrial vegetation or marine mammals) rather than by activity (e.g. earthworks or dredging). This has enabled conclusions to be more easily drawn regarding potential impacts from the overall Development on a particular environmental factor, but makes it more difficult to consider the implications of a specific activity on the broader environment.

Figure 16-2:
Phases of EMP Development

The Framework EMP has been prepared by the Gorgon Joint Venturers for consideration by regulatory agencies and the public as part of the environmental impact assessment and approval process. The Framework EMP has a specific lifespan in its current form and, following public comment, it will be used as a basis for, and superseded by, the detailed EMP series.

16.3.2 Detailed EMP Series

Environmental Management Plans are 'implementation documents', simple and focussed, and containing practical procedures for application in the field.
To be relevant and effective, the detailed EMP series will be developed in conjunction with the design and construction contractor and in consultation with regulatory agencies. At the time of preparation of this Draft EIS/ERMP, design and construction planning was at the conceptual level and as such, it is too early to prepare detailed and effective EMPs.

The detailed EMP series will be used to direct site-specific management actions to protect the conservation values of Barrow Island and the Development area. These EMPs will outline strategies to achieve the environmental objectives outlined in this Draft EIS/ERMP (refer to Box 16-2). The detailed EMP series will be prepared for each phase of Development to address normal operations, unplanned incidents and emergency situations and will include the environmental management strategies and procedures committed to throughout this document, particularly those in the risk assessment tables of Chapters 10 to 15.

Structure of the EMP Series

The structure of the EMP series has been developed to ensure that the series is comprehensive, but that individual Plans are focussed and succinct. In deciding on the composition of the EMP series, three main issues were considered. Firstly, management measures will be required for the construction, commissioning, operations and decommissioning phases of the

Table 16-1:
Issues to Address in the Detailed EMP Series

Development Component	Activity or Stressor	Factor
• Wells	• Drilling	• Marine flora and fauna
• Subsea manifolds	• Subsea installation	• Pelagic and benthic habitats
• Flowlines	• Pipe laying	• Intertidal zones
• Feed gas pipeline	• Shipping	• Coastal processes
• Materials offloading facility	• Material import	• Terrestrial flora and fauna
• Causeway	• Piling	• Subterranean fauna
• Jetty	• Rock dumping	• Soil and landform
• Barge landing	• Dredging and spoil disposal	• Foreshore
• Loading facility (including channel and turning basin)	• Product loading and export	• Drainage and water resources
	• Earthworks	• Social/community
• Condensate loadout	• Vegetation clearing	• Land tenure
• Optical fibre cable	• Blasting	• Land use
• Domestic gas pipeline	• Horizontal directional drilling	• Cultural heritage
• Gas processing facility	• Traffic and transport	• Workforce
• Village	• Rehabilitation	
• Power and water	• Air emissions	
• Roads	• Greenhouse gas emissions	
• Airport	• Waste (liquid, solid, heat/cold)	
• CO_2 pipeline	• Lighting	
• CO_2 injection wells	• Noise emissions and vibration	
• CO_2 monitoring	• Spills	
• Mainland supply base	• Fire	
	• Workforce presence	
	• Quarantine	

Development. Thus, each phase will involve a different set of activities, schedules, potential environmental stressors and workforces. Secondly, the Development will cover an extensive geographical area and include open oceanic waters west of Barrow Island, shallow state waters between the Island and the mainland, specific areas on Barrow Island, and the mainland (including Mardie Station and the areas to be used as supply bases). Finally, EMPs need to address each Development component; each activity or stressor and all environmental factors (refer to Table 16-1).

As a result, a series of EMPs will be produced for the construction phase (as listed below). Due to the nature of the proposed construction works, these will largely be component-based, but will address all relevant activities, stressors and environmental factors.

Development Component-Based EMPs:

- Gas Processing Facility, Camp and Infrastructure
- Port Facilities (MOF and LNG Jetty)
- Upstream Field Infrastructure (Manifolds and Flowlines)
- Feed Gas Pipeline (Offshore)
- Feed Gas Pipeline (Onshore)
- CO_2 Injection System (Pipeline and Wells)
- Pioneer Construction Village
- Optical Fibre Cable
- Domestic Gas Pipeline and Associated Infrastructure
- Mainland Supply Base.

Activity or Stressor-Based EMPs:

- Waste Management
- Spill Contingency and Response
- Drilling (Offshore)
- Dredging and Dredge Spoil Disposal
- Quarantine Management
- Greenhouse Gas Management.

Factor-Based EMP:

- Cultural Heritage.

Similarly, during operations a series of EMPs will outline procedures needed to manage environmental risks during everyday operations and maintenance activities, as well as emergency and contingency plans in case of unplanned events. These EMPs will be fewer than for construction reflecting the smaller number of work groups. Currently, the following Operations EMPs are anticipated:

- Upstream Field Infrastructure Operations
- Pipeline Operations
- Gas Processing Facility and Utilities Operations
- Marine Terminal Operations
- Mainland Supply Base Operations
- Spill Contingency and Response
- Waste Management
- Quarantine Management
- Greenhouse Gas Management.

A single Decommissioning Plan is most likely, with sections dealing with each of the Development components.

A range of related plans are required by legislation (or regulation). Plans such as Environment Plans required under the *Petroleum (Submerged Lands) Act 1967* will form part of the EMP series. Other plans, such as Reservoir Management Plans and Emergency Response Plans required under the P(SL) Act and the Social Impact Management Plan required under the Barrow Island State Agreement, will be prepared and approved via separate processes, as their primary purpose is not to direct environmental management.

Structure and Content of Individual EMPs

Environmental Management Plans will be prepared in a consistent style and format and the nature of the content will be uniform. The aim will be to produce documents that provide clear guidance and serve as a valuable reference for the relevant workforce group.

The key component of each EMP will be a set of detailed strategies to avoid, mitigate or minimise impacts of tasks or actions. Context for the procedures will be provided by introductory sections regarding environmental factors, objectives and performance criteria. Environmental Management Plans will also be used to inform the workforce of the monitoring, auditing, reporting and corrective action processes, although in general these 'system' aspects will be

Table 16-2:
EMP Structure and Content

EMP Component	Content
Development Activity/Issue	The construction or operation activity to be managed (e.g. vegetation clearing at gas processing facility site).
Relevant Environmental Factor/s	Environmental factor/s that may potentially be affected by construction or operation activity to be managed (e.g. flora, fauna and cultural heritage).
Environmental Objective/s	The environmental management objective/s that relates to the environmental factor/s potentially affected by proposed construction or operation activity.
Performance Criteria	Measurable performance criteria for construction and operation activities.
Implementation Strategy	Detailed strategies to avoid, mitigate or minimise impacts of tasks or actions that will be implemented to achieve performance criteria.
Monitoring	Monitoring requirements to measure performance (i.e. specified indicators of change).
Auditing	Auditing requirements to demonstrate implementation of agreed construction and operation environmental management strategies and compliance with agreed performance criteria.
Reporting	Format, timing, and responsibility for reporting and auditing of monitoring results.
Corrective Action/s	Action required when performance requirements are not met and person(s) responsible for undertaking the corrective action.
Review	Process and timing for review and update of the EMPs.

managed by environmental specialists or supervisory personnel from the proponent or contractor teams. A summary of the key content and structure of the proposed EMPs is provided in Table 16-2.

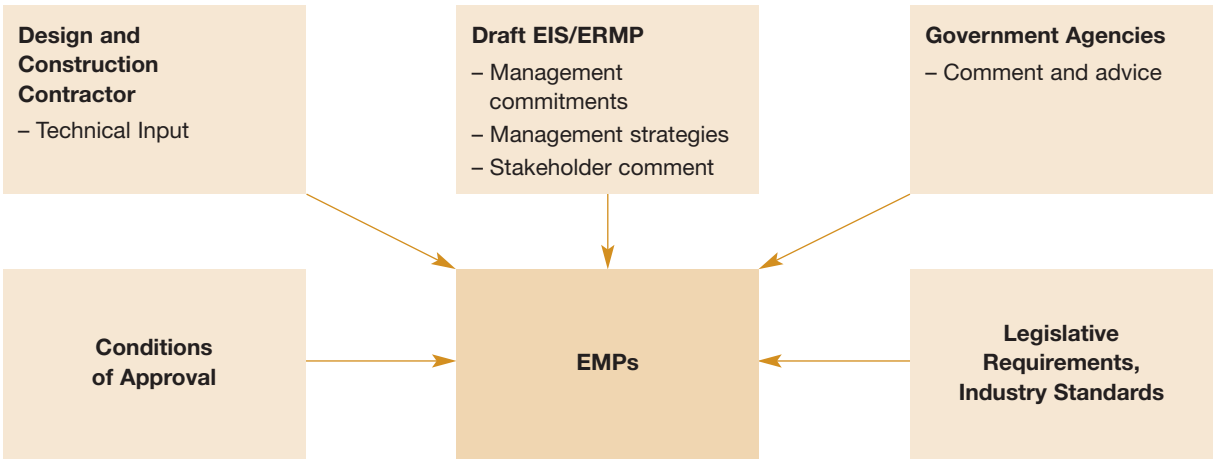
EMP Development and Approval Process

Environmental Management Plans will be developed and documented through a systematic and consultative process to address environmental factors and risks identified during the environmental impact assessment. The Plans will be prepared by the Joint Venturers with technical input from a variety of sources including the design and construction contractor, comment from relevant regulatory agencies and conditions of approval (Figure 16-3). The Conservation Commission of Western Australia will be consulted during the preparation of the detailed EMPs, as will relevant state and Commonwealth regulatory agencies.

Detailed EMPs for activities to be conducted in areas under state jurisdiction will be prepared to the satisfaction of the Western Australian Environmental Protection Authority (EPA). Plans for activities conducted in Commonwealth waters (such as drilling and pipeline construction), or under Commonwealth legislative control (such as dredge disposal) will be approved in accordance with regulatory requirements.

Detailed EMPs for construction will be prepared progressively in the lead-up to the specific activity taking place. That is, some detailed EMPs, such as those for preparation of the Gas Processing Facility site, will need to be prepared in draft form prior to Ministerial approval of the Gorgon Development, as the activities will need to commence shortly after approval. Detailed EMPs for other activities, such as drilling or construction of the domestic gas pipeline, will not need to be prepared until after this time, as the activity may not occur for 12 months or more, and will be more meaningful when a greater level of engineering detail is available.

Figure 16-3:
Inputs to EMPs



Operations EMPs will be developed during the late construction phase; similarly, the Decommissioning EMP will be prepared at an appropriate stage during operations.

Following approval, EMPs will be made available to the public via the Gorgon Development website.

EMPs will be reviewed and periodically updated to reflect knowledge gained during the course of detailed design, early construction or operational activities. Changes to EMPs will be developed and implemented in consultation with relevant authorities to the satisfaction of the EPA.

16.3.3 Contractor Environmental Management Implementation Procedures

A series of Environmental Management and Implementation Procedures (EMIPs) will be prepared by the engineering and construction contractor. These internal project documents will build on the environmental protection measures contained in the Framework EMP and the detailed EMPs approved by agencies. In particular, they will provide site specific plans and identify individual responsibilities. The EMIPs will need to be approved by the Gorgon Development Team prior to the relevant work commencing.

16.4 Conclusion

The Joint Venturers are committed to protecting the conservation values of the Development area during the construction, operation and decommissioning of the Gorgon Development. To assist in meeting this commitment a comprehensive EMS will be developed that is consistent with recognised international standards and Chevron's Operational Excellence Management System. As part of this process an integrated series of Environmental Management Plans will be developed progressively through three related stages: a Framework EMP (Technical Appendix A1); the detailed EMP series; and the Contractors' Environmental Management Implementation Procedures.

Adequate resources will be committed to implement and monitor an effective EMS with clearly defined responsibilities and authorities. The Joint Venturers are confident that thoughtful implementation and strict adherence to the EMS, EMPs and Contractors' EMIPs by the Gorgon Development Team and its contractors, subcontractors and suppliers will protect the conservation values of Barrow Island and the proposed Development area for current and future generations.