



Guidance Note – Environmental Performance Objectives, Environmental Performance Standards and Measurement Criteria for Petroleum Environment Plans

PURPOSE

The purpose of this document is to provide practical guidance for petroleum, geothermal and pipeline operators in Western Australia during the development of site and activity specific environmental performance objectives, environmental performance standards, and measurement criteria for inclusion in Environment Plans.

This document is to be used in conjunction with the *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* (November 2016).

OBJECTIVES

The objectives of this document are to provide guidance on:

- Writing environmental performance objectives that define the goals of the operator, for the purpose of minimising the environmental risks of the activity.
- Writing environmental performance standards that state the performance required of persons, equipment and procedures, for the purpose of managing the environmental risks and impacts of the activity.
- Writing measurement criteria that are specific, measurable, achievable, realistic and time bound (SMART principle).
- Writing measurement criteria for the purpose of determining whether the environmental performance objectives and environmental performance standards in the Environment Plan have been met; and the implementation strategy complied with.
- Examples of environmental performance objectives, environmental performance standards and measurement criteria (Appendix 1).

SCOPE

This Guidance Note relates to the development of environmental performance objectives, environmental performance standards, and measurement criteria for inclusion in Environment Plans submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) for assessment and approval under the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012, the Petroleum (Submerged Lands) (Environment) Regulations 2012, and/or the Petroleum Pipelines (Environment) Regulations 2012 (the Regulations).

Please note that the examples provided in this document may not be applicable to all sites and activities. It is essential for operators to consider site-specific conditions and activity-specific risks when undertaking an environmental risk assessment, and determining appropriate environmental performance objectives, environmental performance standards and measurement criteria.

DOCUMENT HIERARCHY

The following hierarchy outlines the regulatory framework that governs the assessment and approval of Environment Plans.

Legislation:

- Relevant acts and subsidiary regulations;
 - *Petroleum and Geothermal Energy Resources Act 1967* and the Petroleum and Geothermal Energy Resources (Environment) Regulations 2012.
 - *Petroleum (Submerged Lands) Act 1982* and the Petroleum (Submerged Lands) (Environment) Regulations 2012.
 - *Petroleum Pipelines Act 1969* and the Petroleum Pipelines (Environment) Regulations 2012.

Policy:

- [Environmental Regulatory Strategy](#).

Guidelines:

- [Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia](#).

GUIDANCE

When developing appropriate environmental performance objectives, environmental performance standards, and measurement criteria, operators must use the results of the environmental risk assessment to ensure all environmental risks and impacts arising directly or indirectly from the activity (including potential emergency conditions) are considered, for the purpose of:

- Minimising the environmental risks and impacts of the activity.
- Managing the environmental risks and impacts of the activity.
- Measuring and determining environmental performance.
- Reporting environmental performance to DMIRS.

In accordance with the requirements of the Regulations, the operator must demonstrate the environmental risks and impacts of the activity will be continuously reduced to as low as reasonably practicable (ALARP), and will be of an acceptable level.

Environmental performance objectives, environmental performance standards, and measurement criteria must therefore be site-specific and activity-specific; a risk assessment that is suitable for one site and activity will not necessarily be suitable for use at another.

Operators should refer to the *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia* during the development of an Environment Plan as it provides further guidance in relation to regulatory requirements and the DMIRS assessment process.

1. Environmental Performance Objectives

The purpose of setting environmental performance objectives is to clearly define the goals of the operator in terms of preventing, avoiding or minimising the environmental risks and impacts of the activity, and to assess environmental performance.

An environmental performance objective should:

- Be clearly linked to the environmental risk assessment and be relevant to site-specific conditions.
- Relate to processes, policies and practices to be followed, equipment to be used, and actions to be taken.
- Be expressed in the form of a specific environmental goal of the operator, such as:
 - An impact that will be avoided e.g. no new weed species introduced by construction activities.
 - A level of impact that will not be exceeded e.g. no clearing of native vegetation outside of the approved disturbance boundaries.
 - A level of protection that will be achieved e.g. no impact to environmentally sensitive areas and conservation significant flora.
- Be capable of objective monitoring, recording and reporting for the purpose of reporting progress against the implementation strategy (i.e. recordable incident reporting) and annual environmental reporting to DMIRS.

The defined acceptable levels of impact (as determined through the environmental risk assessment process) should directly inform the development of environmental performance objectives as a measurable level of performance that will ensure environmental impacts will be of an acceptable level. Environmental performance objectives are a level of protection/performance/result (i.e. goal of the operator) that must be achieved, for the activity to be considered compliant.

The collection of baseline environmental data is essential in understanding the current site-specific condition and how best to define and measure an appropriate environmental performance objective relevant to the environmental risks and impacts of the activity. Baseline environmental data provides the benchmark which environmental performance should be compared to over the life of a project.

A breach of an environmental performance objective must be reported to DMIRS as a recordable incident, through monthly reporting processes, in accordance with the Regulations. Additionally, the operator must include arrangements in the Environment Plan for the monitoring and recording of information about the activity, to determine whether the environmental performance objectives have been met. This information must be reported to DMIRS at least annually (e.g. Annual Environmental Report). Operators should therefore consider these reporting requirements when developing environmental performance objectives for the activity, and ensure they are embedded in monitoring, recording and reporting processes.

2. Environmental Performance Standards

Environmental performance standards form the basis on which performance in achieving the agreed environmental performance objectives can be measured and reported to DMIRS.

Environmental performance standards relate to the way in which an activity is undertaken, for the purpose of managing (and minimising) the environmental risks and impacts of that activity to ALARP and acceptable levels.

An environmental performance standard should:

- Be relevant to one (or more) environmental performance objectives defined by the operator.
- Be clearly linked to the environmental risk assessment and be relevant to site-specific conditions.
- Be expressed in the form of specific management controls that:
 - State the performance required of persons e.g. HSE Advisor responsible for conducting daily site inspections to look for evidence of any spills to the environment.
 - State the performance required of equipment e.g. hazardous materials shall be stored in containment facilities (e.g. bunded areas, leak proof trays) designed to hold 110% of the capacity of the largest container or 25% of the total, whichever is greater.
 - State the performance required of procedures e.g. all spills of hazardous materials are controlled, contained and cleaned up immediately upon identification (within 24 hours as a maximum) in accordance with the *Company Spill Prevention and Response Procedure*.
- Be auditable, measurable and achievable statements e.g. avoid using terminology such as 'where possible', 'should', 'where practicable', 'may' etc.
- Be capable of objective monitoring, recording and reporting for the purpose of reporting progress against the implementation strategy (i.e. recordable incident reporting) and annual environmental reporting to DMIRS.

The identification of environmental performance standards should consider a hierarchy of management controls which typically includes, in order of priority and effectiveness: elimination, substitution, isolation, and engineering controls. In circumstances where these controls have been exhausted, the use of administrative or procedural controls will be required to ensure residual environmental impacts can be sufficiently managed.

In developing environmental performance standards, operators should take into account site specifics (location, baseline environment, environmental sensitivities), activity specifics (proposed infrastructure, equipment and operations, new/improved technologies), and specific practices and processes (industry best practice standards, legislative requirements).

This information is then used to determine the environmental management of the activity (i.e. the performance required of persons, equipment, and procedures) that must be achieved, for the activity to be considered compliant. Environmental performance standards must therefore be achievable and measurable, and demonstrate the environmental risks and impacts of the activity are being adequately managed.

Where an operator is stating the performance required of procedures, environmental performance standards may refer to legislation, codes of practice, guidance material, or company procedures, however it is essential the specific requirements from these (relevant to the environmental management of the activity) are detailed. It is not appropriate to simply provide a list of documents as environmental performance standards.

A breach of an environmental performance standard must be reported to DMIRS as a recordable incident, through monthly reporting processes, in accordance with the Regulations. Additionally, the operator must include arrangements in the Environment Plan for the monitoring and recording of information about the activity, to determine whether the environmental performance standards have been met. This information must be reported to DMIRS at least annually (e.g. Annual Environmental Report). Operators should therefore consider these reporting requirements when developing environmental performance standards for the activity, and ensure they are embedded in monitoring, recording and reporting processes.

3. Measurement Criteria

Measurement criteria are the measures used to track progress toward meeting environmental performance objectives and environmental performance standards, and determining compliance with the implementation strategy as specified in the Environment Plan.

Measurement criteria state the targets to be achieved and allow for direct measurement of performance/compliance through testing, monitoring, data analysis, inspections, audits, and/or other means of verification.

The measurement criteria should be clearly linked to the environmental performance objectives defined by the operator, the environmental performance standards designed to manage the activity, and the details contained within the implementation strategy. Further information regarding the content requirements of the implementation strategy are outlined in the Regulations and the *Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia*.

In accordance with the SMART Principle, measurement criteria should be:

- **Specific:** targets a specific environmental performance objective and/or environmental performance standard to be achieved, and relates this to the implementation strategy (where appropriate).
- **Measurable:** quantifies or at least demonstrates an indicator of progress or success that can be readily compared over time.
- **Achievable:** realistic when compared with baseline performance and resources available.
- **Realistic:** states the results that can realistically be achieved to see environmental risks and impacts reduced to ALARP and acceptable levels.
- **Time-bound:** specifies when testing, monitoring, data analysis, inspections, audits, and/or other means of verification will be undertaken or achieved so the criteria can be monitored over an appropriate time frame to ensure the results are robust.

Measurement criteria must address the full range of environmental performance objectives and environmental performance standards specified in the Environment Plan.

Measurement criteria should allow for the timely identification of potential issues, environmental impacts and/or non-compliances with environmental performance objectives, environmental performance standards, and the implementation strategy throughout the course of the activity. Corrective and preventative actions can then be implemented by the operator to prevent recurrence, and ensure the environmental risks and impacts of the activity are continuously reduced to ALARP and acceptable levels.

The operator must include arrangements in the Environment Plan for the monitoring and recording of information about the activity, to determine whether the environmental performance objectives and environmental performance standards have been met, and the implementation strategy complied with. Measurement criteria form the basis on which performance in achieving these can be measured, and reported to DMIRS at least annually (e.g. Annual Environmental Report).

Appendix 1: Example Environmental Performance Objectives, Environmental Performance Standards and Measurement Criteria

| Source of Risk | Example Objectives | Example Standards | Example Measurement Criteria |
|---|---|---|--|
| <p>Leak or spill of hazardous materials to groundwater, surface water and/or soil.</p> | <p>No contamination of groundwater or surface water as a result of operational activities.</p> | <p>All hazardous materials (including chemicals and hydrocarbons) will be managed in accordance with the following standards as specified in the <i>Company Hazardous Materials Management Procedure</i>:</p> <ul style="list-style-type: none"> Storage containers will be closed when not in use. Storage containers will be labelled with the technical product name as per the Safety Data Sheet. Spill response equipment will be readily available at the site of hazardous materials storage or use. Hazardous materials shall be stored in containment facilities (e.g. bunded areas, leak proof trays) designed to hold 110% of the capacity of the largest container or 25% of the total, whichever is greater. | <p>Weekly site inspection checklist confirms all hazardous materials are stored and managed in accordance with the environmental performance standards specified.</p> |
| <p>No contamination of soil (as defined in the <i>Contaminated Sites Act 2003</i>) as a result of operational activities.</p> | <p>No contamination of soil (as defined in the <i>Contaminated Sites Act 2003</i>) as a result of operational activities.</p> | <ul style="list-style-type: none"> HSE Advisor responsible for conducting daily site inspections to look for evidence of any spills to the environment. All spills of hazardous materials are controlled, contained and cleaned up immediately upon identification (within 24 hours as a maximum) in accordance with the <i>Company Spill Prevention and Response Procedure</i>. All spills of hazardous materials will be recorded in the <i>Company Incident Record Management System</i>. | <p>Daily site inspection checklist confirms there is no evidence of spills that have not been responded to.</p> |
| | | <ul style="list-style-type: none"> Operations personnel will be trained in spill response. All personnel have completed site inductions in accordance with <i>Section 7</i> of this Environment Plan (which includes spill response procedures and responsibilities). | <p>All leaks or spills of hazardous materials are recorded in the <i>Company Incident Record Management System</i> and reported monthly to DMIRS.</p> <p>Results of quarterly groundwater monitoring undertaken onsite demonstrates there has been no groundwater contamination as a result of operational activities.</p> <p>Training records verify that operations personnel are trained and competent in spill response.</p> <p>Induction records demonstrate 100% of onsite personnel and contractors have completed site inductions (which includes spill response procedures and responsibilities).</p> |

| Source of Risk | Example Objectives | Example Standards | Example Measurement Criteria |
|--|--|--|---|
| Fauna injury or death as a result of pipeline construction activities. | <p>Minimise and manage the impacts to fauna from entrapment.</p> | <p>Risks to fauna will be managed in accordance with the following standards as specified in the <i>Company Fauna Management Procedure</i>:</p> <ul style="list-style-type: none"> All excavations left open overnight will be equipped with fauna exit ramps, and fauna shelters/refuges (e.g. hessian bags) at intervals not exceeding 50m. All excavations will be inspected for fauna within 3 hours of sunrise and again prior to sunset. All excavations will be inspected for fauna immediately before backfilling. Welded pipeline sections shall be capped at the end of shift to prevent fauna ingress. Fauna handlers undertaking retrieval and release of fauna will: <ul style="list-style-type: none"> Be Licensed in accordance with Regulation 17 of the <i>Wildlife Conservation Regulations 2002</i>. Meet the training requirements of the Department of Biodiversity, Conservation and Attractions (DBCA). Record all fauna interactions. Relocate fauna immediately following capture, to a suitable habitat away from the site of disturbance. | <p>Daily site inspection checklist confirms excavations were equipped with fauna egress measures and shelter.</p> <p>Records from daily excavation inspections confirms inspections were completed within specified timeframes.</p> <p>Additional management controls implemented where monthly analysis of incident trends demonstrates an increase in fauna deaths as a result of excavation activities.</p> <p>Training register demonstrates 100% of all fauna handlers have current fauna handling licences and have completed DBCA training requirements.</p> <p>Fauna Interaction Report records details of all fauna interactions (relocations, injuries and fatalities) and includes; date, location, species, habitat, form of encounter and release details.</p> |
| No fauna deaths attributed to vehicle strikes. | <p>No fauna deaths attributed to vehicle strikes.</p> | <ul style="list-style-type: none"> Risks to fauna from vehicle strike will be managed in accordance with the following standards as specified in the <i>Company Safe Driving Procedure</i>: Vehicle speeds shall not exceed site specified speed limits (40km/hour on access roads, 8km/hour within operational area). Vehicle access will be restricted to established access tracks, unsealed roads, and sealed roads. All personnel have completed site inductions in accordance with Section 7 of this Environment Plan (which includes personnel access restrictions and speed limits). | <p>No fauna deaths as a result of vehicle strike recorded in the <i>Company Incident Record Management System</i>.</p> <p>No exceedances of site specified vehicle speed limits recorded in the In Vehicle Monitoring System (IVMS).</p> <p>Induction records demonstrate 100% of onsite personnel and contractors have completed site inductions (which includes personnel access restrictions and speed limits).</p> |

| Source of Risk | Example Objectives | Example Standards | Example Measurement Criteria |
|--|---|--|--|
| Vegetation and habitat disturbance as a result of clearing activities. | <p>Minimise and manage impacts to native vegetation and habitat from clearing activities.</p> <p>No impact to environmentally sensitive areas and conservation significant flora.</p> | <ul style="list-style-type: none"> Native vegetation and ground disturbance will be managed in accordance with the following standards as specified in the <i>Company Native Vegetation Management Procedure</i>: A Vegetation Disturbance Certificate will be obtained before clearing activities, and will include a pre-disturbance inspection. Clearing boundaries are clearly demarcated physically (i.e. flagging) and in GIS mapping systems used in all earthmoving equipment. 50 metre buffer zones are established around environmentally sensitive areas and conservation significant flora, and are clearly demarcated physically (i.e. flagging) and in GIS mapping systems used in all earthmoving equipment to mitigate against accidental disturbance. Vegetation and topsoil will be stockpiled separately and will not exceed 2 metres in height. | <p>Vegetation Disturbance Certificate has been completed and is available for all clearing activities.</p> <p>Vegetation Disturbance Certificate confirms all boundaries and buffer zones have been demarcated (physically and in GIS mapping systems).</p> <p>Post clearing inspection checklist confirms vegetation and topsoil is managed in accordance with the environmental performance standards specified.</p> |
| | No clearing of native vegetation outside of the approved disturbance boundaries. | <ul style="list-style-type: none"> Vegetation clearing will be undertaken in accordance with the requirements of <i>Vegetation Clearing Permit CPS 0000</i> and will not exceed the approved clearing area of 15 hectares. | <p>Post clearing inspection checklist confirms all vegetation clearing was undertaken in accordance with the <i>Vegetation Clearing Permit CPS 0000</i>.</p> <p>A review of the GIS mapping system demonstrates vegetation clearing was within approved areas and did not exceed 15 hectares.</p> |

* Note: The environmental performance objectives, environmental performance standards, and measurement criteria provided above are examples only. Operators are required to develop appropriate environmental performance objectives, environmental performance standards, and measurement criteria based on the environmental risk assessment for the activity (relevant to site-specific conditions and activity-specific environmental risks and impacts).