

ENVIRONMENTAL GUIDANCE NOTES:  
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)



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**REVISION**

Rev	Status	Originator	Checked	Approved	Date
A	Issued for use	Environmental Engineer	Technical Manager	PTD Sr. Manager	01/02/17

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## 1 PURPOSE

This guide document has been developed to assist PDC's prospective tenants of projects under PDC concession area in preparing a Construction Environmental Management Plan (CEMP) as part of compliance with legislative framework. The objective of this document to guide & assist tenants to realize construction-related impacts and consider appropriate mitigation measures. Also, it is intended to assure that the CEMP is prepared to the international standards.

This document should be used by both tenants and environmental professional who may be hired to assist with technical aspects of CEMP. It is to be noted that this guide is not meant to be comprehensive but only base reference to establish coherent compliance with legislative framework.

## 2 APPLICABILITY

This document is applicable to all of PDC's Assets and Facilities and where PDC has operational control. The guidelines herein are specific to the construction phase of the project only and do not cover operational phase of the project. The following criteria, but not limited, if met by proposed project these guidelines is applied:

- Construction-related emissions and releases may impact environment or the surrounding community.
- Construction-related activities located in or near sensitive habitats.
- Known or expected subsurface contamination may occurs.
- A new or modified discharge to air or water will occur during construction.
- A new or unique construction method with uncertain impacts will be implemented.

The expectation is that mitigation measures must be tailored to directly address the identified potential impacts. The need for full CEMP will be determined by SEZAD and communicated to tenants during the process of obtaining environmental permit.

## 3 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP) COMPONENTS

By virtue construction-related activities have potential impact environmental resources or members of the surrounding community thus requiring a CEMP. The tenant is required to retain the services of a registered environmental consultant to prepare a CEMP that presents mitigation measures and best management practices (BMPs) that are proposed to be implemented to avoid or minimize adverse impacts. The CEMP should be based on the environmental conditions at the site, the nature of the proposed project and the findings of any assessments conducted as part of the application.

Subsequent sections below are generic format of a CEMP and sets out the components which should generally be covered. The level of detail should be scaled to the size and complexity of the project and the relevant potential for construction-related activities to generate impacts of concern. It is expected that CEMP to be updated as project details change. SEZAD will make a final determination on the suitability, completeness and adequacy of a CEMP.

### 3.1 Introduction

The plan should define the purpose of the CEMP and describe its scope and use in the context of the ongoing project

### 3.2 Project Information

#### 3.2.1 Location

Identify the project location, using registered name as well as coordinates for clear identification. Include appropriate scaled figure(s) for visual identification and reference.

### 3.2.2 Project Description

Here the tenant should give a basic overview of the project and the construction-related project components. This include, but may not limited to:

- Describe all activities and tasks to be undertaken on the site during site establishment and construction.
- Describe relevant stages/ phases of construction and methods employed (e.g. equipment and number of personnel)

### 3.2.3 Project Schedule

The plan should include an overall expected timeframes for each stage/phase as well as detailed work program schedule according to construction components/tasks. This could be presented in as a bar chart.

### 3.2.4 Site Description

This section should provide a summary of existing site & environmental conditions and information related to potential or known environmental concerns at the site. The level of details provided should reflect the project complexity and context. Majority of the information could be sourced from findings of any assessment conducted as part of environmental impact assessment or review and should be referenced.

## 3.3 *Contact and Responsibilities*

The following sections outline the need to identify the responsibilities of key personnel involved in the project construction.

### 3.3.1 Key Project Personnel

It expected that the tenants to maintain a list of project contacts throughout the construction phase of the project. This can be in a form of a table and should include those regulatory authorities that have input to the project (e.g. SEZAD, MECA). This should established once the project contact list known and made available to all parties.

### 3.3.2 Roles and Responsibilities

Here roles and responsibilities should be described for all personnel involved in project construction involved in environmental management including environmental representative. Generally the environmental representative is third party subcontracted by the tenant. Also, contractor's roles and responsibilities should be defined and communicated to their staff and sub-contractors as well as the requirements to comply with laws and regulations

On-site monitoring is a key element of ensuring that mitigation measures made in the CEMP are implemented properly and function as intended. It is expected to retain a registered environmental consultant to provide guidance on implementing the recommended measures and develop additional mitigations if need arises.

Monitoring frequency is based on specific work tasks/procedures and potential for adverse impacts to occur. Frequency and duration of site visit should be determined through consultation between SEZAD, tenants and environmental consultant.

## 3.4 *Environmental Legislation Framework*

The plan should describe the relevant environmental legislation and statutory legal requirements applicable to the project an example table is provided below and can be included into the CEMP. Also, approvals, consultations and agreements required from authorities and other stakeholders should be included as well. The given table is not comprehensive but rather guidance example to which laws may be apply (refer to Guidance Note - Omani Environmental Regulations and International Legislations for more details).

Example Table:

Environmental Topics	Reference	Title
Framework Environmental Regulation	RD 114/2001	Law on Conservation of the Environment and Prevention of Pollution
Water Resources	RD 29/2000	Law of water resources conservation
	RD 115/2001	Law on protection of potable water sources from pollution
Marine Environment	RD 34/1974	Marine pollution control law
	RD 36/1991	Oman accession to some protocols related to the marine environment
	RD 92/1984	Ratifying the Accession of the Sultanate to the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties
	RD 26/1981	Approving the accession of Oman to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter
Ecology	RD 4/1994	Establishment of the Oryx sanctuary
	MD 101/2002	Prohibition of killing, hunting or capturing of wild animals and birds
Culture and Heritage	RD 6/1980	Law on National Heritage Protection
Chemicals	RD 46/1995	Law of handling and use of chemicals
Waste	RD 24/2002	Sanctioning the protocol on the transboundary movement of hazardous wastes and other wastes and their disposal
Climate Change	RD 107/2004	Ratification of the Kyoto Protocol on Climate Change
Ozone Depleting Substances	RD 73/98	Oman's accession to the Vienna Convention on Ozone layer protection and Montreal Protocol on Ozone Depleting substance
Persistent Organic Substances	RD 117/2004	Ratification of the Stockholm convention on persistent organic pollutants (POPs)
SEZAD	RD 119/2011	Establishing Al-Duqm Special Economic Zone Authority and Issuing Its Regulations
	RD 79/2013	Issuing the regulation of the Special Economic Zone at Duqm

It is expected that all incident reportable and proactive approach to address incidents which results in non-compliance with applicable legislations. Relevant concerned authority must be informed and notify as soon as circumstance allow to do so. Examples of environmental incidental include, but not limited to:

- Release and discharge of hazardous substance
  - o Spills of oil, fuel or chemical
  - o Untreated sewerage and process wastewater
- Concrete materials (e.g. wet grout) spilled into waterbody
- Work and/or removal of vegetation without regulatory approval
- Unpermitted dumping of construction waste into immediate environment
- Unpermitted emissions from waste burning and other materials

### **3.5 Project Mitigation Measures and Environmental Specifications**

The following sections/headings proposed for a CEMP are not regulated and it is expected that tenants will formulate and populate CEMP based on relevancy to the construction of the project. The subsections below should be used where applicable and adapted to the project being proposed. Additional components/tasks may be also be needed. The headings and text presented here are provided to guide the formation of mitigation measures and specifications to be designed and implemented during construction. Example text has been included where possible to provide context.

Environmental standards, guidelines and BMPs should be referenced where applicable to construction-related impacts associated with the project. SEZAD environmental permit may also include specific requirements to mitigate impacts associated with any of the subsections below. The CEMP should be updated as appropriate to incorporate any such requirements.

#### **3.5.1 General requirements**

A list of general practices related to construction should be identified here. For example:

- Ensure all contractors and site managers review this CEMP and the applicable guidelines prior to each project phase or new activity
- Plan and schedule project activities for dry weather whenever possible. Minimize project works and equipment travel during periods of heavy precipitation.
- Site managers and contractors should be prepared to change existing measures and BMPs should they fail or additional measures be required. The environmental representative should be notified of any changes to ensure they are adequate and installed properly.

#### **3.5.2 Site Access, Mobilization and Laydown Area**

Describe the methods by which access the site, mobilize equipment, hauling access and routes are planned as well as laydown and stockpiling within the site should clearly identified. A detailed site drawing/ figure showing different area should be incorporated into CEMP. Suggested examples may include, but may not limited to:

- Traffic movement route plan
- Site layout including storage of material and equipment designated areas.

#### **3.5.3 Air Emissions and Dust Management**

This section should include a list of mitigation measures related to air emission and dust control strategies, not limited to:

- Dust-generating activities should be minimized or prevented through dust suppression controls such as dust covers on trucks or water spraying or approved suppression agents
- Ensure that all trafficable areas and vehicle maneuvering areas in or on the promise shall be maintained, at times, in condition that will minimize the generation, or emission from the promises, of windblown or traffic generated dust.
- Ensure that all vehicles entering and leaving the site carrying loads are having dust cover all the time, except during loading and unloading.
- No burning of oils, rubber, tires and any other materials should take place at the site
- Stationary emission sources (e.g. portable generators, compressors) should be used only as necessary and turned off when not in use.
- All equipment, vehicles and stationary emission sources should be well-maintained and used at optimal loads to minimize emissions.

#### 3.5.4 Noise and Vibration Management

The plan is expected to manage and address construction-related noise and vibration impacts and provide applicable mitigations in a list.

Example are:

- Identify general activities that will be carried out and associated noise sources.
- Assess construction noise impact at the relevant receivers.
- Provide details of overall management methods and procedures that will be implemented to control noise during the construction stage.
- Noise monitoring should be considered during particularly noisy activities to ensure the predicted impacts are not exceeded.

#### 3.5.5 Machinery and Equipment

It is expected that tenants will provide a list of all equipment and machinery to be used on site during construction, identifying: equipment type, fuel type, year of manufacture, and engine power rating. This section should direct the contractor to implement mitigation measures to avoid or minimize impacts resulting from operation and storage of equipment during construction. Equipment maintenance on a Project site should be discouraged.

Example mitigation could include:

- Equipment and machinery should be in good operating condition and maintained free of leaks, excess oil and grease
- Engines should be turned off when not in use or reduced to limited idle and equipment producing excessive exhaust or noise should be repaired or replaced.
- A spill containment kit should be readily accessible both on site and on each piece of equipment in the event of a release of a deleterious substance to the environment.

#### 3.5.6 Contaminated Soil and Groundwater Management

The plan should include procedure for the management of contaminated soil and groundwater that may be controlled during construction phase activities. This include, but not limited, temporary stockpiling and monitoring of soil, provisional testing of contaminated soil and groundwater and tracking and record keeping.

#### 3.5.7 Vegetation and Wildlife Management

Minimize the potential for negative impact to wildlife and vegetation during construction is expected to be controlled through implementation of mitigation measures such as following examples:

- Vegetation removal should be minimized as much as possible. Retain large trees where possible and leave coarse woody debris on the ground to provide cover and reduce erosion potential.
- Any vegetation to be removed should be informed and permitted by concerned authority.

#### 3.5.8 Archaeological Resources

The plan must ensure that archaeological resources are not impacted during construction-related activities. Procedures should be established to mitigate impact in the event that evidence of what is suspected to be an archaeological resource is encountered.

#### 3.5.9 Sensitive Habitat Features and Species

It is expected that the plan will employ mitigation to protect sensitive habitat features and environmental resources which may be impacted by construction-related activities. The BMPs to be employed in order to mitigate the potential effects would vary greatly depending on the



identified feature or species, its sensitivity to the project, and the proximity of the feature/habitat to the project footprint. Consultation with relevant specialists and/or authority may be required.

### **3.6 Emergency Response**

Comprehensive emergency response plan is intended to address and guide all plausible environmental emergency scenarios and containment and cleanup efforts and resources planning. The following sections provide general outline for incorporating an effective response plan into overall CEMP

#### **3.6.1 Emergency communication**

Identifying clear line of communication is integral element when dealing with emergencies. The CEMP should include a communication plan, including contact details for all parties who are responsible for the project, or are critical to the response or reporting of accidents or environmental emergencies. These details usually are presented in a tabulated format.

#### **3.6.2 Environmental Emergency Plan**

Plausible environmental emergencies should be identified that may occur while construction phase. These may include, but are not limited to:

- Reportable spills and releases oil or chemicals
- Accidental discharges of wastewater to waterbody
- “Not business as usual” operation emissions to open air

The environmental representative should be informed of all environmental emergencies. Subsequently assessed and recorded and determine appropriate action should be taken. All significant emergencies must be reported to PDC and SEZAD.

#### **3.6.3 Spill Response Plan**

As part of CEMP, it is required to formulate specific spill response plan to the type and quantities of potentially hazardous materials will be used in construction phase. The minimum scope of this plan include, but not limited, procedures for:

- Hazard analysis and safety assessment
- Identification of spill source and control
- Clean up and remediation
- Notification and incident reporting

Following measures are expected to be included in CEMP and implemented as part of spill response plan

- Identification of any/all hazardous materials/products as well as waste storage and secondary containment. Safety Data Sheets (SDS) should be kept on site and made available to all construction team members.
- Identification of the locations of spill response equipment and materials for containment and cleanup (spill kits and contents) as well as instruction on how to use them effectively. Locations of product/material storage and spill kit should be readily identified on a figure or map and posted in an appropriate location on site.
- Holding pre-construction meeting to identify all materials of a deleterious nature that could be spilled.

### 3.7 Fuel Management

The plan should designate specific locations for refueling and fuel storage on site plan. Bulleted measure should listed out being included during construction to ensure it adequately operated and leakage-free to protect immediate environment.

Example best practice such as:

- Refueling equipment and tanks should be clean and in good working order.
- Fuel tank should be placed in secondary containment with facility capable of holding 110% of storage tank content.
- Use of double-walled storage tanks.

### 3.8 Waste Management

The plan must provide details of proposed waste management measures to minimize production and impact of waste generated at the site including, but not limited:

- Identification of type and quantities of waste that would be generated, a description of how the waste would be handled, stored, reused, recycled and if necessary appropriately treated.
- Identification of a designated area for storage and collection of waste and recyclable materials to be provided on the site.
- Measures to involve and encourage employees and contractors to minimize domestic waste production on site and to reuse/recycle where possible.

### 3.9 Environmental Monitoring

The plan must include required monitoring program to comply with condition stipulated in the environmental permit and EMP for the proposed project. This may include, but not limited to:

- Water and sediment quality
- Air ambient quality including emissions
- Noise and dust particles
- Climate and GHG reporting

## 4 ABBREVIATIONS

Term	Definition
CEMP	Construction Environmental Management Plan
MECA	Ministry of Environment and Climate Affairs
PDC	Port of Duqm Company SAOC
POPs	Persistent Organic Pollutants
SDS	Safety Data Sheets
SEZAD	Special Economic Zone Authority at Duqm