

17 Construction environmental management plan (CEMP)

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17 Construction Environmental Management Plan (CEMP)

17.1 Introduction

This section explains what is meant by a Construction Environmental Management Plan (CEMP), what it would contain, how it would be used and sets out the procedures and responsibilities associated with its implementation. This section is a general overview of the CEMP only; details of measures which would be included in the CEMP and associated documents for the Hayle project are set out in the mitigation sections of each specific technical chapter of this Environmental Statement.

17.2 Introduction to EMS

An Environmental Management System (EMS) establishes what an organisation needs to do in order to manage itself so as to meet its environmental, economic and social goals. A typical EMS model is represented diagrammatically below.

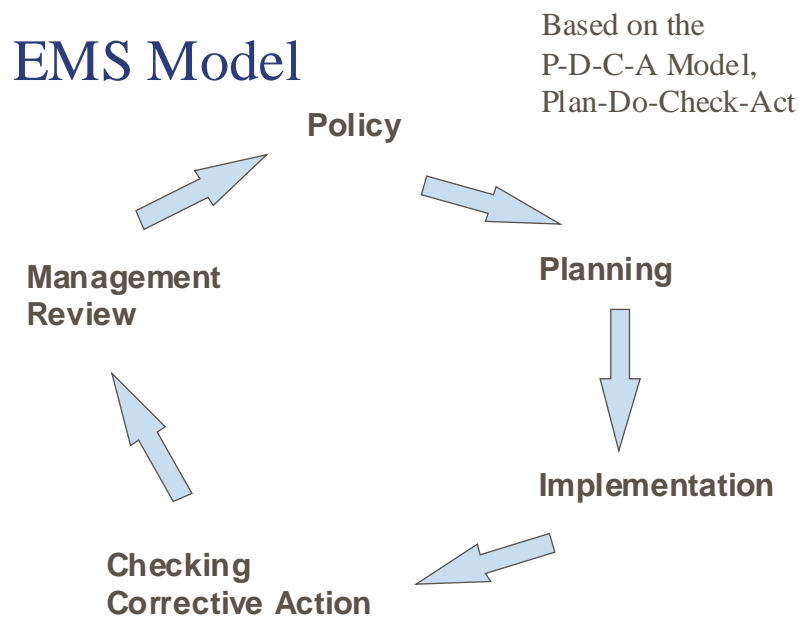


Figure 17– 1 Typical EMS model

17.2.1 Policy

An Environmental Policy for the project will be developed by the Contractors senior management team. The environmental policy, as defined by ISO 14001, is a statement by the organisation of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets. It will be communicated to all employees and sub contractors via site inductions and tool box talks and will be displayed on various notice boards throughout the construction sites. The policy should also be available to the public.

17.2.2 Planning

The core document of the EMS is the Environmental Management Plan (EMP). The EMP is the lead environmental management document that defines the procedures for achieving the objectives set out in the Environmental Policy and identified environmental performance targets for the project.

The EMP provides the framework for which commitments made in the ES or any requirements of planning conditions or Section 106 agreements can be realised. The EMP outlines the contractors approach to environmental management throughout the construction phases with the primary aim of reducing any adverse impacts from construction on local sensitive receivers.

17.3 Contents of the EMP

There are a number of key features that would be included in the EMP and they are briefly discussed in this section. A more detailed list is provided in the suggested layout for the EMP provided in Section 17.3 of this document.

The EMP will identify the project management structure and clearly identify the roles and responsibilities with regard to managing and reporting on the construction phase environmental aspects. More detail on roles and responsibilities is provided in Section 17.2.4

An Environmental Risk Assessment will be undertaken when developing the EMP. The risk assessment identifies all aspects of construction that could have an environmental impact and assesses the potential risk and impact of that activity on the environment. Management controls are then devised to eliminate and/or minimise those identified impacts.

The assessment would address the potential impacts created during the temporary construction period (e.g construction dust and noise) and any permanent impacts (e.g disturbance to vegetation) that are influenced by construction methods. Specific environmental issues would be addressed in the EMP and strategic details on how these would be controlled across the project would be provided. A list of potential issues that will need to be addressed in the plan are provided below based on information provided in the Environmental Statement.

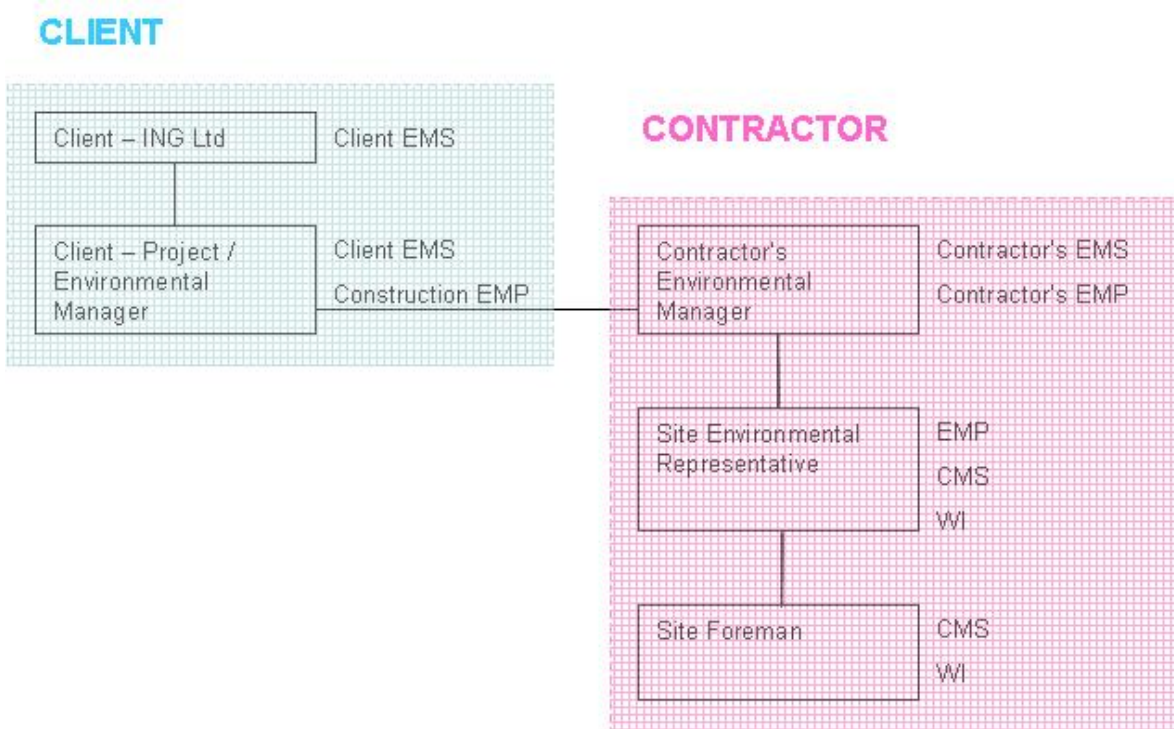
- Construction noise and vibration management
- Air quality including dust management
- Sustainable waste management
- Traffic management
- Archaeology and heritage management
- Water management (surface and groundwater)
- Management and protection of ecological resources (particularly relating to timing of certain works)
- Japanese knotweed management
- Contaminated land management

The EMP would set out objectives and targets for the project that are realistic and relevant for maintaining or improving environmental performance.

A programme of monitoring, reporting and auditing of compliance in accordance with any obligations of the planning consent, licences and approvals should also be contained in the EMP to ensure that identified and appropriate control measures are effective.

17.4 Roles and responsibilities

The line of responsibility for environmental management during the construction phase is shown in the organisation chart below. Descriptions of the key individuals with environmental responsibilities are described in the following paragraphs.



Key

EMP = Environmental Management Plan

CMS = Construction Method Statements

WI = Work Instructions

(see section 17.5 for more details)

Figure 17– 2 Roles and Responsibilities

17.4.1 Client's project environmental manager

The Client's Environmental Manager would be responsible for monitoring the performance of the project against statutory requirements and the agreed objectives and targets. Duties would include:

- review and approve the CEMP, prepared by the contractor, and specialist procedures and identify any areas for improvement
- Identify the environmental competence of all contractors (and sub-contractors) working on the project
- review method statements for environmental aspects and advise of any suggested improvements prior to work starting

- monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP
- act as a main point of contact between the contractor and the client's project team on environmental issues

17.4.2 Contractor's project environmental manager

The project environmental manager would be responsible for coordinating and managing all the environmental activities during the construction phase. The project environmental manager would carry out the following duties:

- develop and review the CEMP, Construction Method Statements (CMS's), work instructions (WIs) and other specialist procedures
- identify environmental competence requirements for all staff working on the project and ensure delivery of environmental training to personnel within the project team
- review and improve method statements for environmental aspects prior to work starting
- monitor construction activities performance to ensure that identified and appropriate control measures are effective and ensure compliance with the CEMP
- act as main point of contact between the regulatory authorities and the project on environmental issues
- in conjunction with the site environmental representatives, overall monitoring of the programme for the environmental works, and provision of status reports as necessary
- provision of advice and liaison with the construction teams to ensure that environmental risks are identified and appropriate controls are developed and included within method statements
- assistance in the development and delivery of environmental training for site personnel and sub-contractors
- liaison with the clients environmental manager
- liaison with the project's public liaison officer
- management of the environmental monitoring programme, including noise, vibration and dust and review of the routine reports
- environmental audit of subcontractors and suppliers

17.4.3 Contractor's site environmental representative

The site environmental representative would report to the project environmental manager and would be directly involved in managing and co-ordinating environmental activities on-site. These would include:

- Assist environmental manager in developing and maintaining the CEMP, CMS, WIs and various registers and checklists
- Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the CEMP
- Undertake weekly site inspections, initiate actions, complete a weekly environmental inspection report
- Maintain training register, identify training needs and provide training where required
- Provide advice and assistance to site personnel on environmental matters
- Assist site foreman in maintaining environmental records
- Assist in investigating and resolving complaints
- Undertake monitoring when required
- Ensure correct procedures are followed in the event of an environmental incident
- Dissemination of waste reduction and waste management procedures to all relevant personnel on site

17.4.4 Contractor's site foreman

The foreman will report on environmental activities to the site environmental representative and will be responsible for the following:

- Implement and maintain environmental controls on site
- Attend to any spills or environmental incident that may occur on site
- Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the site environmental representative/environmental manager
- Complete daily environmental log
- Maintain waste register and ensure correct waste management procedures are being implemented

17.5 Implementation

17.5.1 Construction Method Statements (CMS)

The EMP provides the overall project strategy for management of environmental issues, however, a Construction Method Statement (CMS) will address environmental management issues at a site level. The CMS provides an environmental manual for use by management and construction staff involved in the works. It addresses the environmental issues that are specific to an activity and/or site. CMS's should be produced for all major construction activities and/or major construction sites.

17.5.2 Work Instructions (WIs)

Environmental work instructions (WI's) are the most detailed form of environmental controls and provide "hands on" directions for on-site staff. They are related to specific environmental aspects on-site and provide clear and concise instruction to site personnel in dealing with situations such as:

- environmental incidents
- adverse weather conditions
- complaints
- controls and commitments detailed in the EMP and CMS's
- a trigger point contained in the environmental inspection checklist or log
- general good site practice

17.6 Checking and corrective action

17.6.1 Monitoring and reporting

Monitoring is an integral part of the EMS as it establishes how the project is performing against objectives and targets set in the EMP. A schedule and procedures for monitoring and reporting should be developed at the outset in order to:

- identify any negative impacts from construction activities
- assess the effectiveness of control measures
- demonstrate compliance with regulatory conditions and objectives and targets set in the EMP
- Identify if further controls/corrective action is required

Regular monitoring and reporting of dust, noise, vibration and water quality will be required by the regulatory authority. The frequency of this monitoring and reporting will largely be dictated by requirements of the

planning obligation, section 106 agreements and the objectives and targets set in the EMP. In addition, monitoring may be required as a result of a complaint, a request by a statutory body or a trigger point in an inspection or checklist being exceeded. Monitoring and reporting should also reflect any requirements identified or commitments made in the CMS.

17.6.2 Environmental inspections, audits and registers

In addition to the routine monitoring detailed above a schedule of regular inspections, audits and reporting will be required by the contractor. These inspections etc will provide a record of site conditions and activities and provide a mechanism by which the contractor can establish the effectiveness of its EMP.

These checklists and reports should be kept at each site office and should be updated and used in the day to day operation of the site.

The client will also develop a schedule of inspections and auditing of the contractors EMP in order to ensure that established standards of environmental controls are being maintained by the contractor.

17.6.3 Compliance and non-conformance/corrective action report

If criteria within the EMP are not fulfilled and appropriate and corrective action is not taken a non-conformance may be raised by the environmental manager. Examples of circumstances where this may arise include:

- Receipt of a complaint regarding pollution or other environmental impacts caused by the project
- Departure from approved or agreed procedures
- Non-conformance identified as a consequence of any self-assessment, formal audit or other environmental survey or inspection

Corrective action may include changes to work instructions (frequency of testing, test method etc.), alterations to the CMS, further staff training etc. Non conformances should be reviewed by the environmental manager and form part of construction meeting agendas.

In addition, non-conformance/corrective action report can be issued to the contractor by the client. It is the responsibility of the contractor to immediately initiate corrective actions and, once completed, provide details of the actions undertaken on the non-conformance/corrective action report and return it signed to the client's environmental manager within an agreed timeframe. If the non-conformance is considered to breach legislative requirements, the breach should be reported to the appropriate public authority.

17.7 Management review

Review triggers will be set in order to maintain the suitability and effectiveness of the EMP. A review would be carried out when triggers such as the following are met:

- As a minimum annually
- If required as a corrective and/or preventative action in response to an environmental incident or the outcomes of an environmental audit
- If required by a statutory body

17.8 Suggested Layout of the EMP

1.0 Introduction

2.0 Project description

3.0 Environmental Policy

4.0 EMP preparation

- Consultation
- Project management structure
- EMS
- CMS

5.0 Environmental legislation, regulations and guidelines

- Planning consent
- Legislation and guidelines register
- Any permits required

6.0 Environmental aspects and risk assessment

7.0 Objectives and targets

8.0 Environmental issues

- List as identified by ES

9.0 Roles and responsibilities

- Internal team responsibilities
- Sub contractor responsibilities

10.0 Sub-contractor management

- Selection
- Inductions
- Supervision
- 11.0 Communication
 - Internal
 - External
- 12.0 Reporting requirements
- 13.0 Complaint handling procedure
- 14.0 Environmental Training
 - Site induction training
 - Specialist environmental training
 - Toolbox talks
- 15.0 Environmental audits
- 16.0 Non-conformance & corrective action
- 17.0 Environmental incidents and emergency response
- 18.0 Review of the Environmental Management Plan
 - Review triggers
 - Quality system improvements
- 17.9 Suggested file structure**
 - Environmental policy
 - Environmental Management Plan
 - Construction Method Statements
 - Construction method or detailed phasing not known but a number of CMS's are likely to be required for each phase and activity
 - Work Instructions

- Contaminated soil/land management
- Japanese knotweed management
- Discharging water from site
- Erosion and sedimentation control
- Dust management
- Noise management and monitoring
- Completing the environmental log
- Waste management on site
- Ecological mitigation and protection
- Environmental Incident management and reporting
- Non conformance/corrective action reporting and management
- Spill management
- Complaint handling procedure and sensitive receiver management
- Registers
 - Training register
 - Complaints register
- Checklists
 - Weekly environmental checklist
 - Daily environmental log