

**ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT
(ESIA) FOR PRINOS OFFSHORE DEVELOPMENT
PROJECT**



**Chapter 13
Environmental and Social Management and
Monitoring Plan (ESMMP)**

TABLE OF CONTENTS

13 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)	13-5
13.1 INTRODUCTION	13-5
13.2 SCOPE	13-6
13.3 MANAGEMENT OF CHANGE	13-6
13.4 PROJECT STANDARDS	13-7
13.5 OBJECTIVES AND TARGET SETTING	13-8
13.6 ENERGEAN's HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT SYSTEM (HSE MS) OVERVIEW	13-9
13.6.1 OVERVIEW	13-9
13.6.2 RISK ASSESSMENT – HAZARD / ASPECT IDENTIFICATION AND RISK MANAGEMENT	13-10
13.6.3 LEGAL AND OTHER REQUIREMENTS	13-12
13.7 THE ESMMP AS PART OF ENERGEAN's MANAGEMENT SYSTEM	13-12
13.8 OTHER HSE MS RELATED	13-15
13.9 ROLES AND RESPONSIBILITIES	13-16
13.9.1 CONSTRUCTION PHASE	13-16
13.9.2 OPERATION PHASE	13-19
13.10 COMPETANCIES AND TRAINING	13-20
13.10.1 INTRODUCTION	13-20
13.10.2 OBJECTIVES OF TRAINING PROGRAMME	13-21
13.10.3 ROLES AND RESPONSIBILITIES	13-21
13.10.4 TRAINING LOG	13-21
13.10.5 ASSESSMENT OF TRAINING REQUIREMENTS	13-22
13.10.6 TRAINING MATERIAL	13-22
13.10.7 TRAINING DURING CONSTRUCTION PHASE	13-22
13.10.8 TRAINING DURING OPERATION PHASE	13-23
13.11 COMMUNICATIONS	13-23
13.11.1 COMMUNICATIONS DURING CONSTRUCTION PHASE	13-23
13.11.2 COMMUNICATIONS DURING OPERATIONS PHASE	13-24
13.12 MANAGEMENT OF CHANGE	13-24
13.12.1 OVERVIEW	13-24

13.12.2	EMERGENCY PREPAREDNESS AND RESPONSE	13-24
13.13	CONTRACTOR AND SUPPLIER MANAGEMENT	13-25
13.14	MONITORING AND EVALUATION	13-25
13.15	ENVIRONMENTAL AND SOCIAL MONITORING PLAN	13-26
13.15.1	INTRODUCTION	13-26
13.15.2	ENVIRONMENTAL MONITORING AND REPORTING	13-27
13.16	NON-CONFORMANCE, INCIDENT AND ACTION MANAGEMENT	13-32
13.16.1	OVERVIEW	13-32
13.16.2	INCIDENT / NON CONFORMITY REPORTING AND RESOLUTION	13-32
13.17	REPORTING	13-33

TABLES

Table 13-1: Environmental and Social Management Plans.....	13-13
Table 13-2: Daily worksites checks.....	13-17
Table 13-3: Construction site checks.....	13-18
Table 13-4: indicative scope of training programme.....	13-22
Table 13-5: Outline of Monitoring Program during the Construction Phase.....	13-28
Table 13-6: Outline of Monitoring Program during the Operation Phase.....	13-29
Table 13-7: Outline of Monitoring Program during the Decommissioning Phase.....	13-30
Table 13-8: Periodic reports.....	13-33

FIGURES

Figure 13-1: HSE system.....	13-10
Figure 13-2: Mitigation hierarchy of controls for Occupational Health and Safety (OHS) risks	13-11
Figure 13-3: Mitigation hierarchy of control for environmental and social risks.....	13-11
Figure 13-4: Hierarchy of responsibility for risk management.....	13-12

ABBREVIATIONS

ACCOBAMS	Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EE	Environmental Engineer
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ENERGEAN	Energean Oil & Gas S.A.
EO	Environmental Officer
EPC	Engineering Procurement Construction
ERP	Emergency Response Plan
ESIA	Environmental & Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
EU	European Union
GIIP	Good International Industry Practice
HSE	Health, Safety and Environment
HZW	Harardous Waste
JMD	Joint Ministerial Decision
MARPOL	Marine Pollution
MMP	Management and Monitoring Plan
MS	Management System
NHZW	Non-Hazardous Waste
O&G	Oil & Gas
OPRC	Oil Pollution Preparedness Response & Cooperation
POP	Persistent Organic Pollutant
PR	Performance Requirements

SEP	Stakeholder Engagement Plan
UNCLOS	United Nations Convention on the Law of the Sea

13 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

13.1 INTRODUCTION

The purpose of the Environmental and Social Management & Monitoring Plan (ESMMP) is to:

- Present an overview of the E&S Management System that is being implemented and will accordingly adjusted to continue in the upcoming project phases, to ensure systematic and effective execution of the environmental and social (E&S) commitments relevant to the construction phase of the Project, future operations, potential future developments as well as to the final decommissioning / abandonment phases, presented in Chapter 12;
- Provide a summary of the relative role and responsibilities of Energean, the EPC and other contractors throughout the phases.

It therefore provides assurance that E&S mitigation and management measures are fully accounted for, and will be implemented in line with the commitments made to date.

With this purpose, the remaining sections:

- Identify and communicate relevant legal requirements and good practice that have been adopted as Project Standards for the Project, to govern E&S management;
- Demonstrate how those Project Standards have been taken into account to date, while updating the currently in place HSE Management System (MS);
- Provide an overview of the current status of the HSE MS that Energean operates, with signposting to the existing E&S documentation where relevant; and
- Describe how the HSE MS will continue to develop, to ensure effective and sustainable management of E&S aspects, as the Company progresses towards Project operation.

This document is a “live” document – Energean’s E&S Programme will continue to develop and evolve further in response to the different stages of project development and the outcomes of ongoing stakeholder engagement. This document will be reviewed regularly to ensure the approach to E&S management remains fit-for-purpose and continues to align with relevant good practice.

The ESMMP is supported by the following topic specific Management and Monitoring Plans (MMP). As for the ESMMP these plans are ‘live’ documents and will be updated prior to construction:

The following topic specific Management and Monitoring Plans (MMP) are part of the ESMMP

are:

- Chemical use plan
- Waste management plan
- Stakeholder engagement plan (SEP)
- Chance finds procedure for cultural heritage
- Contingency Plan
- Health, safety and environment (HSE) management plan
- Traffic management plan
- General construction management plan (for your onshore works in pipeline assembly)
- Biodiversity and Wildlife management plan
- Pollution Prevention Management Plan

The Management Plans are provided as Annexes.

13.2 SCOPE

The scope of this document comprises the activities to be undertaken as part of the construction phase but also for current and future operations, and demonstrates how design-based risk assessment and ESIA activities are to be considered and implemented during the construction phase.

The organisational structure of Energean and the main contractor parties is likely to evolve and change over the course of the construction period. While developing this document, Energean has therefore endeavoured to develop an approach that responds to the need for some flexibility regarding future roles, and responsibilities for implementation of various compliance tasks during the construction and operational phase of the Project.

The requirements and commitments set out in this document are directly applicable to all Project personnel, including employees (full-time, part-time, temporary and seconded staff etc.). The EPC, and other contractors and suppliers are required to implement management systems complying with the minimum standards set out by the Energean HSE Management System, as communicated in this document.

Energean's HSE Management System is being updated to address all aspects of "sustainability", as addressed in the EBRD Performance Requirements. As such, it encompasses consideration of environment, social, occupational health and safety and labour and working conditions. For the sake of simplicity, the acronym E&S is used throughout this document, but this acronym should be interpreted as including community relations, community health safety and security, labour and working conditions and other ERBD sustainability aspects.

13.3 MANAGEMENT OF CHANGE

Effective Management of Change underpins every element of the Project Management System and therefore is addressed in multiple sections of the ESMP. The ESMMP is a living document and will be updated for the following reasons:

- Before the tender for the Contractor;
- Periodically update, regarding the results of monitoring programs during operation (every 3 years);
- Update due to environmental and social emerging issues;
- Incorporation of new legislative and regulative provisions;
- Update due to chance.

13.4 PROJECT STANDARDS

The Project Standards governing the development of the Project E&S Management System are summarised in the following sections.

The following Project Standards have been adopted and the ESMMP has been developed according to the:

- Energean's HSE Policy;
- National Legislation (L.4014/2011 and all relevant regulation governing the national permitting and broadened environmental protection framework);
- European Legislation (EIA and Offshore directives as well as all relevant environmental and safety framework Directives);
- International Conventions:
 - ⇒ International Convention for the Prevention of Pollution from Ships (MARPOL)
 - ⇒ International convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)
 - ⇒ Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic Sea (ACCOBAMS)
 - ⇒ United Nations Convention on the Law of the Sea (UNCLOS)
 - ⇒ International convention on the establishment of an international fund for compensation for oil pollution damage (FUND)
 - ⇒ Stockholm Convention on Persistent Organic Pollutants (POPs)
 - ⇒ Aarhus Convention
- Good Oilfield Practices and Good International Industry Practice (GIIP):
 - ⇒ Energean is committed to follow 'Good Oilfield Practices' and 'Good International Industry Practice' throughout day to day activities, whether they be the drilling of new wells, the installation of new facilities or the management of existing facilities
- EBRD Standards:
 - ⇒ PR1 – Assessment and management of environmental and social impacts and issues: This project is categorised as A under PR1 and is thus subject to a

comprehensive ESIA.

- ⇒ PR2 – Labor and Working Conditions: The implementation of the actions necessary to meet the requirements of this PR will be managed under the Company's Environmental and Social Management System and Human Resources System.
- ⇒ PR3 - Resource efficiency and pollution prevention and control: The implementation of the actions necessary to meet the requirements of this PR will be managed under the Company's ESMS and is incorporated in the project design.
- ⇒ PR4 – Health and Safety: While the PR is acknowledging the role of relevant authorities in protecting and promoting the health and safety of the public, the Company has the duty to identify, avoid, minimize or mitigate the risks and adverse impacts health and safety of the affected communities that may arise from the project.
- ⇒ PR5 – Land acquisition, involuntary resettlement and economic displacement: Certain requirements have to be addressed during the environmental and social assessment process and generally during the project's lifetime.
- ⇒ PR6 - Biodiversity conservation and sustainable management of living natural resources: The implementation of the actions necessary to meet the requirements of this PR will be managed under the Company's Environmental and Social Management System (ESMS).
- ⇒ PR7 - Indigenous peoples: There are no indigenous peoples in Greece as per the definition presented in PR7 and therefore this PR does not apply to the Project.
- ⇒ PR8 - Cultural heritage: Certain requirements have to be addressed during the environmental and social assessment process and generally during the project's life.
- ⇒ PR9 – Financial intermediaries: This PR does not apply to this Project.
- ⇒ PR10 - Information disclosure and stakeholder engagement: This PR identifies the stakeholder engagement and information disclosure as an ongoing process and should be read in conjunction with PR1.

13.5 OBJECTIVES AND TARGET SETTING

The main objective is to provision of a framework for the implementation of the measures identified in the impact assessment analyzed in the ESIA, in order to avoid, mitigate or offset adverse environmental and social impacts and to minimise and manage risks on the environment, project personnel and local communities.

Each topic specific Management and Monitoring Plans (MMP) set its own objectives and targets. More specifically these:

- Outlining how Energean will monitor and review Contractor's performance
- Defining Contractor's roles and responsibilities

- Ensuring environmental protection of the highest achievable level
- Ensuring a high standard in work conditions
- Assisting the Contractor:
 - ⇒ in identifying the possible hazards that relate to the work process and to assume appropriate measures for the reduction of risks
 - ⇒ in preventing possible environmental damages or damages to third parties properties
 - ⇒ in anticipating and preventing possible damage of property belonging to third parties, caused by construction procedures and / or operations.
 - ⇒ in ensuring environmental protection of the highest achievable level
 - ⇒ in implementing the mitigation measures
 - ⇒ in ensuring that all works complies with the Energean HSE Policy, national legislations, best international practice and all relevant EBRD PRs, in order to avoid all potential damages

The topic specific Management Plans are provided as Annexes.

13.6 ENERGEAN'S HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT SYSTEM (HSE MS) OVERVIEW

13.6.1 Overview

Energean is responsible for the environmental and social management of the construction and operation activities, to ensure that project commitments are implemented, and conforms to applicable environmental and social legal, regulatory and corporate requirements.

Energean's current Health, Safety and Environmental (HSE) Management System defines the principles to be followed by all employees and contractors associated with O&G fields exploitation business in Prinos and South Kavala fields and relating facilities and future developments. This system will be adapted to cover the proposed new planned infrastructure / operations.

Energean's system is based on internationally recognized best practices in managing HSE risks in exploration & production (E&P) industry, structured around a classical PLAN – DO – ASSESS – ADJUST cycle.

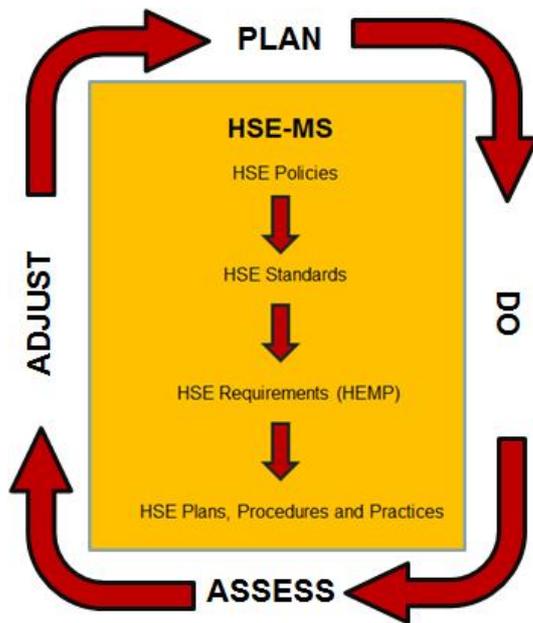


Figure 13-1: HSE system

By managing risks in this manner:

- All Hazards associated with the company's operations are well understood;
- Necessary activities are performed to manage these hazards and bring risks to a level as low as reasonably practical;
- The effectiveness of the performance is assessed through measurement, monitoring, reviews, audits and investigations;
- Plans and procedures are adjusted based upon these assessments

All staff is included and is participating at all levels in this continuous cycle.

13.6.2 Risk assessment – hazard / aspect identification and risk management

The ESIA and various other E&S studies have identified key E&S aspects, risks and potential impacts requiring mitigation and control. Identification and assessment of impacts has been undertaken through a process comprising consultation, modelling, on-site observations, literature review and expert opinion based on experience of other similar projects. These modelling and assessment results have been reviewed and verified. Energean is committed to the Mitigation Hierarchy (for Health and Safety), and the Mitigation Hierarchy (for Environmental and Social Risks) presented respectively in the following figures. This hierarchy will be adhered to when devising appropriate mitigation and management strategies and measures.

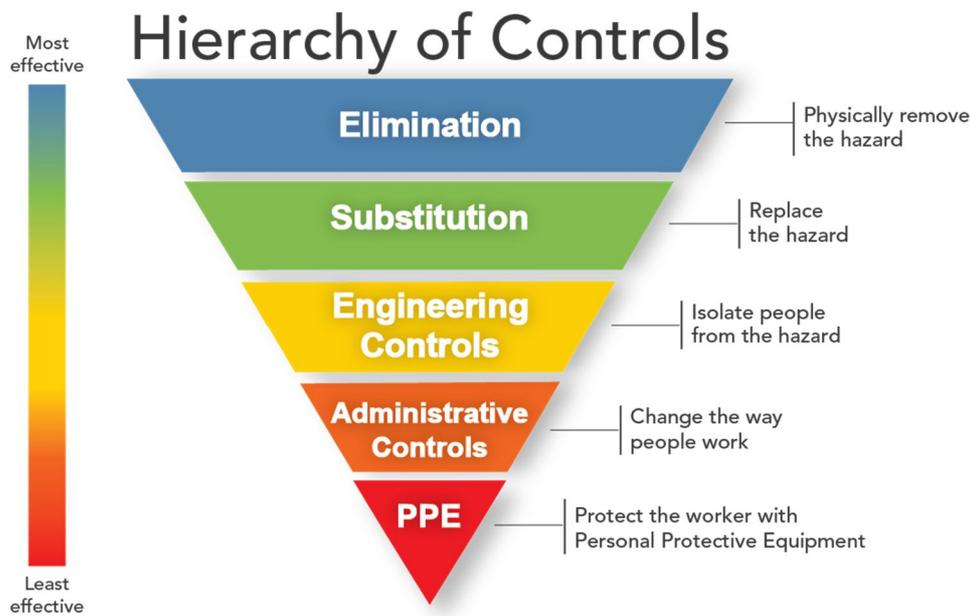


Figure 13-2: Mitigation hierarchy of controls for Occupational Health and Safety (OHS) risks

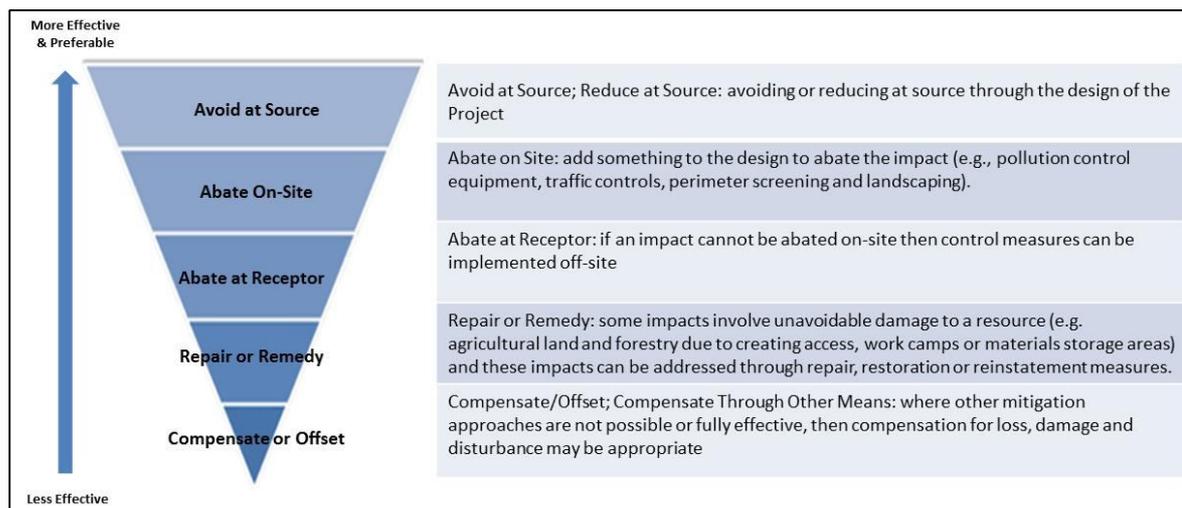


Figure 13-3: Mitigation hierarchy of control for environmental and social risks

To ensure ongoing risk management on the Project, during the construction phase, the EPC will develop and maintain a risk register for the Project. This risk register will develop to reflect the findings of the ESIA study and other E&S studies relating to the construction phase. As part of compiling the risk register for the Project, the EPC team will ensure EHS and social risks are proactively and systematically identified, assessed, evaluated and controlled.

The methodologies used to, identify, assess and analyse risks shall be defined with respect to their scope, nature and timing to ensure methods are proactive rather than reactive; and provide for the identification, prioritization and documentation of risks, and the application of controls. The methodologies that are used will align with international good practice. The EPC will adhere

to the Hierarchy of Control and ALARP when devising risk control measures.

The EPC will ensure personnel working for or on behalf of the Project are aware of the key EHS and Social risks identified as part of that risk assessment process and the measures that they are required to implement. The risk register, risk management procedures, and risk assessments will be available to Energean for review at all reasonable times. Risk information shall be shared between the various project parties as shown in Figure below. As shown in the figure, a minimum of once every two months, the Energean will review the top risks relevant to the Project and associated mitigation and management measures. Pertinent information will be included in the quarterly reports to the lenders, where relevant.

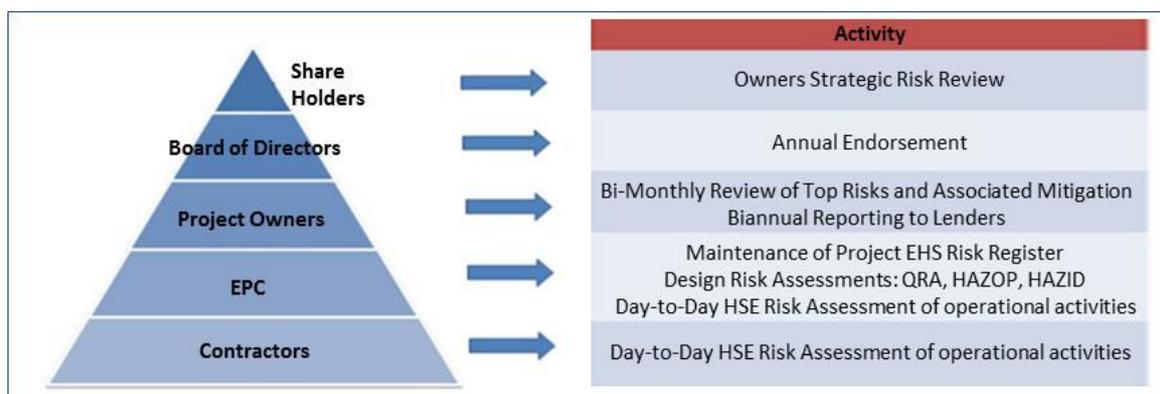


Figure 13-4: Hierarchy of responsibility for risk management

13.6.3 Legal and other requirements

The compliance framework for the Project (i.e. the Project Standards) is summarized above in Chapter 13.4 of the present ESIA, whereas further detailed information is provided in Chapter 05 of the present ESIA, which included an in-depth analysis of relevant legislation, national policy and development plans; and lender requirements and related guidance.

Compliance with all relevant legislation is a core company commitment of Energean and has been communicated externally as part of the Environmental and Social Policy.

Energean requires the EPC to establish processes to proactively identify legislation and other standards relevant to E&S management of their activities, and put measures in place to ensure Project personnel are aware of all relevant legal requirements and adhere to them. A register of Legal and Other Requirements shall be compiled by the EPC in consideration of the Project Standards, shall be kept up to date and shall be communicated to Project personnel where relevant.

13.7 THE ESMMP AS PART OF ENERGEAN'S

MANAGEMENT SYSTEM

To support the ESMMP, framework environmental and social management plans have been developed by Energean to manage and mitigate the E&S issues associated with the Prinos Development Project. The table below lists this management. The Prinos Development Project environmental and social management plans will be developed into full plans prior to mobilization of the main construction and installation contractors, and regularly reviewed as construction work proceeds.

Table 13-1: Environmental and Social Management Plans

Title of Plan	Issues Covered
Chemical use plan	<ul style="list-style-type: none"> Regulatory framework; Chemicals registry; Usage and quantities
Waste management plan	<ul style="list-style-type: none"> Waste management principles & legislation; Management procedures for non-hazardous waste; Management procedures for hazardous waste; Management procedures for liquid waste; Wastewater receptors; Monitoring, reporting and auditing
Stakeholder engagement plan (SEP) and Grievance mechanism	<ul style="list-style-type: none"> Community liaison training; Grievance mechanism; Nuisances management and monitoring (i.e. construction noise, artificial light from work areas, odors, pests and vermin); Community interaction (i.e. prior notification of noisy activities, road congestion associated with the transport of oversize and heavy loads); Monitoring and reporting
Chance of find procedure for cultural heritage	<ul style="list-style-type: none"> Cultural heritage training; Archaeological chance finds procedure; Monitoring and reporting
Contingency plan	<ul style="list-style-type: none"> Spill prevention; Spill response training; Spill response management

Title of Plan	Issues Covered
Pollution Prevention Plan	<ul style="list-style-type: none"> • Monitoring and reporting • Pollution prevention training • Energy efficiency (vehicle, vessel and equipment selection, maintenance) • Emissions and dust management (i.e. vehicle, equipment and generator emissions, dust management) • Wastewater management • Sewage treatment and disposal • Chemical selection and management, and hazardous materials management • Noise and vibration management and maximum permissible levels • Treatment of contaminated soil • Monitoring and reporting
Health, safety/social and environment (HSE) plan	<ul style="list-style-type: none"> • Responsibilities; • Regulations, standards, rules & procedures in force • Access to drilling locations; • Training; • Emergency drills; • Safety audits; • Monitoring & reporting; • Environmental policy; • Personnel protective equipment • Personal health; • Medical evaluation
Traffic management plan	<ul style="list-style-type: none"> • Driver and captain management training • Onsite vehicle and vessels movements • Offsite vehicle movements and the prohibition on off-road driving • Risk assessment for the transport of oversized and heavy loads • Monitoring and reporting
Construction management plan	<ul style="list-style-type: none"> • Project management – engineering and procedures;

Title of Plan	Issues Covered
	<ul style="list-style-type: none"> • Roles & responsibilities; • Project standards; • Implementation schedule; • Mitigation & management controls; • Monitoring; • Training; • Auditing & reporting
Biodiversity wildlife management plan	<ul style="list-style-type: none"> • Ecology and wildlife training • Protocols for offshore works including mitigation related to marine mammals • Pre-construction ecological surveys and wildlife inspections • Habitat and species protection during construction (i.e. traffic restrictions, code of conduct) • Monitoring and reporting

Energean will manage the construction phase of the Project, monitoring and auditing the technical, environmental and social performance of its contractors throughout the construction phase through application of the topic management plans and the existing HSE Management System. The contractors will be responsible for the management of their staff (to the extent that reflects staffing at the site) and ensuring compliance with Energean’s HSE management system, management plans and requirements at all times.

Energean will operate the Project, and existing facilities, using the established an Operations Phase HSE MS and again based on the “plan-do-assess-adjust” cycle. Commitments from the ESIA and the ESIA management plans will be integrated into the HSE management system. In addition, the MS will be adapted to include the Project.

13.8 OTHER HSE MS RELATED

The ‘Energean Force’ Rig already used to drill existing wells is managed by a rig management team who has its own independent HSE MS already in place. Alignment of the plans, procedures and reporting requirements of the rig and Energean HSE MS has been achieved through the development of an HSE MS Bridging Document. The document defines clearly how all activities will be managed to ensure compliance with Energean overarching requirements.

The HSE MS Bridging Document is a live document and will be reviewed at least annually. Both the Energean HSE MS and the rig management HSE MS monitor the same targets and

objectives, which are separately audited as part of their internal review process. Communications lines are in place to ensure the effective sharing of the findings and action lists. Drilling monitoring and reporting on the Energean Force will be undertaken in accordance with Energean policy and procedures and is set out within the rig Environmental Operating Procedure which details the method and frequency of reporting for the following categories:

- Deck drainage and wash water, garbage disposal unit effluent and grey water treatment effluent, oily water, fuel usage records;
- Volume of drilling fluids and cuttings discharged and Water Based Muds (WBM) fluid properties;
- Wastes sent to shore;
- Drilling/ workover/cementing/ testing chemicals;
- Mud sampling and labelling;
- Rig chemicals reporting;
- Any environmental accidents, incidents, oil, base fluid and chemical spill reporting; and
- End of well environmental report.

Auditing and checking are the key elements of the both HSE MSs. Individuals from each company are tasked with the responsibility of sharing the audit findings. Where necessary, additional audits and reviews may be undertaken to address identified areas of concern. Joint audits are undertaken to ensure that procedures are being followed appropriately. Both have systems in place to control communication, tracking and follow up of audit and review recommendations.

13.9 ROLES AND RESPONSIBILITIES

13.9.1 Construction phase

Energean is responsible for the detailed design, procurement, construction and operation of the Prinos Development Project. Energean has appointed design contractors to undertake the detailed design of the project and a drilling contractor to manage the 'Energean Force' Drilling Rig that will drill the wells. In due course, Energean will issue technical invitation to bid documents for the various elements of the construction work scope.

As Project Owner, Energean will have the ultimate responsibility for implementing the ESMMP, which will include:

- On-going management of environmental and social issues as detailed design proceeds
- Monitoring and auditing of the Contractor's' HSE (including labour and working conditions) performance
- Assisting the Contractor in implementing the ESMMP and topic special management

plans

- Acting as a point of contact for consultation with Authorities and stakeholders
- Environmental and social compliance monitoring and reporting.
- Activities that ensure that Contractors will be deployed in accordance with Project standards and regulations.
- Recording of compliance and non-compliance with the provisions of the ESMMP.

The main construction and installation contractors for the jacket, topside and subsea facilities construction will be expected to conform fully to the relevant aspects of the Energean's existing HSE MS which will be updated accordingly and for which they are responsible.

The main construction and installation contractors will be required to develop and implement their own Construction Phase management plans for the Prinos Development Project, which will meet or exceed the requirement of Energean's HSE MS.

Energean's existing and updated HSE MS will form the framework for managing social and environmental issues throughout construction, prior to the operation of the new facilities.

The aforementioned HSE MS will be used to deliver the Project ESIA commitments and coordinate and review the environmental and social performance of the Project at the construction stage. Special consideration will be given to the following:

- Practical training and raising the environmental and social awareness of personnel;
- Supervision and monitoring of environmental and social issues in the field; and
- Continuous improvement of environmental and social performance throughout the Project.

The Contractor will be responsible for:

- Comply with all national laws, rules and regulations concerning environmental protection and with all permitting terms;
- Demonstrating how requirements will be implemented during the construction;
- Demonstrating commitment to Energean's ESMMP, topic specific management plans and HSE MS at all levels, including subcontractors;
- Produce a Contractor's ESMP in accordance to Energean's ESMP and HSE MS;
- Follow up of legislative and regulative frame development and comply with them;
- Update his ESMP, if required.

As part of Energean responsibilities, the company's Environmental Officer will be required to conduct weekly inspections of all work places.

Any other construction areas for which the contractor is responsible at each of the aforementioned sites, the Contractor Environmental Officer will be required on a daily basis to check as per the following table where relevant.

Table 13-2: Daily worksites checks

By observation
Litter
Separation of solid waste as per system (general, hazardous, recycling, scrap)
Hydrocarbon spill
Effectiveness of control measures
Washouts of stormwater / WW drains
Water use
Water pollution incidents
Any activities contravene the ESMMP

The contractor Environmental Officer will be required to conduct monthly inspections of the entire construction site, which may involve subcontractors and may include, but not be limited to the following:

- The entirety of Construction;
- Environmentally sensitive areas that could potentially be affected;
- Liquid and solid waste storage facilities (general, hazardous, recycling, scrap etc);
- Dumping areas;

At each of those the EO will be checking as per the following table.

Table 13-3: Construction site checks

By observation	By document check	By measurements	By monitoring
Litter	All receipts for the collection of general waste and hazardous waste	Amount of water used by contractor(s) and sub-contractor(s)	Effectiveness of control systems
Separation of solid waste as per system (general, hazardous, recycling, scrap)	Correct placement of environmental signage and posters		Effectiveness of pollution control systems
Use of banding, hard standing and other protection measures	Document board listing emergency numbers, hazmat info sheets, etc		
Management means		Amount of waste recycled, sent to scrap yard or	

By observation	By document check	By measurements	By monitoring
		disposed to municipal waste disposal sites	

13.9.2 Operation phase

Energean will operate the Project facilities using the established HSE MS that will be adjusted as described earlier to cover the construction phase. This will be further adjusted prior to commencement of Project's operations and transition plans will be developed to assist with the movement from the construction to existing HSE MS that will be updated accordingly to fit into the operations the new planned and future development facilities.

The updated HSE-MS will be used to operate the Project facilities in accordance with the ESIA commitments and applicable legal and regulatory standards and Energean's policy.

The adjusted HSE-MS will:

- Promote legislative compliance;
- Regularly assess the environmental and social aspects and impacts of its activities;
- Promote the principles of best environmental practice in all general and emergency working procedures;
- Develop objectives and targets to address any significant aspects;
- Define roles and responsibilities (developer, supervising engineer, contractors, operators, other associated parties), and in particular, the environmental and social obligations of the project owner during the construction / installation stage;
- Define legislative requirements, guidelines and best industry practices that apply to the project;
- Ensure that works are carried out in accordance with the legal environmental framework applicable (approval procedures, national and international standards and good practices);
- Provide clear procedures and schedules for management of the environmental impacts, including corrective actions;
- Appropriately resource and train staff; and
- Define a monitoring mechanism and identify monitoring parameters in order to:
 - ⇒ Ensure the complete implementation of all mitigation measures;
 - ⇒ Ensure the effectiveness of the mitigation measures;
 - ⇒ Define requirements for environmental monitoring and auditing;
 - ⇒ Provide a mechanism for taking timely action in the face of unanticipated

environmental situations; and

⇒ Identify training requirements at various levels.

This system will be implemented with the aim of ensuring continual improvement in performance.

Key components of the HSE MS are the following (as applicable):

- Purpose;
- Project definition and facilities;
- Legislation and guidelines and applicable standards;
- Organizational structure (roles and responsibilities);
- Monitoring / Management plan;
- Environmental monitoring;
- Communication and documentation;
- Change management;
- Competence and training program;
- Waste disposal plan;
- Contractor and supplier management;
- Abandonment, restoration and rehabilitation;
- Traffic Management;
- Nonconformance, incident and action management; and
- Reporting

The operations commitments included within this ESIA will be implemented through the operations phase environmental of environmental management system. The following existing plans will be updated to incorporate the Project or new plans developed as required:

- Emissions management;
- Waste management; and
- Ecological management and monitoring.

In addition, the existing Emergency Response Plan (ERP) will be reviewed and amended to reflect the new Project facilities.

13.10 COMPETANCIES AND TRAINING

13.10.1 Introduction

Environmental training will help to ensure that the requirements of the ESIA and EMMP are clearly understood and followed by all project personnel throughout the project period.

Environmental training will form part of the environmental management system. The training

shall be directed towards all personnel for general environmental awareness.

In the framework of the ESMMP there will training programs for the implementation of the mitigation measure, monitoring programs etc and for enhancing personnel's competencies in respect to the ESMMP.

Training will apply both in construction and operation phase. More specifically:

- Training during construction phase:
 - ⇒ Energean's top management level
 - ⇒ Topic-specific training (as per MMP)
 - ⇒ Worksite management
 - ⇒ Monitoring and auditing
 - ⇒ Records
 - ⇒ Stakeholder engagement and Grievance Mechanism.
- Training during operation phase:
 - ⇒ The training during operation will follow the existing procedures of Energean (HSE management plan, ESMS etc).

13.10.2 Objectives of training programme

The key objective of the training programme is to ensure that the requirements of the ESMMP are clearly understood and followed throughout the project. Staff training will help in communicating environmental related controls specified in the ESIA and ESMMP.

13.10.3 Roles and responsibilities

Energean's Environmental Manager and the contractor's Environmental Officer shall primarily be responsible for providing Environmental or HSE training to all project personnel on potential environmental issues of the project. Contractor shall prepare a project specific training manual for this purpose. Contractors on their part shall be required to provide induction training/ briefing to all their staff before the start of any activity in the project area.

13.10.4 Training log

A training log shall be maintained by Energean and contractor(s), sub-contractor(s). The training log shall include;

- Topic;
- Date, time and location;
- Trainer; and
- Participants

13.10.5 Assessment of training requirements

In addition to the training specified in the training log special/ additional trainings shall be provided during each activity. The criteria to assess the need of training shall be based on the following:

- When a specified percentage of staff is newly inducted in the project;
- When any non-compliance is repeatedly reported, refresher training will be provided regarding that issue;
- When any incident/accident of minor or major nature occurs;
- Arrival of new contractor / sub-contractor; and
- Start of any new process / activity.

13.10.6 Training material

ENERGEAN's Environmental Manager and the contractor's Environmental Officer shall develop and prepare training material regarding Environmental or HSE awareness, ESIA, ESMMP and controls to be followed during the project. Separate training material can be prepared for each topic. A generic scope of the training covering the requirements of the ESIA and the ESMMP is discussed in table below.

Table 13-4: indicative scope of training programme

Staff	Contents	Schedule
Selected management staff and contractor(s) / sub-contractor(s)	<ul style="list-style-type: none"> • Environmental sensitivity of the project area • Key findings of the ESIA • Mitigation measures ESMMP Social and cultural values of the area Leadership dynamics 	Prior to the start of project activities
All project personnel	<ul style="list-style-type: none"> • Environmental sensitivity of the project area • Wildlife and vegetation sensitivity of the project area • Mitigation measures Contingency plan Waste disposal Community issues Social and cultural values • Waste disposal • Nature resource conservation • Housekeeping 	Prior to the start of project activities

13.10.7 Training during construction phase

During the construction phase, mainly, the responsible for personnel's training is the Contractor. The Contractor shall ensure that personnel involved directly to the implementation of the ESMMP must have adequate qualification and skills necessary to perform this work.

Prior to the commencement of the construction, the Contractor shall prepare a Training Plan, as defined in every MMP. This Training should include:

- Induction training program to all personnel
- Timely delivery of training courses
- Training procedures
- Information material for the personnel
- Information material or training program for subcontractors
- Means of confirming that the system is effective

Specifications of training, during the construction phase, is provided in every topic specific MMP.

13.10.8 Training during operation phase

The training during operation will follow the existing procedures of Energean (HSE management plan, ESMS etc) and will apply in all levels:

- Top managements
- Drilling personnel
- Barge personnel
- Riggers
- HSE officers and personnel

Part of the training program will be emergency and oil spill response drills.

Specifications of training, during the construction phase, is provided in every topic specific MMP.

13.11 COMMUNICATIONS

13.11.1 Communications during construction phase

Communication between Energean and Contractor

During the construction phase there will be a direct communication line between the Contractor and the Company. The establishment of the communication line is Contractor's responsibility. Other Contractor's communication responsibilities are:

- Keeping the Company informed in advance of the construction schedule, progress and key activities.
- Inform Energean immediately if a regulator or statutory stakeholder proposes to visit the Project
- Inform Energean prior to any visit to Authorities

- Communicate to company any complaint from stakeholders
- Keep contact log
- Communicate with other Contactors, if needed, through Energean communication procedures

Communication with Authorities

ENERGEAN will be responsible for contacting with Authorities. In case the Contractor wants to have a meeting with Authorities, he must inform Energean prior to any action.

Communication with Stakeholders

The communication with Stakeholders is described in the SEP and in the Grievance Mechanism.

13.11.2 Communications during operations phase

Communications in the operation phase will follow the existing procedures of ENERGEAN.

13.12 MANAGEMENT OF CHANGE

13.12.1 Overview

Although the Project design is in detail level, there are always uncertainties in the Project development (construction and operation phase), which need to be dealt in a structured way. The way in which these changes will be managed with in the period following the submission or after the approval of the ESIA is a matter of the magnitude and nature of change.

The basic legal framework for environmental permitting changes in Greece is the provisions defined in Law 4014/11, as supplemented by relative Joint Ministerial Decisions (JMDs). Energean will follow this regulative frame, but the actions to be taken will be based on the magnitude and nature of change:

- Minor changes, usually, do not require new or advanced environmental studies, but only environmental reports and notifications to competent Authorities. Probably, the alterations in the ESMMP will be minimal.
- Moderate changes, usually, require Reports for Modification of Approved Environmental Terms or even a new ESIA. In such a case, a revision of some sections of the ESMMP is required.
- Major changes, requires a new ESIA and a total revision of the ESMMP.

13.12.2 Emergency preparedness and response

Energean requires all Project personnel, including the EPC and contractors to identify potential

and actual emergency situations, and respond to these situations in an appropriate manner, in order to prevent or mitigate potentially adverse E&S impacts.

Energean requires the needs of relevant interested parties will be taken into account (e.g. emergency services, communities, neighbours) as part of this process, and procedures shall be reviewed, tested and revised periodically, and where required.

For the construction phase, the EPC will develop emergency response procedures. These procedures will be implemented and tested during the first 3 months of the Project, with training initiatives for relevant personnel.

Energean will review and monitor the performance of the EPC's and the related emergency response plans as part of the Project monthly site management meetings, where appropriate.

As the Project transitions to the operational phase, Emergency Preparedness and Response will become the responsibility of Energean. In anticipation of that transition, a Qualitative Risk Assessment (QRA) of the Project design has been completed and an Emergency Response Plan for the Operational Phase is already established (Annex 13 – Contingency Plan).

13.13 CONTRACTOR AND SUPPLIER MANAGEMENT

All Contractors and Suppliers have to follow Energean's HSE Policy, HSE Management Plan and ESMS and to comply with this ESMMP. Contractors have to develop their own ESMMP, according to this one.

The Contractors and Suppliers must know and comply with any duties or responsibilities set by the national, EU and international regulations and EBRD standards with regard to HSE and labour issues.

Energean has the responsibility to provide to Contractors and Suppliers all relevant documents and apply an audit procedure for their compliance.

13.14 MONITORING AND EVALUATION

The monitoring procedures are defined hereby, within the ESMMP. This is an operational document, which provides all the operational background necessary for the efficient implementation of the measures identified in the ESIA. More specifically the objectives of the ESMMP are to:

- Promote legislative compliance;
- Promote the principles of best environmental practice in all general and emergency working procedures;

- Facilitate the implementation of mitigation measures identified in the ESIA;
- Define legislative requirements, guidelines and best industry practices that apply to the project;
- Define the role and responsibilities of the project proponent to ensure environmental protection; and
- Define a monitoring mechanism and identify monitoring parameters in order to:
 - ⇒ Ensure the complete implementation of all mitigation measures;
 - ⇒ Ensure the effectiveness of the mitigation measures;
 - ⇒ Define requirements for environmental monitoring and auditing;
 - ⇒ Provide a mechanism for taking timely action in the face of unanticipated environmental situations; and
 - ⇒ Identify training requirements at various levels.

The monitoring program ensures that the impact is within the predicted limits and to provide timely information if an unacceptable impact is taking place. For each component of the monitoring program, the following information should be presented:

- Mitigation measures recommended in ESIA
- Responsible person
- Monitoring parameters
- Periodicity of monitoring

Evaluation of the application of the ESMMP shall be carried out to ensure compliance with the requirements of the ESIA. Evaluation is made by:

- Systematically observe the application of measures
- Verification of efficiency of measures
- Maintaining records
- Reporting

13.15 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

13.15.1 Introduction

The purpose of monitoring is to ensure that the impact is within the predicted limits and to provide timely information if an unacceptable impact is taking place. The scope and frequency of the monitoring depends on the residual impacts identified earlier in the present ESIA report. To address the mitigation measures and monitoring requirements identified in ESIA, a management

plan will be developed in coordination with the permitting authority and will be part of the environmental permit. This will need to ensure that the project is designed, constructed, maintained and implemented in the manner described in the ESIA.

For each component, the following information should be presented in the plan:

- The required mitigation measures recommended in ESIA;
- The person/organization directly responsible for adhering to or executing the required mitigation measures;
- The person/organization responsible for ensuring and monitoring adherence to mitigation measures;
- The parameters which will be monitored to ensure compliance with the mitigation measures; and
- A timescale for the implementation of the action to ensure that the objectives of mitigation are fully achieved.

Generally the plan will need to encompass all the monitoring parameters that are currently prescribed by the current permit in power and already monitored by ENERGEAN and in case of any new legal / statutory obligations, this will need to be expanded to cover those on top.

The process and management of the monitoring plan is further described in the paragraphs below.

13.15.2 Environmental monitoring and reporting

The objective of environmental monitoring during the construction/installation activities will be as follows:

13.15.2.1 Compliance monitoring

Compliance monitoring shall be carried out to ensure compliance with the requirements of the ESIA. The objectives of the ESIA compliance monitoring will be to:

- Systematically observe the activities undertaken by the civil work contractors or any other person associated with the project;
- Verify that the activities are undertaken in compliance with the ESIA, the ESMMP, the ESMS and other conditions identified by Energean;
- Document and communicate the observations to the concerned person(s) at Energean so that any corrective measures, if required, can be taken in a timely fashion; and
- Maintain a record of all incidents of environmental significance and related actions and corrective measures.

Compliance monitoring will be the responsibility of all teams involved in the construction i.e. Energean and the contractor(s) / sub-contractor(s) and hence it will be done at two levels.

- Monitoring by Energean Environmental HSE Manager; and
- Monitoring by the contractor(s) / sub-contractor(s) Environmental Engineers(s) as

applicable.

The management plan provided in previous tables shall be used as a management and monitoring tool for compliance monitoring. Inspection shall be done using checklists, which will be developed on the basis of the mitigation plan. During compliance monitoring the following parameters would be specifically addressed:

- Visual monitoring of air emissions;
- Recording water consumption for each project activity;
- Disposal of domestic and operations (HZW and nHZW) wastes;
- Recording of noise levels from each project activity; and
- Recording complaints regarding environment in a complaints register (as per established grievance mechanism).

13.15.2.2 *Monitoring plan for key environmental and social parameters*

Monitoring of all key environmental and social parameters that could potentially lead to an impact will be required to analyse the impacts of construction and operation on the environment. Therefore, self-mentoring and reporting techniques will be adopted to carry out monitoring.

Energiean's Environmental Manager shall be responsible for monitoring of residual impacts. The best monitoring techniques will be identified by the department and frequency of selected parameters for monitoring will be followed.

An outline of the monitoring programmes proposed for the construction and operation phases, is presented in the following tables. Monitoring process will enable Energiean to understand how environmental performance will change over time and will facilitate improvements to the environmental and social management system.

Table 13-5: Outline of Monitoring Program during the Construction Phase

Receptor	Monitoring Task	Monitoring Parameter	Timing
Marine environment	Marine ecology inspection	Benthic analysis	Monthly
	Monitoring of marine water quality	Turbidity / Suspended solids Oil and grease	Weekly
	Monitoring of sensitive marine fauna	Presence of marine mammals and birds – visual monitoring	Continuous
	Identification and reporting of leakage events	Number of leakage events caused during the construction	Continuous
Noise	Noise monitoring at direct interference (within 500 m)	Day and night noise levels	Weekly
Working	Health and Safety (H&S)	Total recordable incidents, lost	Weekly

Receptor	Monitoring Task	Monitoring Parameter	Timing
conditions, health and safety	monitoring and audits. H&S Performance evaluation Personal Protected Equipment monitoring	time incidents and other H&S indicators. Records verifying the conditions of Personal Protected Equipment	
	Maintain grievance mechanism Analyse workers and community grievance trends Maintaining training records	Grievance mechanism records Training records	Monthly

Table 13-6: Outline of Monitoring Program during the Operation Phase

Receptor	Monitoring Task	Monitoring Parameter	Timing
Marine environment	Monitoring of marine water, seabed morphology, integrity of the pipelines and marine ecology at direct interference (within 500 m)	Physicochemical analysis of seawater and benthos. Analysis of benthic communities Visual inspection via ROV or diving survey	Every 12 months for sample analysis Every 3 years for visual inspection
	Identification and reporting of leakage events	Number of leakage events caused by the activity	Continuous
Air quality	Air emissions monitoring through a Continuous Emissions Monitoring (CEM) System	Temperature Pressure drop H ₂ S Combustible gases	Continuous Continuous detection monitoring Continuous detection monitoring
Noise	Noise monitoring at direct interference (within 500 m)	Day and night noise levels	Every 6 months for the first two years
Working conditions, health and	Inspection of the emergency and detection systems	Maintenance check, services and record verifying the condition of the emergency shutdown, fire detection, H ₂ S	According to the manufacturer

Receptor	Monitoring Task	Monitoring Parameter	Timing
safety		detection, combustible gas detection and fire water systems	
	Inspection of the Personal Protected Equipment (PPE) and the safety equipment	Visual inspection and records verifying the condition of the safety equipment (life rafts, life jackets, flares, smoke canisters)	Monthly
	Monitoring of Health and Safety implementation by the workforce		Monthly

Table 13-7: Outline of Monitoring Program during the Decommissioning Phase

Receptor	Monitoring Task	Monitoring Parameter	Timing
Marine environment	Marine ecology inspection	Benthic analysis	Monthly One month after direct interference
	Monitoring of marine water quality	Turbidity / Suspended solids Oil and grease	Weekly One month after direct interference
	Monitoring of sensitive marine fauna	Presence of marine mammals and birds – visual monitoring	Continuous
	Identification and reporting of leakage events	Number of leakage events caused during the construction	Continuous
Noise	Noise monitoring at direct interference (within 500 m)	Day and night noise levels	Weekly
Working conditions, health and safety	Health and Safety (H&S) monitoring and audits. H&S Performance evaluation Personal Protected Equipment monitoring	Total recordable incidents, lost time incidents and other H&S indicators. Records verifying the conditions of Personal Protected Equipment	Weekly

Receptor	Monitoring Task	Monitoring Parameter	Timing
	Maintain grievance mechanism Analyse workers and community grievance trends Maintaining training records	Grievance mechanism records Training records	Monthly

13.15.2.3 *Complaints register*

The Environmental Officer shall maintain a register of complaints received from local communities and measures taken to mitigate these concerns. All community complaints received shall be sent to the Environmental Manager for further action.

The procedure will be set out as described in the grievance mechanism chapter, under the SEP (Annex 11).

13.15.2.4 *Photographic record*

Energean shall maintain a photographic record of all areas to be used during the project. As a minimum the photographic record shall include the photographs of project areas prior to and after activities. The photograph record shall also be maintained for any noncompliance observed during the project.

13.15.2.5 *Audit reports*

Energean shall maintain a record of all audits and inspections commissioned or undertaken by the company to check conformance with the ESMMP.

13.15.2.6 *Communication and documentation*

An effective mechanism for storing and communicating environmental information during the project is an essential requirement of an ESMMP. The key features of such a mechanism are:

- Precise recording and maintenance of all information generated during the monitoring;
- Communicating the information to a central location;
- Processing the information to produce periodic reports; and
- Providing information and answering queries on monitoring originating from various researchers and stakeholders.

13.15.2.7 Meetings

The following Environmental meetings shall take place during the project:

- Kick-off meeting;
- Daily meetings; and
- Weekly meetings.

The purpose of the kick-off meeting will be to present the environmental management plan to the senior staff of the project team, and contractors to discuss its implementation.

A daily meeting shall be held to discuss the environmental conduct of the operation, non-compliances noted by the Environmental Officer, and their remedial measures. Minutes of the meeting shall be recorded in the form of action tracking register.

The purpose of the weekly Environmental meeting will be to review the weekly performance of the operation by reviewing the number of non-conformances and the environmental incidents that occurred during the week, progress on daily action items, and to agree on recommendations for additional controls, mitigation measures or monitoring requirements. The meeting shall be recorded in the form of a weekly Environmental Monitoring report.

13.16 NON-CONFORMANCE, INCIDENT AND ACTION MANAGEMENT

13.16.1 Overview

Energean's responsible persons for the ESMMP have to make inspection for non-conformance. Inspections will be made in all working sites and operating areas of the Project. In case of non-conformance a report will be prepared to the HSE Manager. The HSE Manager will decide for the approval of the report. If the report is accepted, then correction actions will take place.

Regarding incidents, there will immediate investigations. All personnel must inform immediately for all incidents and near-miss incidents as per the company's HSE MS and HSE procedures.

13.16.2 Incident / Non conformity reporting and resolution

Incidents and nonconformities relating to construction activities and EHS management will be managed by Energean Group HSE Manager. On-site incidents and nonconformities must be reported, in the first instance, by the EPC to the above. The EPC has established procedures for incident reporting, and investigation, corrective/preventative action and resolution (as set out in the EPC's EHS Manual), and will develop those procedures to include reporting lines to the HSE Manager. Any exceedance of a standard or threshold will be recorded as an incident. Further work will be undertaken to develop a mutually shared understanding of the nature and

scope of reporting required by the lenders, for different types of incident, and incidents of varying scale and significance. Similarly, the escalation process to be used by the EPC to ensure all relevant incidents are reporting to Energean will develop to reflect lender and regulatory requirements.

Energean has an established Grievance Mechanism, which is available for review as part of the Stakeholder Engagement Plan. The Grievance Mechanism, establishing how grievances from the community, will be managed. In cases where an incident involves an employee from local communities, Energean envisages that the EPC and Energean Group HSE Director can work together to ensure agreements are upheld and the intent of the Grievance Mechanism is fully considered, where relevant

Incident/nonconformity reporting procedures will be fully communicated as part of Project induction training prior to any individual commencing work for, or on behalf of, the Project.

13.17 REPORTING

Energean shall produce weekly and monthly Environmental Monitoring reports for each activity.

Table 13-8: Periodic reports

Report	Timing	Prepared by	Reviewed by
Weekly	On the first day of the following week	Environmental Engineer (EE)	Energean HSE Manager
Monthly	With 7 days of completion of reporting period	Environmental Engineer (EE)	Energean HSE Manager
Change management	Whenever required	Environmental Engineer (EE)	Energean HSE Manager
Final	Within 30 days of completion of the activity	Environmental Engineer (EE)	Energean HSE Manager
Audit Reports	Whenever required	Environmental Engineer (EE)	Energean HSE Manager