

Environmental and Social Management and Monitoring Plan 2017

Construction Phase

Volume II

Procedures

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Abbreviations and Acronyms

ADB	Asian Development Bank
AIDS	Acquired Immune Deficiency Syndrome
EIA	Environmental Impact Assessment
EMO	Environmental Management Office
EMU	Environmental Monitoring Unit
EMS	Environmental Management System
ESMMP-CP	Environmental and Social Management and Monitoring Plan – Construction Phase
GOL	Government of Lao PDR
GRC	Grievance Redress Committee
IMA	Independent Monitoring Agency
ISO	International Organization for Standardization
LTA	Lender’s Technical Advisor
MONRE	Ministry of Natural Resource and Environment, Lao PDR
NCR	Non-Compliance Report
NNP1PC	Nam Ngiep 1 Power Company Limited
ONC	Observation of Non-Compliance
PAP	Project Affected People
PRLRC	Provincial Resettlement and Livelihood Restoration Committee
SIR	Site Inspection Report
SOR	Site Observation Report
SOP	Standard Operating Procedure
SS-ESMMP	Site Specific Environmental and Social Monitoring and Management Plan
STD	Sexual Transmitted Disease

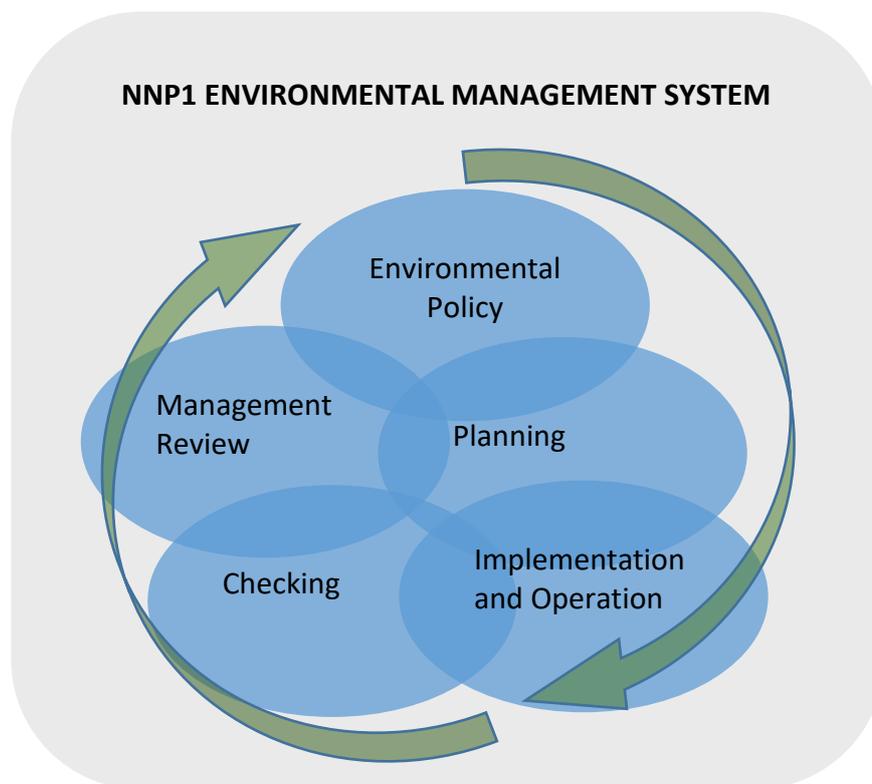
1 INTRODUCTION

This Volume II of the ESMMP-CP describes the systems and key procedures of Nam Ngiep 1 Power Company (NNP1PC) to control, monitor and evaluate environmental performance, including procedures to prevent events of non-compliance with environmental or social obligations, and procedures to ensure that corrective actions are duly and timely implemented.

2 ENVIRONMENTAL MANAGEMENT SYSTEM

NNP1PC is committed and obligated to design and implement an Environmental Management System (EMS) in compliance with the requirements of the ISO 14001:2015 Environmental Management Systems Standard. This is an obligation under Annex C of the Concession Agreement (Clause 55 and 56), and the Company plans to design, complete and implement the EMS during the course of the Construction Phase.

FIGURE 2-1 EMS CONCEPT



The ISO 14001: 2015 EMS Standard is conceptualized in Figure 2-1 depicting the main components of the EMS and how they interact in a process of continuous improvement. The NNP1 EMS is being developed in accordance with this standard. The principle is that the Company's environmental and social policies form the basis for the development of a series of plans and programmes with objectives and measures directed towards mitigating all significant environmental and social impacts and delivering a continuously improved environmental and social performance of the Company while meeting all legal, contractual and other requirements.

A system of procedures and tools have been put in place to ensure consistency and integration from policy formulation to implementation. The implementation of the plans and programmes and the results will be documented, checked and measured against the environmental policy, objectives, targets, and legal and other requirements, and where necessary, corrective actions will be carried out. The system itself will be reviewed and audited to continuously improve its performance.

The ESMMP-CP is designed and structured to fulfil key management functions required by the ISO 14001 EMS Standard and the ESMMP-CP forms an essential element in the Environmental Management System of NNP1PC. Some of the main functions of the ESMMP-CP in the NNP1PC’s EMS and their relations to the requirements of the International Standard are indicated in Table 2-1.

TABLE 2-1 OVERVIEW OF THE ENVIRONMENTAL MANAGEMENT SYSTEM OF NNP1PC

ISO 14001 REQUIREMENTS	REFERENCES TO NNP1PC SYSTEMS, TOOLS, PLANS AND PROCEDURES
<p>Environmental Policy</p> <ul style="list-style-type: none"> - Shall cover all significant impacts - Shall include commitment to compliance and continuous improvements - Must be made public 	<p>The Environmental Policy of NNP1PC is incorporated into the ESMMP-CP. The plans and programmes of the ESMMP-CP are derived from the Policy. It will be made public and clearly communicated to staff and Contractors.</p>
<p>Environmental Aspects</p> <ul style="list-style-type: none"> - Procedure to identify environmental aspects - Procedure to identify and assess the significant impacts of the aspects 	<p>Environmental aspects and significant impacts have been identified and assess in the Environmental Impact Assessment, 2014, and as part of the preparation and updating of the ESMMP-CP, the relevant aspects and impacts have been reviewed and reassessed.</p> <p>In addition, prior to implementation of new construction activities, the site specific environmental aspects and impacts are assessed and dealt with in Site Specific ESMMPs.</p> <p>The procedures will be further developed into a complete risk assessment matrix for each identified aspect of the construction and operational phase of the Project</p>
<p>Legal and Other Requirements (Environmental and Social Obligations)</p> <ul style="list-style-type: none"> - Procedure to identify, maintain and provide access to obligations - Identify the implications for the Company’s operations - Ensure that the requirements are taken into account 	<p>Legal and other requirements are updated in connection with the preparation of the ESMMP-CP.</p> <p>In addition, NNP1PC has internal procedures to ensure that legal and other requirements are properly dealt with. Such procedures include Annual Implementation Plans and monthly management meetings review compliance with obligations.</p> <p>The procedures will be further developed to include a full legal register for environment, social and occupational health and safety</p>
<p>Objectives, Targets and Programmes</p> <ul style="list-style-type: none"> - Determination of time bound measurable environmental objectives and targets - Designation of responsibility for achieving objectives and targets 	<p>The ESMMP-CP includes programmes tailored to:</p> <ul style="list-style-type: none"> - Achieve specific environmental/social objectives and targets - mitigate specific significant environmental and social impacts

ISO 14001 REQUIREMENTS	REFERENCES TO NNP1PC SYSTEMS, TOOLS, PLANS AND PROCEDURES
<ul style="list-style-type: none"> - The means and time-frames by which they are to be achieved 	<ul style="list-style-type: none"> - Meet applicable and relevant legal, contractual and other requirements
<p>Resources, Roles, Responsibilities and Authorities</p> <ul style="list-style-type: none"> - Ensure sufficient qualified staff - Determine the roles, responsibilities and authorities - Procedures to document and communicate roles and responsibilities - Appointment of EMS Manager 	<p>The ESMMP-CP describes the roles and responsibilities of NNP1PC and the Contractors. More detailed roles and responsibilities related to environmental compliance implementation and monitoring are described in the Standard Operating Procedures (SOPs).</p>
<p>Evaluation of Compliance, Corrective and Preventive Actions</p> <ul style="list-style-type: none"> - procedure(s) for periodically evaluating compliance with applicable legal requirements - procedure for dealing with actual and potential nonconformities and for taking corrective action and preventive action 	<p>ESMMP-CP Vol. II Section 8 sets out the compliance assurance procedures.</p> <p>The Environmental and Social Division of NNP1PC includes a section dedicated to internal procedures on the compliance monitoring and implementation of corrective actions.</p> <p>In addition, the compliance if the Project is monitored by external bodies including the Lender's Technical Adviser (LTA), the Independent Advisory Panel (IAP), the Independent Monitoring Agency (IMA) and the Environmental Management Unit (EMU) of the Ministry of Natural Resources and Environment (MONRE).</p>
<p>Communication</p> <ul style="list-style-type: none"> - Procedures on internal communication among the various levels and functions of the organization - Procedures on external communication 	<p>The company communication procedures (external and internal) are set out in the ESMMP-CP Vol. II Section 4.</p> <p>Progress of implementation and compliance are reported in the monthly, quarterly and annual progress reports.</p>
<p>Competence, Training and Awareness</p>	<p>The environmental, health and safety training programmes are outlined in the ESMMP-CP Vol. II Section 3</p>
<p>Documentation</p>	<p>ESMMP-CP Vol. II Section 5</p>
<p>Control of Documents</p>	<p>ESMMP-CP Vol. II Section 5</p>
<p>Operational Control</p>	<p>ESMMP-CP Vol. II Section 6</p>
<p>Emergency Preparedness and Response</p>	<p>NNP1PC has prepared standalone emergency preparedness and response procedures</p> <p>ESMMP-CP Vol. II Section 7</p>

ISO 14001 REQUIREMENTS	REFERENCES TO NNP1PC SYSTEMS, TOOLS, PLANS AND PROCEDURES
Monitoring and Measurement	The monitoring programmes are described in ESMMP-CP Vol. III and Vol. IV containing Thematic Sub-Plans and Component Sub-Plans respectively
Control of Records	ESMMP-CP Vol. II Section 5
Internal Audit	ESMMP-CP Vol. II Section 8
Management Review	ESMMP-CP Vol. II Section 9

3 COMPETENCE, TRAINING AND AWARENESS

NNP1PC and its contractors shall ensure that their employees, workers and sub-contractors are aware of the environmental and social requirements stipulated in the ESMMP-CP, and that construction works are carried out in compliance with relevant environmental and social obligations.

Training and awareness raising is an important part of the Project's efforts to ensure compliance with applicable legal requirements and enhance the environmental performance.

All employees and workers will receive general induction and specific training to raise their awareness on the environmental, social and safety requirements. This will be conducted in both Lao and English.

Overall the training can be divided into three levels:

- Environmental awareness programme;
- General occupational health and safety awareness programme; and
- Specific environmental, social and safety training programmes.

3.1 Environmental Awareness Programme

The environmental awareness programme aims to provide NNP1PC staff and its contractors' workers with in-depth understanding of the ESMMP-CP and outline legal obligations relevant to construction activities. All employees and workers will receive the following training:

- An induction presentation, as well as periodic refresher training on environmental awareness, to be conducted in the language relevant to them (such as Lao or English);
- A workshop for new recruits presenting their obligations regarding basic environmental and social protection measures including:
 - General measures to follow throughout the construction period, such as prohibitions on hunting and poaching of wildlife, purchasing wildlife meat, fishing, gathering and harvesting medicinal or valued plants and trees, and possessing firearms, snares, traps and other hunting equipment;
 - Housekeeping and waste management in worker camps, in construction sites, along roads and nearby villages;
 - Pollution control during construction activities;
 - Banning of all kinds of drugs for all employees;
 - Attending to works while under the influence of alcohol;
 - Measures for preserving health and the dissemination of vectors and transmissible diseases, including basics on hygiene; and
 - Disciplinary consequences for violation of the measures presented as part of the Environmental Awareness Programme.

- Preparation and distribution of supporting paper documents to each and all participants, summarizing key issues in awareness workshop with proper language and fully illustrated; and
- Preparation of posters based on the paper document also in proper language to be posted wherever justified and practical e.g. camps entrance, buildings, canteen, etc.

At the end of each session, NNP1PC and the contractors are responsible for filling a training attendance record with the date, name of trainer, name of the attendees and their signatures.

3.2 General Health Awareness Programme

The General Health Awareness Programme will focus particularly on basic hygiene practices, vector and transmissible diseases control, AIDS/STD (acquired immune deficiency syndrome/Sexual Transmitted Disease) control, prevention of drugs and alcohol use.

AIDS and STD control

NNP1PC and the contractors are aware of risk of AIDS and STD development among the workforce, as most of the workers will live far from their families for a significant period. In order to reduce the risk of transmission, a specific awareness programme will be implemented during the Project construction period. The programme will address all employees and workers, with special attention to those who are exposed to higher risks such as truck drivers.

The programme will include;

- Information or group training for all workers on AIDS and STD transmission and protection measures;
- Readily available supply of prophylactics in the medical centres; and
- Use of information such as leaflets and posters to be posted in worker camps and in medical facilities buildings.

Prevention of malaria disease

This programme will be presented to employees working in areas that are prone to malaria during the construction period in order to raise their awareness around the causes of the disease and how to prevent infection.

The programme will include;

- Information or group training on prevention of malaria disease for the employees and workers;
- Posters with information about cause of disease, prevention and treatment at the worker camps and administration buildings.

Prevention of drugs and alcohol use

This programme aims to promote the health of all workers and to reduce the risk of accidents in daily activities during construction phase. The purpose of this program is to;

- Educate on the dangers of drugs and alcohol usage; and
- Provide guidance to avoid or treat drug related diseases.

The programme will include the following:

- Information or group training for all workers on the prevention drugs and alcohol use programme;
- Posters with information about the dangers of drugs and alcohol usage at the workers' camps including drinking and driving; and
- Campaign to prohibit smoking and drinking at the workers' camps on special days e.g. Buddhist day and Non-smoking Day.

3.3 Specific Environmental, Social and Safety Training Programmes

For site supervisors and foremen, as well as workers who could be affected by critical activities, additional specific environmental, social and safety training will be organized and the involved employees and workers will attend. The Specific Environmental, Social and Safety Training Programmes should consist of, but not limited to the following:

- Waste management;
- Hazardous materials management training (including particularly explosives, fuel and oil and chemical spillage response);
- Safety and First Aid training;
- Fire prevention training;
- Driving;
- Electrical safety;
- Working in confined spaces;
- Housekeeping;
- Wet, slippery and unstable surfaces
- Landslides and rock falls;
- Welding safety;
- Safety committee;
- Working at height;
- safety intervention, regulations and instructions;
- Emergency preparedness and response.

Training activities will be organized as workshops, focusing on the presentation, content and application of specific procedures included as components of the ESMMP-CP. Training action will be supported by posting posters depicting various steps of the procedures (explosive management, refuelling, spill response etc.) in appropriate areas.

Further details regarding training and awareness programs are presented in ESMMP-CP Volume III, SP 15: Training and Awareness.

At the site level, the contractors will also organise specific safety, environmental and social trainings to their sub-contractors that are relevant for their tasks as well as the environmental and social mitigation measures described in the related Site Specific-ESMMP.

4 COMMUNICATION AND REPORTING

4.1 Internal communication

This refers to communication made between NNP1PC and the contractors, and within NNP1PC itself with regards to environmental and social issues. The means of communication include but are not limited to:

- Routine bi-weekly joint site inspection reports, weekly and monthly coordination meeting memos (NNP1PC and Contractors);
- Weekly Site Inspection Reports (SIRs) to record the observation of non-compliances (ONCs) and, the Non-compliance Reports (NCRs);
- Formal monthly reporting and meeting to discuss the implementation progresses, as well as follow-up non-compliance issues; and
- Environmental incident/accident reports.

Internal communication guidelines are shown in Table 4-1 and Table 4-2 below.

TABLE 4-1 INTERNAL MONITORING/INSPECTION, MEETING AND AUDITING GUIDELINE

No.	List	Participants	
		NNP1PC	Contractor
1.	Daily and Weekly Site Inspection	X	
2.	Bi-weekly Site Inspection	X	X
3.	Follow up site inspections on the corrective actions for issued ONCs/NCR	X	X
4.	Monthly Joint Safety and Environmental Patrol	X	X
5.	Monthly Joint Hazardous Materials and Waste Inventory	X	X
6.	Monthly Safety and Environmental Committee Coordination Meeting	X	X
7.	Monthly NNP1PC and Contractor Meeting	X	X
8.	Ad-hoc meetings to discuss and resolve pending environmental related issues	X	X

TABLE 4-2 INTERNAL REPORTING GUIDELINE

No.	List	Originator	Receiver
1.	Weekly/Bi-weekly Joint Site Inspection Reports (SIRs)	NNP1PC	Contractor
2.	NCR and follow up on the corrective actions	Contractor NNP1PC	Sub-Contractor Contractor
3.	Environmental incident/accident report (per case)	Contractor	NNP1PC
4.	Monthly and Quarterly Reports	Contractor	NNP1PC
5.	Annual Environmental Management and Monitoring Reports	NNP1PC	

Apart from regular self-monitoring/inspection (daily and/or weekly) by the Contractors, a Joint Bi-weekly Site Inspections and Monthly Safety and Environmental Patrols are carried out with participants from NNP1PC, the Contractors and their sub-contractors to discuss the occupational health and safety, environmental and social related observations during the patrol. Identified issues during these joint missions will be discussed at the wrap-up sessions and documented for following-up during the next joint meeting. Agendas will be prepared before the meeting and inspection by the Contractor. It is the responsibility of both NNP1PC and the Contractors to issue a Non-Compliance Report in case a non-compliance with the ESMMP-CP has been found during the bi-weekly joint site inspection.

The Non-Compliance Reporting procedures are described in Section 8.5.

Communications between NNP1PC and the contractors will also include routine daily and weekly communication to address particular issues or problems, or to exchange information by telephone, fax, email, or formal letter. It also includes urgent communications when needed (e.g. non-compliance, emergency response and incidents) to address issues that present an immediate threat to the environment, human health or properties.

It shall be noted that in case a contractor or its sub-contractor fails to deal with a non-compliance as required within the time period specified in the NCR, NNP1PC has the right to penalize the contractor or sub-contractor and or to suspend the construction activities as stated in the Contract document between NNP1PC and the contractor.

4.2 External communication

External communication is defined as a communication between NNP1PC and third parties such as GOL, ADB, Lenders, IMA, IAP, LTA, local communities and Non-Governmental Organisations (NGOs) on the Project's environmental and social issues.

External communication includes:

- A NNP1PC official response to GOL (MONRE) documenting the progress of corrective actions required by the EMU following a joint site inspection;
- Monthly Progress Reports, Monthly Environmental Monitoring Reports, Quarterly Environment Monitoring Reports and Annual Reports on the progresses of environmental and social activities including implementation of corrective actions;
- IAP, LTA and IMA reports;
- Urgent communication when needed to address issues of immediate threat to the environment;
- Public Disclosure (see detail in Section 5); and
- Grievance Reports.

The core elements of the external communication programme consist of face to face meetings and field inspections as indicated in Table 4-3, and submission of regular monitoring reports as shown in Table 4-4.

TABLE 4-3 EXTERNAL MONITORING AND INSPECTION

Description	MONRE (EMU)	IMA	IAP	LTA	ADB
Monthly inspection	✓				
Quarterly inspection		✓		✓	
Bi-annual monitoring			✓		✓

TABLE 4-4 EXTERNAL REPORTING REQUIREMENTS

Report	Review	Approval	Recipient	Disclosure	Source of Obligation
Monthly Environmental Monitoring Report	Internal Process	Internal Process	MONRE/EMU	Public on NNP1PC Website	CA
Monthly Progress Report	Internal Process	Internal Process	Lenders and shareholders	Internal Document	Lenders' Financing Agreement
Quarterly Environment Monitoring Report	LTA/IAP IMA	ADB	GOL/EMU, ADB, LTA, IAP, IMA	Public on NNP1PC Website	CA ADB Facility Agreement

Report	Review	Approval	Recipient	Disclosure	Source of Obligation
Annual Progress Report	IMA	Internal Process	MONRE/EMU	Public on NNP1PC Website	CA

4.3 Contents of Reports

The reports to external parties as specified in Table 4-4 above shall be in accordance with the Concession Agreement, Annex C and Financing Agreement with the following content:

(1) Monthly and Quarterly Reports

- Progress made to date on implementation of the measures assessed against the approved measures and monitoring programs;
- Difficulties encountered in implementing the measures and recommendations for remedying those difficulties and steps proposed to prevent or avoid similar future difficulties;
- Number of observed non-compliances with the measures and proposed corrective actions including timelines for completion of those actions;
- Relevant information from reports received by NNP1PC from the Contractors, sub-contractors (if any), and NNP1PC itself;
- Accidents or incidents relating to the environmental, social, and welfare of key stakeholders; and
- Monitoring data of environmental parameters and conditions as committed in the EIA, ESMMP-CP, and SSESMMMP.

(2) Annual Reports

- A summary of items covered by the monthly reports required above;
- Gantt diagram showing the activities (construction works, environmental measures, monitoring) carried out during the period against what was planned for that period;
- Progress of planned outputs and performance objectives;
- Description and analysis of water quality (surface water, wastewater discharges from camp and construction sites, worker's drinking water and/or village and households water supply);
- Description and analysis of wildlife and fishery monitoring data;
- Description and analysis of hazardous substances waste data;
- Description and analysis of environmental incidents and accident data;
- Significant problems encountered and corrective actions taken;
- Identification of any deviation from ESMMP-CP, and EMP; and
- Result and status of implementation of biodiversity offset activities.

4.3.1 Communication Language

The formal communication language is English and Lao. This will be applied to all written communication. However, specific language i.e. Japanese may be used for communications with Japanese Contractors involving construction works.

4.3.2 Grievance Redress Mechanism

The Project has established a Grievance Redress Mechanism, which allows PAPs to raise their concerns and grievances with the Projects in a transparent manner over several steps. If mediation and reaction of the Company do not lead to success, PAPs can file a grievance with the Village Grievance Redress Committee to

find a solution; if there is no success, the case will be forwarded to the District Grievance Redress Committee and in case of no success to the Provincial Grievance Redress Committee. In all committees the different Project stakeholders are present to support the finding of a mutual solution. In case that all these steps cannot solve the case, it can be handed over to the national judicial system. The Grievance Redress Committee (GRC) is established by the Provincial Resettlement and Livelihood Restoration Committee (PRLCR) to address any complaints and grievances pertaining to the surface water quality, noise and dust caused by the construction activities; biomass clearance in the main reservoir; land acquisition, compensation and resettlement that are brought forward by to entitle the PAPs the right to make a claim if not adequately mitigated from environment impacts, compensated, and received entitlements.

The Grievance Redress Mechanism and organization is described in detail in the updated Social Development Plan 2016.

5 DOCUMENTATION

NNP1PC has set up a Document Control System. All documents regarding environmental and social management of NNP1 construction activities will be listed and stored in appropriate files and registered. The type of documents to be filed includes (but not limited to) the following:

- Owner's EMP, ESMMP-CP, Contractor's EMPs and SS-ESMMPs (including addendum and revised version);
- Technical studies, maps, drawing, photos, etc. relating to construction activities and impacts;
- Registries of applicable laws, regulations, and standards;
- All documentation of communication and correspondences;
- Monthly, quarterly and annual reports including minutes of meetings;
- Routine site inspection reports (SIRs);
- Non-Compliance reports and audit reports;
- All documents relevant to training materials;
- Incident and accident reports; and
- Grievance records.

5.1 Control of Documents

The control of documents is implemented by a designated Document Control Centre in accordance with document control procedures for all project operations. A satellite document control centre is set-up in the Environment and Social Division to deal with documents related to environmental and social matters.

The document control centre has the following key tasks:

- Provide document registration number;
- Version number;
- Date of issue, review and approval;
- Name of the author, reviewer and approver; and
- Location of files saved in digital and hard copies.

When documents are reviewed and revised, any changes will be tracked electronically to enable reviewers to follow and check changes made to the document.

A hard copy and electronic file of all supporting documents shall be placed in the Obsolete Environmental Documents File and listed on the Obsolete Environmental Documents Register.

Information to be entered into the Obsolete Environmental and Social Documents Register is:

- Obsolete Environment Documents File Number;
- Document Title and Registration Number;

- Issuance Date;
- Withdrawal Date.

Both on-site and off-site backup files shall be kept for all documents.

The main contractors are also required to set up a document control system. All documents, maps, drawings, procedures, etc. in relation to environmental and social aspects of the construction of the Project as required in contractual obligations shall be created and filed in the site office and related sites, and can be utilized any time as needed.

6 OPERATIONAL CONTROLS

The main functions of the operational controls are to ensure that the environmental and social mitigation measures specified in the relevant thematic or component specific sub-plans are properly implemented and functioning, and that they are effective and efficient.

Operational control consists of three levels

I. Operator level

The operator of an installation or activity is responsible for controlling that the operation is implemented in accordance with design specifications and operational criteria, and that the operation is carried out within certain limits or thresholds and that adequate maintenance and repair programmes are in place and implemented. These control measures are specified in operational control procedures derived from the relevant Detailed Work Plans and Site Specific ESMMPs;

II. Site inspection level

NNP1PC compliance and monitoring team is responsible for implementation of the operational control programmes specified in the thematic and component sub-plans (ESMMP-CP Volume III and IV), and for performing certain operational control procedures. The compliance and monitoring team reports its findings to Company management;

III. Management level

Company management is responsible for the overall design and implementation of operational control measures, developing operational control procedures and for making decisions on corrective actions and reporting to Company shareholders, lenders and relevant authorities.

Operational controls are designed to deal with the environmental and social impacts and risks originally identified through the environmental and social impact assessment and thereafter regularly reviewed and updated in sub-plans of the ESMMP-CP.

Operational controls can be divided into the following main forms:

- (a) Structural, with controls forming part of an installation e.g. secondary containment around a fuel tank;
- (b) Preventive maintenance e.g. regular clean-up of sediments from sedimentation ponds;
- (c) Control measurements of performance against criteria (automatic built into installations, or manually performed by the operator or NNP1PC compliance and monitoring team;
- (d) Calibration, e.g. of measuring devices

In order to develop and ensure proper implementation of the operational controls, a number of tools are used including the following:

- (a) Design standards and guidelines
- (b) Manufacturer's manuals

- (c) Standard Operating Procedures or Work Practice Standards
- (d) Safety Data Sheets
- (e) Checklists
- (f) Signage
- (g) Training

Operational controls form a very important component in the Company’s Environmental Management System. The controls help to ensure that installations and equipment are properly maintained thereby minimizing risks of malfunctions or breakdowns which could otherwise lead to pollution incidents and non-compliance with environmental requirements. The controls also provide early indications of increasing environmental risks, which enables the operator and Company management to step-in and perform countermeasures before a risk materialises.

The operational controls are reviewed regularly as part of the monthly and quarterly reporting on the environmental performance of the Project. In addition, previously unforeseen impacts or risks may be identified by the routine inspection and monitoring; and such impacts or risks will then be assessed and if found significant the Company will revise existing operational controls or develop new controls.

7 EMERGENCY PREPAREDNESS AND RESPONSE

The Company has developed an Emergency Preparedness and Response Plan (EPRP) which establishes controlled and coordinated response procedures to emergencies for work conducted for construction the Project.

An emergency is defined as an event, actual or imminent, which endangers or threatens to endanger life, property or the environment.

The purpose of the EPRP is:

- To protect the health, safety and welfare of NNP1 employees, contractors and visitors;
- To protect the surrounding community and the environment surrounding the Project Site; and
- To act as a guidance for the Principal Project Contractors to develop and implement their own Emergency Preparedness and Response Plans.

The EPRP has the following main functions and content:

- establishes the processes and procedures for personnel to follow in the event of an emergency, including site, and/or office emergencies
- identifies types of emergencies that may require assistance
- describes roles and responsibilities of key personnel in the event of an emergency
- establishes emergency communication protocols and phone numbers
- describes evacuation processes
- outlines training and evacuation response exercises
- provides communication flowcharts detailing actions to be taken for various emergency situations

The EPRP deals with the following emergencies, which have the potential to arise during the course of the construction of the Project:

Dam Break	Bushfire	Contact with High Voltage Equipment
Flood Alert	Criminal Act	Tire Fire/Explosion

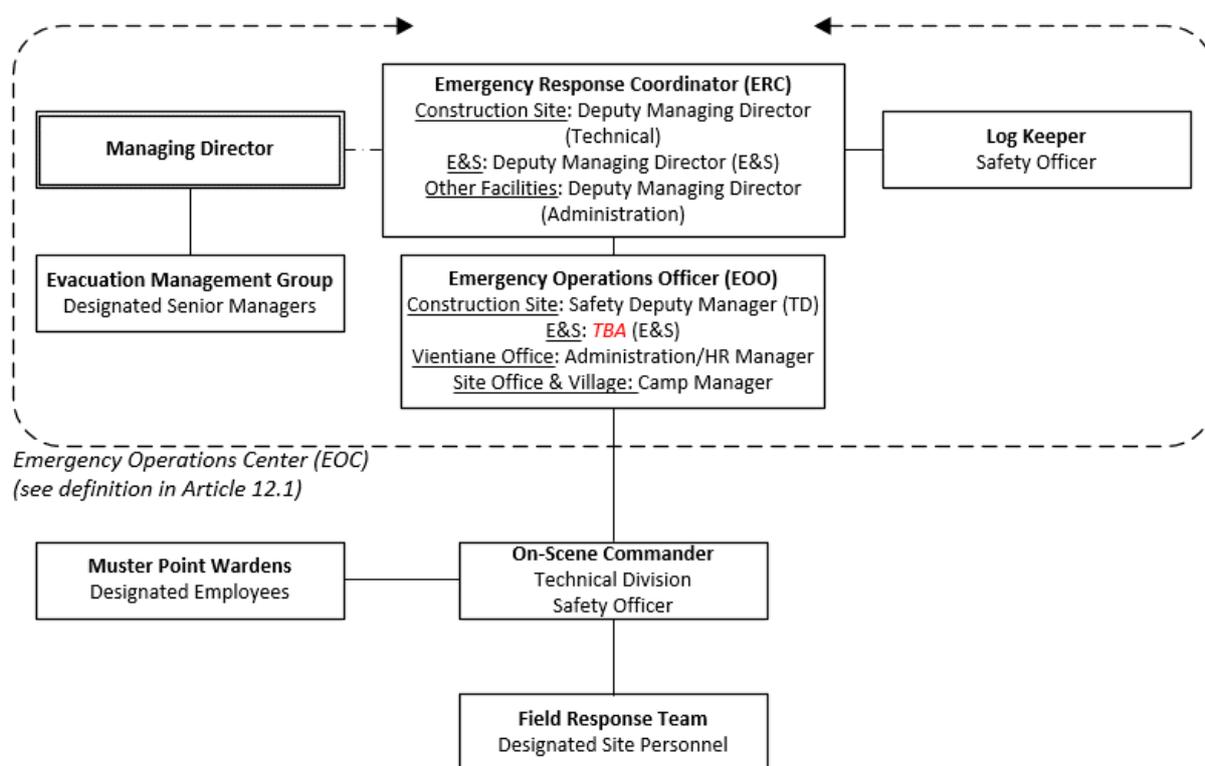
Injured Person (including allergic reactions to insect and animal bites)	Vehicle Accident	Damage to Underground Services
Fatality	Severe Weather	Rescue from Height
Evacuation	Urgent Medical Transfer	Rescue from Confined Space
Fire and Explosion	Major Spill of Hazardous Substance on Land	Offsite Emergency
Bomb Threat	Major Spill of Hazardous Substance on Water	Pandemic

This Emergency Preparedness and Response Plan covers all construction sites, NNP1 Head Office in Vientiane, site offices and Project travels and transports between the Project Sites. It does not cover emergencies situations while working outside areas mentioned above, for instance business trips outside Lao PDR.

This Emergency Preparedness and Response Plan will be updated, if necessary, to address any identified changes. Copies of this Plan will be formally issued to all relevant NNP1 and contractor personnel as required. The NNP1PC and the contractors will periodically test such procedures or organize emergency drills where practicable.

The overall roles and responsibilities of the Company’s emergency response team are presented in Figure 7-1

FIGURE 7-1 OVERALL ROLES AND RESPONSIBILITIES OF THE EMERGENCY RESPONSE TEAM



The contractors are responsible for developing and implementing the emergency response procedure and related mitigation measures associated with emergency responses such as flood evacuation, explosion, oil

and toxic spillage, as well as hazardous material handling. Any accident and incident will be reported using the Incident & Accident Report format.

Specific emergency and incident response procedures are also described in the 2 Sub-plans; Sub Plan 06: Hazardous Material Management, and Sub Plan 17: Emergency Preparedness. Thematic Sub-Plan entitled Emergency Management and Planning are also available.

8 CHECKING

8.1 Monitoring and Inspection

Monitoring and inspection is an integral part of the Environmental Management System as it establishes how the Project performs against environmental obligations. Schedules and procedures for monitoring and inspection are established and designed in order to:

- Identify any negative impacts from construction activities
- Assess the effectiveness of operational control measures
- Demonstrate compliance with regulatory requirements
- Identify if further controls/corrective actions are required

Monitoring and inspection programmes will be implemented for the duration of the construction phase of the Project. The programmes include:

- Routine monitoring and inspection conducted by the Environmental Management Office staff; and
- Compilation of monitoring and inspection report with non-compliance.

Monitoring and inspection to be implemented are described in the respective Sub-Plans and Site Specific ESMMPs.

A summary of relevant monitoring and inspection reports and corrective actions are included in the Monthly and Quarterly Environmental Monitoring Reports which are made public and submitted to MONRE and key stakeholders where relevant.

Schedules, checklists, inspection and reports will be kept at each site office and will be updated and used in the day to day operation of the site.

Monitoring and inspection during the construction period can be categorized into the following level:

- At Construction Contractor level, monitoring and inspection to ensure on a day to day basis that mitigation measures are fully implemented along with construction activities, and that results observed comply with the contractual obligations;
- At NNP1PC level, routine monitoring and inspections to ensure that results provided by the Construction Contractor are corrected, to provide the necessary environmental coordination and interface with the Contractors, and to provide a comprehensive picture of the current environmental situation and efforts at site level.
- At GOL level (MONRE), monitoring and inspection to ensure the construction activities complied with the environmental requirement on a monthly basis and review the environmental and social reports provided by NNP1PC.

8.2 Monitoring and Inspection by Construction Contractor

The main contractors are required to have a duly qualified environment inspection team. The inspection team shall conduct routine inspections of sites and activities and evaluate compliance with commitments defined in the ESMMP-CP, Contractor's EMP, and Site Specific ESMMPs.

The contractors are required to include a schedule of their own regular inspection, monitoring and reporting in the Detailed Work Plans and Site Specific ESMMPs to ensure that the established standards of environmental controls are maintained and in accordance with the legal and contractual obligations of the Company and the ESMMP-CP.

Results of field observations, either documenting compliance or non-compliance with environmental requirements will be reported on standard forms. The use of these standard forms will help to ensure that compliance-related observations are recorded in a consistent manner and in a standard format. The information can be entered into the database that will be used to track the status of and allow analysis of non-compliance situations.

Monitoring activities complying with the applicable standards/guidelines will primarily concern i.e. water quality, air quality, noise and vibration. For ambient air, noise and water quality, sampling and analysis shall be carried out relying on certified equipment and/or laboratory.

8.3 Monitoring and Inspection by NNP1PC

The NNP1PC- EMO (Compliance and Monitoring Team) will visit and inspect each of the construction sites on a daily, weekly and monthly basis. Following each monitoring and inspection, the compliance and monitoring team will prepare a Site Inspection Report (SIR) or Site Observation Report (SOR) describing the Observations of Non-Compliances (ONC) together with photographic documentation and use of checklists were appropriate, and identification of the level of significance. The SOR is used for internal references and follow up by NNP1PC only. In case corrective measures are necessary to bring the situation under control and back in compliance, the team will issue SIRs which will document the discussed and agreed corrective actions and deadlines with the Contractor. Each SIR will be reviewed and signed by a Deputy Manager of NNP1PC-EMO before forwarding to the Contractor by NNP1PC-TD. Depending on the discussions with the Contractor, a one to two weeks deadline for corrective action implementation is applied. The identified issue in the SIR is then followed up during the next official Joint Bi-weekly Site Inspection with the Contractor and further extension of the deadline may be given if the corrective action implementation is not completed by the Contractor or satisfactory to NNP1PC. After three extensions are given and the issue is yet resolved, a Non-Compliance Report (NCR) issuance will be considered by EMO management who will decide on the level what actions need to be taken in accordance with the non-compliance and corrective action procedures (see Section 8.5).

The issued SIR will be recorded in hard copies by the Document Control unit of NNP1PC-TD and entered in the EMO non-compliance database for follow-ups.

NNP1PC ESD may join inspection with Construction Contractor and relevant agencies e.g. GOL, and as agreed in order to observe and follow up any event or significant issues that have been reported. Visits to a site will be increased if the site presents a higher environmental risk potential.

Likewise, monitoring activities complying with the applicable standards guidelines will be conducted. Ambient air, noise and water quality, sampling and analysis shall be carried out relying on certified equipment and/or laboratory.

8.4 Monitoring and Inspection by MONRE

The Environment Management Unit (EMU) of MONRE at the central, provincial and district levels regularly carry out site inspection and monitoring of construction activities on a monthly basis. Each Monthly Environmental Monitoring Report submitted by NNP1PC will be submitted to MONRE for review and approval in accordance with environmental obligations and standards.

Where MONRE found that the Project's construction activities by NNP1PC, its Contractor and Sub contractors are non-compliant with the applicable environment obligations during the site inspection, MONRE will promptly discuss with the Project representatives during each mission wrap-up including corrective actions with a specific timeline in the form of a Mission Memo in a standard format prepared by

MONRE. NNP1PC representatives will review each draft Memo and provide comments before forwarding to the EMU focal point for finalisation and authorisations.

An official response to the issues identified by the EMU will be prepared by NNP1PC-EMO which includes progresses of corrective action implementation for submission before the next EMU mission commences. When the construction activities of the Project are not complied with the environmental obligation requirements and corrective actions are overdue from the stated time period, MONRE has the right to take enforcement actions as necessary and appropriately according to the Annex C of the CA, related regulations and laws. A third party may be employed to correct the non-compliance issues raised by the MONRE at sole cost to the Project.

8.5 Non-compliance, Corrective Action and Prevention Action

8.5.1 Non-compliance and Corrective Action

The Company has established an internal Observation of Non-Compliance (ONC) and corrective action procedure, which is applied whenever a failure or a risk of failure to comply with environmental requirements has been found.

Corrective actions for general ONC may include changes to work instructions (frequency of testing and recording, test method, temporary suspension of the activities, further staff training and others). These will be included in the SIR and should be reviewed by, at least, EMO Deputy Manager before issuing to the Contractor and form part of the meeting agendas.

Failure to meet the deadlines specified in the SIR for three times will lead to the issuance of a Non-Compliance Report (NCR) by NNP1PC. It is the responsibility of the Contractors to immediately initiate corrective actions and, once completed, provide details of the actions undertaken for identified non-compliance and return it signed to NNP1PC for review and concurrence.

8.5.2 Non-compliance procedure

Non-Compliance Report (NCR) is divided into three levels on the basis of the significance of the potential environmental impact, reputational risks and financial risks. The three levels of non-compliance situations are NCR Level 1, NCR Level 2 and NCR Level 3 as described below.

1. Non-Compliance Report Level 1 (NCR1)

The NCR level 1 is a non-compliance situation that is resulted from the overdue of three given deadlines specified in the SIRs, but not believed to represent an immediate or severe threat to human and environment. Corrective actions are suggested and discussed with the Contractor's site construction supervisor during the site inspections to be implemented no later than expected due date.

Repeated Level 1 concerns may lead to the issuance of the NCR Level 2 if left unattended and overdue. The NCR level 1 will be prepared by NNP1PC-EMO Senior Officer, reviewed by the Team Leader and signed by Deputy Manager.

2. Non-Compliance Report Level 2 (NCR2)

The NCR level 2 is a non-compliance situation that has potential significance and requires expeditious corrective action and site-specific attention, as well as raising of non-compliance level 1 that is unattended and overdue. Repeated Level 2 concerns may become Level 3 concerns if left unattended and overdue.

Non-compliance report level 2 is to be issued by NNP1PC-EMO Team Leader, verified by the Deputy Manager and approved by EMO Manager with suggested corrective actions to be implemented no later than expected due date. Special follow-up of corrective measures is required.

3. Non-Compliance Report Level 3 (NCR3)

The NCR level 3 is a critical non-compliance situation, including observed significant damage on the environment or a reasonable expectation of very severe impending damage, as well as raising of non-compliance level 2 or more than three SIRs that is unattended and not resolved by the agreed deadline.

The NCR 3 is to be reported to the NNP1PC Managing Level (i.e. ESD Deputy Managing Director), and then Managing Director for approval. When NCR-3 is identified and Contractor is acknowledged, implementation as per suggested corrective action shall be carried out as expeditious as practical for closure within the due date. In case of overdue, the financial penalty may be applied to Contractors in accordance with contractual obligations and/or agreements between NNP1PC and Contractor.

MONRE has the right to employ a third party to correct the remained non-compliance left unattended or over the agreed due date. The NNP1PC shall be responsible for the cost incurred to rectify non-compliance cases. MONRE retains the right to disclose warning on the MONRE’s website and request for that information to be also posted on the NNP1PC’s website.

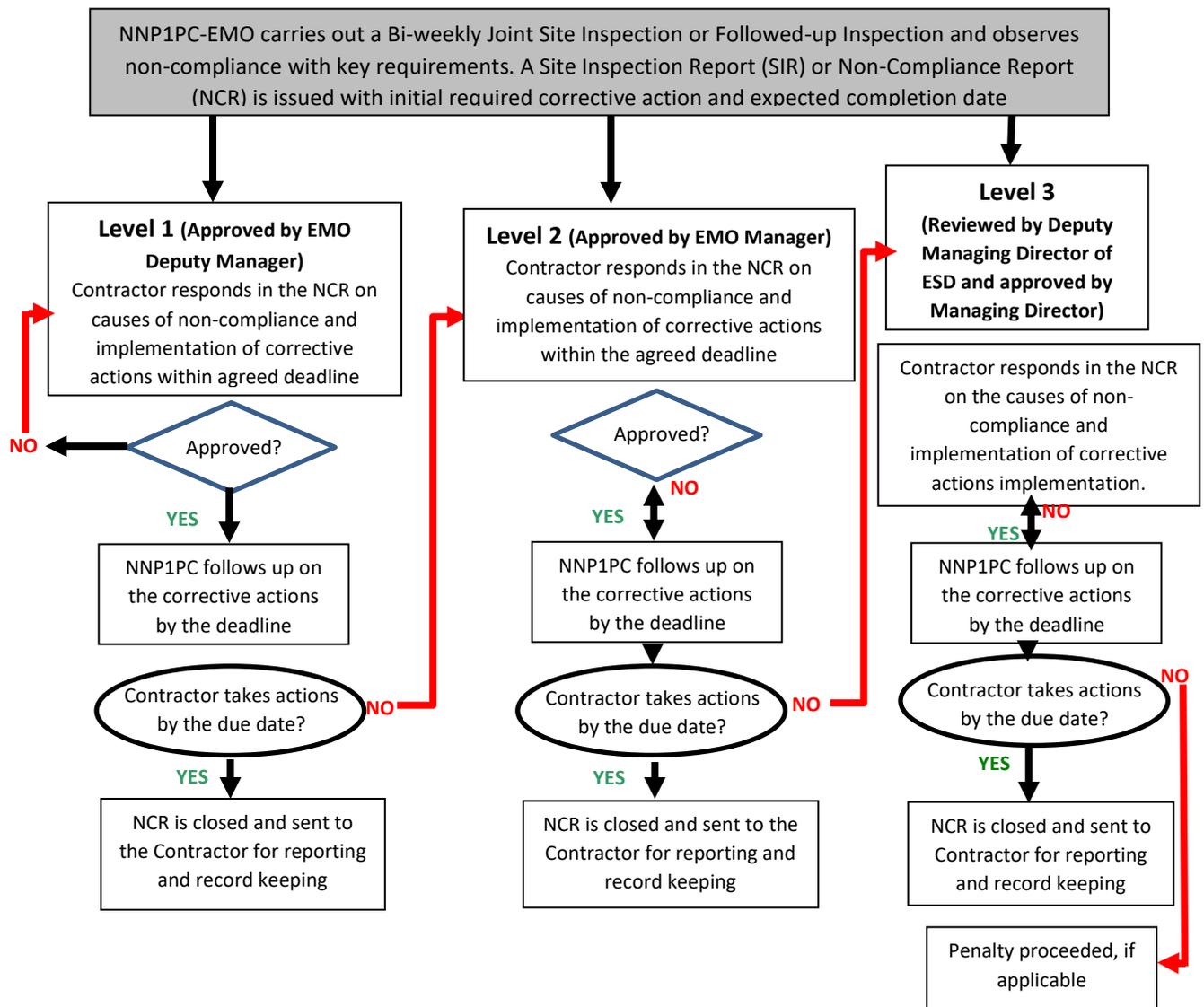
Table 8-1 illustrates some examples of non-compliance expected to be observed during the construction period.

TABLE 8-1 EXAMPLES OF NON-COMPLIANCE LEVEL IDENTIFICATION

Non-Compliance Level	Examples of Non-Compliances
ONC/NCR1	<ul style="list-style-type: none"> • General cleanliness of sites not satisfactory • Inappropriate storage of non-hazardous waste • Inappropriate management of traffic volume and safety • Inappropriate management of waste and wastewater management that may cause impacts to natural water resources • Inappropriate storage of Hazardous Materials (oil, fuel), but without immediate danger for the environment • No training courses, emergency drills in appropriate time frame • Inappropriate management/cleaning of sedimentation pond or storm water drainage network • Lack of road signs or any required sign boards such as hazardous material storage area, explosive magazine, etc. • Lack of road watering in inhabited areas • Dust and emitted air generated from inappropriate operations/ machines • Excessive speed or noise detected in sensitive areas • Inappropriate maintenance of vehicles/engines that possibly cause oil leakage on the ground • Minor leakages from fuel tanks • Any non-implementation following proposed mitigation measures without immediate danger or damage to human and environment
NCR2	<ul style="list-style-type: none"> • Any NCR Level 1 left uncorrected after due date • Inappropriate storage of Hazardous Materials (oil, fuel), with potential threat for the environment or public health • Inappropriate storage or handling of hazardous materials • Accidental spill of petroleum products less than 100 litres volume, with no serious threat for the environment • Significant leakages from fuel tanks or from garages areas • Inappropriate soil management and spoil dumping beyond specific areas • Inappropriate erosion control measures

Non-Compliance Level	Examples of Non-Compliances
	<ul style="list-style-type: none"> • Inappropriate restoration or rehabilitation of areas after construction activities completion (borrow areas, temporary camps, stockyards, etc.) • Lack of environmental quality monitoring (air, water, noise) in regular time frame • Hunting, cooking, fishing, collecting of fauna and flora by employee personally is observed • Any non-implementation following proposed mitigation measures that may cause danger or damage to human and environment if no resolution in a timely manner.
NCR3	<ul style="list-style-type: none"> • Any NCR Level 2 left uncorrected after due date • Any accidental spill over 100 litres, of petroleum products or any other liquid product registered as Hazardous Material • Accidental spill less than 100 litres but in a sensitive area (within 30 m of a water body) • Deliberate discharge of used oil or other hazardous waste in river stream • Concrete waste (liquid) discharged directly to natural water bodies; • Trapping or killing of protected or endangered animal species during clearing activities or by Construction Contractor’s employee personally; • Damaging or destroying of archaeological and cultural heritages during clearing activities; • Dangerous behaviour on public roads (excessive speed, dangerous load, alcohol) that cause extreme damage to property and life; • Effluent (not compliance to applicable standard) discharged directly to natural water bodies; • Test results of environmental quality monitoring (potable water, drinking water, effluent from camps, ambient air and noise) are not compliance to applicable standard, without appropriate corrective actions; • Caused serious danger to human and environment.

FIGURE 8-1 NON-COMPLIANCE REPORT ISSUANCE PROCEDURE



8.6 Internal Audit

The Company will undertake internal environmental audits as part of the development and implementation of its Environmental Management System.

Internal environmental audits will be carried out by duly qualified specialists of the Company with experience in the following:

- Expertise in environmental science and technology;
- Expertise in the technical and environmental aspects of construction phase of the project;
- Expertise in environmental law and regulation;
- Expertise in environmental management systems; and
- Expertise in auditing process.

The initial environmental audit is scheduled to take place in Q4-2017 and will mainly serve as groundwork for the implementation of the Environmental Management System.

The second environmental audit will be undertaken in Q3-2018 as part of transition to Project operations and closure or main construction sites.

Non-conformances or observations identified during audits will be subject to the provisions of corrective action and will be implemented for closure.

8.7 External Audit

GOL's representative i.e. Independent Monitoring Agency (IMA) will regularly audit the NNP1PC management system and effectiveness of mitigation measures implemented during construction to ensure compliance with the contractual obligations. It is the responsibility of NNP1PC to provide available documentation, information and data requested by the IMA.

The Independent Monitoring Agency's audit report will be submitted to the NNP1PC for implementation and action. Non-conformances or observations identified during audit will be subject to the provisions of corrective action.

9 MANAGEMENT REVIEW

The ESMMP-CP will be reviewed, revised and updated and submitted to MONRE every two years as required by CA Annex C to ensure that the environmental measures are appropriate and effective and that any hitherto unforeseen emerging environmental issues are properly dealt with.

The Management Review shall be conducted by NNP1PC Management Team.

Components to be reviewed are listed below:

- Current objectives, targets, and management plans as detailed in the ESMMP-CP;
- Reports of internal and external audit;
- Non-compliances of Contractors and status of corrective actions;
- Status of performance regarding objectives and targets
- Improvement proposals or suggestions, and
- Update effectiveness of mitigation measures.

The Management Review Meeting will be conducted to identify opportunities for improvement in the components listed above. It may also be necessary to identify the performance and essential resources for implementing and achieving such performance.

As a result, expected outputs of the management review will be, but not be limited to:

- Management review minutes;
- Revision of policy, objectives, targets and plans where improvements are deemed necessary;
- Identification of requirements for improvement of management system, planning and implementation;
- Definition of planning for following years;
- Suggestions and proposed actions, if any;
- A revised ESMMP-CP for next 2 years; and
- Revised budget for environmental and social implementation every 2 years.

Once the updated ESMMP-CP is approved by MONRE, NNP1PC will translate this document into Lao and will post both the English and the Lao version on NNP1PC's website.

The ESMMP-CP in Lao version will also be distributed to the relevant stakeholders i.e. Environmental Government Authorities in Provincial and District levels, head of affected villages in the construction areas

10 CROSS REFERENCE TO STANDARDS

Apart from compliance to ISO14001:2004 requirements, the development of this ESMMP-CP respects other international standards and environmental regulations such as applicable Lao Laws, GOL Guidelines,

Asian Development Bank Safeguard Policy Statement, IFC Performance Standards, IFC Environmental and Safety Guidelines, IFC Industry-specific guidelines.

The Sub-Plans within this ESMMP-CP comply with IFC Performance Standards and ADB Safeguard Policy Statement, as is demonstrated below.

TABLE 10-1 CROSS REFERENCE OF 18 SUB-PLAN OF ESMMP-CP COMPLIED WITH INTERNATIONAL CRITERIA

Sub-Plans of ESMMP-CP	IFC Performance Standards	ADB Safeguard Policy Statement
SP01: Erosion and Sediment Control	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP02: Water Quality Management and Monitoring	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP03: Emission and Dust Control	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP04: Noise and Vibration	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP05: Waste Management	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP06: Hazardous Material Management	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP07: Vegetation Clearing	Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management	Safeguard Requirements 1: Environment
SP08: Decommissioning and Rehabilitation	Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management	Safeguard Requirements 1: Environment
SP09: Biodiversity Management	Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management	Safeguard Requirements 1: Environment
SP10: Spoil Disposal	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP11: Quarry and Construction Layout	Performance Standard 3: Pollution Prevention and Abatement	Safeguard Requirements 1: Environment
SP12: Unexploded Ordnance (UXO) Survey and Disposal	Performance Standard 4: Community Health, Safety and Security	Safeguard Requirements 1: Environment
SP13: Construction of Work Camps	Performance Standard 2: Labour and Working Conditions	Safeguard Requirements 1: Environment
SP14: Traffic and Access	Performance Standard 2: Labour and Working Conditions	Safeguard Requirements 1: Environment
SP15: Training and Awareness	Performance Standard 2: Labour and Working Conditions	Safeguard Requirements 1: Environment
SP16: Project Personnel Health Program	Performance Standard 4: Community Health, Safety and Security	Safeguard Requirements 1: Environment

Sub-Plans of ESMMP-CP	IFC Performance Standards	ADB Safeguard Policy Statement
		Safeguard Requirements 2: Involuntary Resettlement; and Safeguard Requirements 3: Indigenous Peoples
SP17: Emergency Preparedness	Performance Standard 4: Community Health, Safety and Security	Safeguard Requirements 1: Environment
SP18: Cultural Resources	Performance Standard 8: Cultural Heritage	Safeguard Requirements 1: Environment Safeguard Requirements 2: Involuntary Resettlement; and Safeguard Requirements 3: Indigenous Peoples
SP19: Environmental Flows	Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Safeguard Requirements 1: Environment
SP20: Fisheries Monitoring Programme	Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Safeguard Requirements 1: Environment