

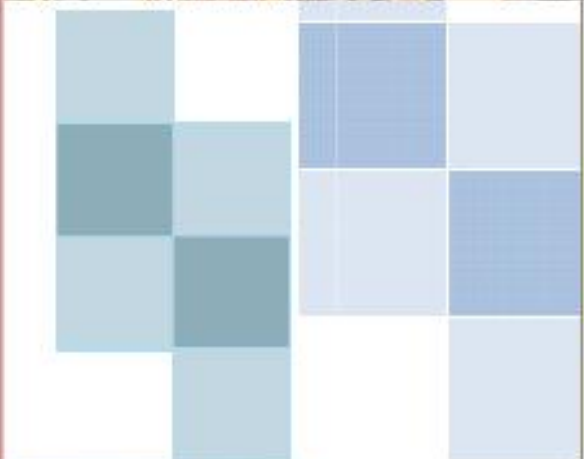


GOVERNMENT OF THE PEOPLE'S
REPUBLIC OF BANGLADESH

MINISTRY OF POWER, ENERGY &
MINERAL RESOURCES

POWER DIVISION

BANGLADESH POWER DEVELOPMENT BOARD



**Vol 4: OCCUPATIONAL
HEALTH, SAFETY &
ENVIRONMENT PLAN**

Prepared under
Environmental
Impact Assessment
(EIA) Study for
Repowering of
Unit-4 of Ghorashal
Power Station

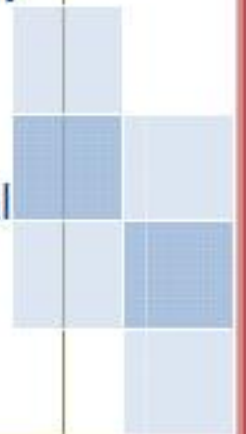


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SECTION 1- INTRODUCTION

1.1 Overview

This report presents the Environment, Health, and Safety Plan (EHSP) of Bangladesh Power Development Board (BPDB) prepared under the repowering of Unit 4 of Ghorashal Power Station (GPS) from Steam Turbine to Combined Cycle Units. This document is generally compatible with the WBG's General EHS and EHS for Thermal Power guidelines¹ and will be used alongside the WBG guidelines.

The proposed repowering will be implemented by an Engineering, Procurement and Construction (EPC) contractor supervised by a BPDB appointed Owner's Engineer (OE). The EPC contractor is to be involved in decommissioning of existing plant equipment and erection of new equipment including civil works and expected to sub-contract the civil, mechanical, electrical, instrumentation and control components to local Bangladeshi contractors. Prior to decommissioning and construction, the EPC contractor will develop, Occupational Health, Safety and Environment (OHSE) plan that will address OHSE aspects associated with the each phases of the project.

During the operational phase, the BPDB will develop, rollout and implement a formal OHSE management system for the operation of the power plant. The EPC contractor will need to ensure that their OHSE plan also complies as a minimum with stipulated laws and regulations.

This plan outlines the framework of OHSE plan which will be followed by the contractor's, operation and maintenance staffs of BPDB during decommissioning, construction, and erection and operation and maintenance phases.

1.2 Scope

This document must be applied to the entire project cycle of repowering of Unit 4 and other projects in Ghorashal Power Station, employees and subcontractors, and must be considered as a minimum requirement. The application of this plan is the direct responsibility of the management and all employees, subcontractors and vendors involved in its day to day operation.

1.3 Purpose

An OHSE plan is a management tool used to manage OHSE activities associated with the decommissioning, construction and erection, and operation and maintenance of a project. It is a prerequisite for satisfying the BPDB that the successful contractor has implemented a management system for the safe operation of decommissioning of existing unit and construction and erection related activities in a project.

¹ WBG EHS General Guidelines (2007), WBG EHS Guidelines for Thermal Power Plants (2007)

The OHSE plan sets out the OHSE management system as well as the resources required to implement. It includes the minimum requirements for compliance with local OHSE laws and regulations in order to prevent injuries to workers, damage to property or the environment. In the absence of relevant legislation, the EPC contractor will ensure compliance with international standards, guidelines and best practices in the safe operation of construction activities associated with the project.

1.4 BPDB's Statutory Requirements

1. Government Authorization granting permission for site clearance on the basis of the "Initial Environmental Examination Report" from Department of Environment (DoE).
2. Government Authorization approving the project for environmental and social impact ("EIA Approval") on the basis of the "Environmental Impact Assessment".
3. License for the term of the Power Purchase Agreement permitting the Company to generate and supply electricity under the Power Purchase Agreement from Ministry of Power Energy and Mineral Resources (MOPEMR), Office of the Electrical Adviser and Chief Electric Inspector (OEACEI) and Bangladesh Energy Regulatory Commission (BERC)
4. Easement or lease agreement and approval for construction of shoreline work, jetty, intake and outfall structures of once through cooling system, use of river water and dredging of river from Bangladesh Inland Water Transport Authority (BIWTA) and Bangladesh Water Development Board (BWDB).
5. No objection certificate to build an exhaust stack and bypass stack at the site as part of the plant from Civil Aviation Authority of Bangladesh (CAAB).
6. All import permits, certificates, licenses and other required consents allowing the Company and the Contractor(s) to import into Bangladesh all plant, machinery, equipment, spare parts, materials and supplies required for the project from Ministry of Commerce (MOC) and Chief Controller of Import and Export (CCIE).
7. Fuel supply agreement with the supplier Titas Gas Transmission and Distribution Company Limited (TGTDC).
8. No objection certificate for the Project as per the Local Government (Union Parishad) Ordinance, 1983 and with reference to Circular No. 159/UP/047, dated 16 June 1993.
9. No objection certificate for the Project as per Town Improvement Act 1953 (East Bengal Act XIII of 1953, as modified up to June 1991, and as per the Urban Area Plan, 1997 (SRO No. 184-Law/97, dated 3 August 1997) from Narsinghdi Poura Sabha.
10. As per Local Government (Thana Parishads and Thana Administration, Reorganization) Ordinance, 1982 (Order No. LIX of 1982) as amended up to 1992 from Thana Authority of Narsingdi Thana.
11. Government Authorization for the installation, construction and operation of a deep tube well at site from Department of Public Health Engineering (DPHE).
12. Work permit for Project personnel including the Company's and Contractor(s)' employees and resident visas from Board of Investment (BOI) and Ministry of Home Affairs (MOHA).
13. National security clearance for expatriate employees of Company and the Construction and O&M Contractor(s).

14. Government Authorization for remittance of up to fifty percent (50%) of salaries and savings by expatriate employees of the Company without restriction from Bangladesh Bank.

1.5 EPC Contractors Statutory Requirements

1. License under the Petroleum Act, 1974 (Act LXIX of 1974) for storage of petroleum products at or proximate to the Facility from Department of Explosives.
2. Approval of installations of boilers at the Facility under Sections 6 and 7 of the Boiler Act, 1923 (Act V of 1923) from Department of Explosives and Chief Inspector of Factories and Establishment (CIFE).
3. Permission for transporting chemicals, toxic wastes and hazardous materials on land and water routes from Ministry of Home Affairs (MOHA).
4. Approval of the Facility as satisfying the fire safety and protection standards under the Fire Service Ordinance, 1959 (Ord. No. XVII of 1959) and Civil Defense Act 1952 (Act. XXXI of 1952) from Department of Fire Service and Civil Defense (DFSCD).
5. Special Order for the term of the Power Purchase Agreement exempting the Company from the application of Section 30 of the Electricity Act, 1910 (Act IX of 1910), so as to permit the Company to use electricity within the Facility for auxiliaries (other than supply of electricity to the residential area of Facility) from Ministry of Power Energy and Mineral Resources (MOPEMR), Office of the Electrical Adviser and Chief Electric Inspector (OEACEI) and Bangladesh Energy Regulatory Commission (BERC).
6. Special sanction for the term of the Power Purchase Agreement under Section 34 of the Electricity Act, 1910 (Act IX of 1910) permitting the connection of the Facility to the earth by the Company from Ministry of Power Energy and Mineral Resources (MOPEMR), Office of the Electrical Adviser and Chief Electric Inspector (OEACEI) and Bangladesh Energy Regulatory Commission (BERC).
7. "Certificate of Registration" of Facility under Factories Act, 1965 (Act IV of 1965) from Chief Inspector of Factories and Establishment (CIFE).
8. Approval of the Facility as satisfying the fire safety and protection standards under the Fire Service Ordinance, 1959 (Ord. No. XVII of 1959) and Civil Defense Act 1952 (Act. XXXI of 1952) from Department of Fire Service and Civil Defense (DFSCD).

All other necessary clearances required for performance of its obligations under the Agreement.

In addition to general rules regarding health, safety & environment the site has to follow the provision of following Acts/Rules.

1. The Fatal Accidents Act, 1855
2. The Explosives Act, 1884
3. The Explosive Substances Act, 1908
4. The Poisons Act, 1919
5. The Dangerous Cargoes Act, 1953
6. The Fire Prevention and Protection Act, 2003
7. The Labour Act, 2006

8. The Railway Act, 1890
9. The Motor Vehicles Ordinance, 1983
10. The Highways Act, 1925
11. The Building Construction Act, 1952
12. National Energy Policy
13. Any other Act/Rules applicable to particular situation/activity/operation.

1.6 BPDB OHSE Program Activities

An effective occupational health, safety and environment (OHSE) plan must demonstrate effective management leadership, a firm commitment to the program and a willingness to improve the workplace safety culture. Companies with good results in safety (or any other area) have leadership that will not allow a substandard result. While cooperation and consensus are very important in getting employee buy-in to programs, ultimately it is the leadership and commitment from management that drives the process.

The level of leadership and commitment toward health and safety within the organization can be assessed by the following items:

- a current, written health and safety policy that clearly states the employer's aims; the responsibilities of the employer, managers, supervisors and workers; and awareness of these individual responsibilities at all levels of the organization
- a system for accountability of health and safety roles and responsibilities at all levels of the company. This is often one of the toughest areas for any company – what to do when a valued employee is not following the system.
- the levels of senior and middle management and worker involvement in the program (where those levels exist in the company)
- the levels of knowledge and awareness of applicable legislation appropriate to an employee's needs.
- the allocation of sufficient resources for health and safety
- the level of commitment from senior management (Project director) toward improving the workplace safety culture. This is a key performance indicator – whether the senior people walk the talk.

The BPDB GPS does not have any clear OHSE policy and employees are not aware of the positive health and safety culture strategy. BPDB needs to develop a HSE Management System program activities and commitment & ensure the program are implementing during the each phases of the repowering project. Table 1.1 shows the OHSE program activities and expectation for each elements from the employees including contractors

However, EPC contractor needs to show their OHSE Management structure in line with Annex 1

Table 1.1 BPDB OHSE Management Systems Key Responsibilities Register

<p>OHSE program activities OHSE Manager-BPDB (to implement)</p>	<p>OHSE program activities Superintendent Engineer – BPDB (to ensure)</p>	<p>Employees <i>(Includes EPC and other contractors)</i> <i>(to follow)</i></p>
<p>1. Policy & commitment (Guideline –Refer to Section 2)</p>		
<p>Make a draft OHSE Policy for Project director for approval</p>	<ul style="list-style-type: none"> • Communicate policy. • Provide leadership in line with policy commitments. • Assess any changes to organization structures, activities, processes, etc. for OHSE implications. 	<ul style="list-style-type: none"> • Feedback ideas for changes to policy. • Understand policy and follow intent. • Follow OHSE processes.
<p>Collate changes and publish.</p>	<ul style="list-style-type: none"> • Assist with important changes. 	
<p>2. Legal & other requirements (Guideline-Refer to Section 1.4 and Section 1.5)</p>		
<p>Monitor legal requirements and produce a monthly report to communicate relevant changes to the business.</p>	<ul style="list-style-type: none"> • Implement actions required to ensure legal compliance. • Communicate requirements, including any changes to work programs or practices, to staff. 	<ul style="list-style-type: none"> • Follow procedures, work instructions etc. as these should be in compliance with legal and other requirements. • Report issues where procedures / work instructions may not be in compliance with legal requirements to Manager or OHSE representatives.
<p>Develop corrective and preventative actions to ensure that relevant changes to legal requirements are incorporated into OHSE documentation.</p>		
<p>Update OHSE processes.</p>	<ul style="list-style-type: none"> • Assist with important changes. 	
<p>3. Hazard identification & risk management (Guideline- Refer to Section 7 and chapter 10 of the EIA Report</p>		
<p>Coordinate strategic risk assessment process within lines of business.</p>	<ul style="list-style-type: none"> • Ensure risk assessments are carried out and registers are updated. • Understand key risks and mitigation measures. 	<ul style="list-style-type: none"> • Understand key risks and mitigation measures relevant to their own areas. • Report new risks and hazards. • Participate in risk reviews.
<p>Facilitate Site Hazard Register development and maintenance.</p>	<ul style="list-style-type: none"> • Coordinate Site Hazard Register development and maintenance, including providing adequate resources. 	<ul style="list-style-type: none"> • Report potential gaps in controls.

Provide OHSE technical advice on the development of project risk assessments and plans.	<ul style="list-style-type: none"> • Ensure controls are in place to control identified risks. 	
Provide technical advice on the development of operational risk assessments and plans.	<ul style="list-style-type: none"> • Coordinate development and implementation of operational risk assessment and plans, including providing adequate resources. 	
4. Planning & objectives -(Guideline- Refer to Section 3)		
Coordinate the development of strategic OHSE plans.	<ul style="list-style-type: none"> • Engage and provide resources to enable strategic assessment and subsequent plans to be developed. 	<ul style="list-style-type: none"> • Be involved in the development and implementation of OHSE objectives, targets and programs.
Advise and propose OHSE objectives, targets and improvement activities.		
Facilitate the development of OHSE programs and advise on OHSE strategy.		
5. Accountability & Leadership (Guideline- Refer to Section 4)		
Ensure that OHSE accountabilities, roles and responsibilities are clearly documented in OHSE documentation and communicated in OHSE training.	<ul style="list-style-type: none"> • Ensure OHSE accountabilities and requirements are identified and documented in Work Plans and Position Descriptions. • Lead and support OHSE system requirements. • Provide adequate supervision and leadership to staff (especially new starters). 	<ul style="list-style-type: none"> • Ensure OHSE requirements are understood and met • Participate in the continual improvement of the OHSE system.
6. Awareness, training & competency (Guideline- Refer to Section 5)		
Coordinate OHSE training needs analysis for the development of a comprehensive training requirements register.	<ul style="list-style-type: none"> • Conduct OHSE training needs assessment for the team. • Ensure teams' training requirements are communicated to OHSE representatives for inclusion in the OHSE training program. 	
Incorporate core OHSE training requirements in the training requirements register.		
Facilitate OHSE training program.	<ul style="list-style-type: none"> • Understand training and 	<ul style="list-style-type: none"> • Sign up to and attend training.

	competency requirements for personnel they are responsible for (including contractors).	<ul style="list-style-type: none"> Understand competency requirements and make sure they are met.
Coordinate and deliver some in house training (e.g. OHSE system training, OHSE inductions, OHSE risk management, etc.).	<ul style="list-style-type: none"> Ensure staff (including contractors) are trained and competent to do the work assigned to them. 	
Maintain records of training required, training attendance and competencies awarded (via HR).	<ul style="list-style-type: none"> Incorporate OHSE training requirements into data management system. Make people available to attend training. Ensure records of training and competency requirements, training attendance and competencies awarded are documented within their jurisdiction. 	<ul style="list-style-type: none"> Provide evidence of prior learning, licences or other relevant competencies required to do the assigned work. Provide feedback on training suitability and quality.
7. Communication, consultation & involvement (Guideline- REFER TO Section 6)		
Ensure that management and staff are consulted when changes are made to the OHSE system.	<ul style="list-style-type: none"> Ensure staff are consulted when change are made to assets and operations that might effect OHSE policies and procedures. 	<ul style="list-style-type: none"> Participate in team meetings and communicate/raise OHSE concerns, issues, key learning and wins. Participate in OHSE policies / procedures review.
Provide monthly OHSE report with key learning.	<ul style="list-style-type: none"> Communicate OHSE issues at team meetings (e.g. monthly stats and key learning). 	<ul style="list-style-type: none"> Engage with and discuss monthly reports and key learning.
Compose and circulate OHSE alerts.	<ul style="list-style-type: none"> Respond to OHSE issues / concerns. 	
Compose and circulate program newsletters and updates.		<ul style="list-style-type: none"> Read OHSE communication items and attend communication sessions.
Communicate changes to OHSE policies and procedures to management.	<ul style="list-style-type: none"> Communicate relevant information on OHSE system changes to staff. 	
Develop and maintain OHSE Essentials web portal.		
8. Document & record management (Guideline -refer to section 8)		

<p>Maintain OHSE documentation, including:</p> <ul style="list-style-type: none"> • Filing OHSE records such as assessments, plans and reports. • Developing and distributing monthly report for project director. • Developing and maintaining internet sites to enable ease of access to OHSE documents and information • Reviewing and updating OHSE documentation. • Maintaining OHSE documents and records in accordance with OHSE system requirements. 	<ul style="list-style-type: none"> • Ensure resources are available to manage documents and records. • Ensure documents and records are adequately managed. 	<ul style="list-style-type: none"> • Manage documents and records as required.
<p>Manage OHSE document change requests.</p>	<ul style="list-style-type: none"> • Ensure area-specific OHSE process requirements are appropriately documented. 	<ul style="list-style-type: none"> • Provide input into development of OHSE documents. • Raise OHSE document change requests where gaps or issues are identified.
<p>9. Assets & operations (Guideline- Refer to boiler decommissioning and construction plan)</p>		
<p>Administer OHSE operational control processes.</p>	<ul style="list-style-type: none"> • Identify OHSE risks associated with assets and operations, ensuring they are recorded in OHSE risk registers. • Ensure controls and processes are implemented to adequately manage OHSE risks. 	<ul style="list-style-type: none"> • Be involved in the development of OHSE risk management programs, plans and processes.
<p>Facilitate strategic and operational risk management processes to enable the development and implementation of appropriate control measures.</p>	<ul style="list-style-type: none"> • Document all monitoring and measuring processes implemented in order to demonstrate that controls are effective. 	<ul style="list-style-type: none"> • Implement / follow OHSE risk control measures.
<p>Provide professional advice to business units on OHSE management and improvement initiatives.</p>		
<p>10. Project management (Guideline- Refer to Section 6)</p>		

Provide advice and support to project managers in the development and implementation of project OHSE Management Plans.	Project Team Managers: <ul style="list-style-type: none"> • Ensure that OHSE Risk Assessments are conducted for all projects. • Understand their OHSE accountabilities. 	Project Managers: <ul style="list-style-type: none"> • Ensure that project OHSE management plans are developed and implemented.
Lead and participate in project-related OHSE initiatives.	<ul style="list-style-type: none"> • Participate in, and inform staff of, project-related OHSE initiatives. 	
Ensure other OHSE procedures support project management (e.g. Hazard ID and Risk Management, Audit, Management of Contractors & Suppliers)		
11. Management of contractors & suppliers (Guideline- Refer to section 11)		
Document process to ensure OHSE risks associated with contractors and suppliers comply with legal requirements (OHSE and Contracts & Procurement processes)	<ul style="list-style-type: none"> • Ensure process for managing contractors and suppliers are in place and followed. • Ensure relevant personnel are trained in contractor and supplier management, as required (e.g. project managers). 	<ul style="list-style-type: none"> • Follow OHSE processes around contractors and suppliers. • Monitor contractor / supplier compliance with OHSE system requirements.
12. Emergency preparedness Guideline- Refer to Emergency management Plan that attached in the EIA report		
Facilitate strategic emergency assessment and planning processes.	<ul style="list-style-type: none"> • Identify potential OHSE emergency situations. 	<ul style="list-style-type: none"> • Understand roles and responsibilities in Emergency Response Plan situations
Provide advice on assessing emergency risk and planning adequate responses.	<ul style="list-style-type: none"> • Ensure adequate response plans are resourced, developed and maintained • Ensure adequate drills, training and response equipment are resourced, maintained and in place. 	<ul style="list-style-type: none"> • Attend OHSE emergency training and participate in drills. • Be involved in debriefs and response plan improvements.
Facilitate the development of emergency response plans, when required.		
13. Monitoring & measuring (Guideline- Refer to Section 10)		
Provide data to measure OHSE	<ul style="list-style-type: none"> • Review performance data and agree on improvement 	

performance	programs	
Recommend programs based on review of OHSE performance	<ul style="list-style-type: none"> • Ensure equipment used to monitor OHSE performance is maintained , calibrated etc people are trained e.g., gas detectors 	<ul style="list-style-type: none"> • Ensure relevant procedures are followed
14. Incident management (Guideline – Refer to Section 15)		
Provide technical advice on incident investigations and the development of corrective actions.	<ul style="list-style-type: none"> • Ensure OHSE incidents are reported and investigated as per the procedure. • Ensure root causes are identified and actions implemented to prevent recurrence. 	<ul style="list-style-type: none"> • Complete and submit incident reports for all health, safety or environmental incidents, hazards and near-misses. • Participate in incident investigations as required.
Lead Severity 3 incident investigations.		
Audit the Incident Management procedure.		
Analyse incident data to identify trends and communicate them to management.		
15. Audit (Guideline-Refer to Section 9)		
Develop and facilitate annual internal OHSE audit programs	<ul style="list-style-type: none"> • Consider audit requirements and nominate projects or processes to be audited. 	
Conduct OHSE audits	<ul style="list-style-type: none"> • Participate in audits. • Make staff and resources available to auditors. • Develop and implement actions from audits. 	<ul style="list-style-type: none"> • Participate in audits. • Develop and implement actions from audits
Facilitate OHSE certification process (ISO 14001 and OHSAS 18001)		
16. Management review (Guideline- Refer to Section 17)		
Facilitate OHSE management review processes.	<ul style="list-style-type: none"> • Conduct OHSE management reviews. • Develop actions and programs aimed at continual improvement of OHSE 	<ul style="list-style-type: none"> • Participate in OHSE management review process through employee representatives attending Executive Safety Team

	<p>performance.</p> <ul style="list-style-type: none"> • Communicate and implement OHSE improvement programs. 	<p>meetings.</p> <ul style="list-style-type: none"> • Participate in relevant improvement programs.
<p>Provide data analysis and information for OHSE management review processes.</p>		

SECTION 2- OHSE POLICY DEVELOPMENT

2.1 OHSE Policy Definition

A health, safety and environmental policy (HSE) is a written statement by an employer stating the company's commitment for the protection of the health and safety of employees and to the public. It is an endorsed commitment by management to its employees regarding their health and safety

2.2 Reasons for Health and Safety Programs or Policies in the Workplace

There are several reasons why workplaces need a health and safety policy or program, including:

- to clearly demonstrate management's full commitment to their employee's health and safety;
- to show employees that safety performance and business performance are compatible;
- to clearly state the company's safety beliefs, principles, objectives, strategies and processes to build buy-in through all levels of the company;
- to clearly outline employer and employee accountability and responsibility for workplace health and safety;
- to comply with the Occupational Health and Safety Act; and
- to set out safe work practices and procedures to be followed to prevent workplace injuries and illnesses

2.3 What makes a policy statement effective

There are many differences in form and content of corporate policies. Their style, however, is not as important as the clarity with which they identify functional responsibilities over authority.

To be effective, a policy must:

- involve senior management and representatives in the preparation of the policy,
- be seen as consistent with the workplace's objectives of operating in an efficient and predictable manner,
- be relevant to workplace's real needs, not adopted from another workplace, and
- be accepted as equal in importance to the workplace's other policy objectives.

2.4 What type of issues should the OHSE policy statement cover

The policy statement should provide a clear indication of the company's objectives and plans for occupational health and safety. The following issues should be covered in the statement:

- senior management's commitment to the establishment of a healthy and safe workplace and to the integration of health and safety into all workplace activities,

- the intention to treat basic safety and health legislation as a minimum standard rather than maximum,
- responsibility of all personnel in maintaining a safe workplace,
- accountability of all levels of management for carrying out health and safety responsibilities,
- importance of consultation and co-operation between management and employees for effective implementation of policy,
- commitment to regular reviews of the policy and to monitor its effectiveness, and
- commitment to provide adequate funds and details of how money will be available.

2.5 Who should write the policy

The best policies are specific to a workplace and not borrowed from or written by outsiders. An employer may delegate the preparation of a policy to a staff member. However the written occupational health and safety policy statement is a pledge to employees and therefore the employer is mainly responsible for content. The safety policy should be dated and signed by the Project director of BPDB.

2.6 What should be considered when writing the policy

These are some of the major items to consider.

- The policy should state the arrangements in place to support and implement it. Such items as safety meetings, safe working procedures, occupational hygiene, and safety training should be outlined.
- The policy should address the types of hazards associated with the workplace. Depending on the types of tasks performed and the hazards present, it may be necessary for the employer to become fairly specific and detailed in outlining hazards at the workplace.
- The policy should discuss active and on-going participation of employees in helping to achieve the objectives. Employees should also be involved in preparing and implementing the policy. Without the meaningful participation of employees, a policy will not succeed.
- Policy statements need to be amended from time to time. They must keep pace with the changes occurring at the workplace.

The following are questions that need to be considered for preparation of a policy:

- What is the goal of the safety program - to have fewer injuries and illnesses than similar operations? to reduce by 10%?
- When confronted with conflicting priorities or allocation of limited resources, does safety get more importance? Equal importance? How is this decided?
- Is safety the responsibility of line management or staff management - who is accountable?
- What benefits does management expect to derive from an effective program?
- Who will be assigned responsibility for coordinating activities?

2.7 What are the examples of communication policy to others

An effective policy for health & safety management must be:

- clearly defined and communicated,
- backed up by sound arrangements and put into practice,
- reflected in day-to-day attitudes and actions of people, and
- monitored.

Ways in which policy and responsibilities can be communicated include:

- induction training,
- policy and procedure manuals,
- joint health and safety committees,
- job descriptions,
- notice board notices and reminders,
- safety talks and meetings,
- senior management attendance at safety meetings, and
- demonstration of senior management commitment through effective response and review to committee recommendation inspection reports, accident investigations, and health and safety program evaluations

2.8 What are the suggestions for implementation of the policy

To implement a policy, health and safety activities must be identified and assigned. While each workplace will do this in its own way, there are some general issues which should be addressed:

- The policy should state that the workplace has clear rules for healthy and safe work behaviour. It should clarify who is responsible for developing, observing, and enforcing the rules.
- There should be clear guidelines for maintaining and operating equipment and machinery. Again, individual responsibilities must be clarified.
- The policy should state what type of training program will be provided by the company to ensure that employees can meet their responsibilities. This could include first day orientation, on-the-job training, and "refresher" courses.
- The means for providing employees with information about basic or specific workplace hazards, and detailed written procedures for hazardous jobs should be outlined.
- Regular worksite health and safety meetings at all levels of the organization are an essential part of a good safety program. The policy could identify what issues will be discussed at these meetings, what can be communicated verbally, and what should be in writing

SECTION 3 – OHSE PLANNING AND STRATEGIC OBJECTIVES

3.1 Introduction

The purpose of this procedure is to ensure that the BPDB establishes and maintains documented OHSE objectives and targets in order to implement the OHSE policies. Objectives and targets also provide a means for the BPDB's to measure the effectiveness of its OHSE efforts and improve the performance of the OHSE management system.

3.2 Definitions

OHSE Objective - overall OHSE goal, arising from the OHSE policy, that an organization sets itself to achieve and that is quantified where practicable.

OHSE Target - detailed performance requirement, quantified where practicable, this is applicable to the organization or parts thereof, that arises from the OHSE objectives, and that needs to be set and met in order to achieve those objectives.

OHSE Management Program - a program that is linked directly to your objectives and targets by providing a description of the how the goals will be translated into concrete actions so that OHSE objectives and targets will be achieved.

3.3 Scope

The OHSE objectives and targets apply to the activities of the Repowering of the existing BPDB's 210 MW Power Plant (Unit # 4). The OHSE management program covers all OHSE objectives and targets.

3.4 Responsibilities

- The OHSE Manager or nominated representative, in consultation with departmental manager and other individuals as appropriate, has responsibility for proposing OHSE objectives and targets for the whole organization.
- The Project Director has ultimate responsibility for approving and endorsing objectives and targets for the organization.
- Chief Engineer is responsible for managing the achievement of site based objectives and targets.
- All employees are responsible for contributing to the achievement of organizational objectives and targets.

- The OHSE Manager is responsible for monitoring progress against the OHSE targets and objectives and reporting periodically to the Organization's Management Team through Management Review Meeting.

3.5 Procedure

- The OHSE objectives and targets will involve the review and appraisal of:
 - the organization's OHSE Policy
 - the Register of risk assessment
 - the Register of Applicable OHSE Legislation
- Each objective is linked to one or more targets which detail the actual process of achieving the individual objectives. In the case of long-term objectives, interim targets may be required to monitor progress.
- The setting of targets will take into consideration financial and operational requirements and the views of other interested parties as appropriate.
- The objectives and targets provide a detailed account of the Organization's commitment to environmental issues as outlined in the environmental policy. These objectives and targets will be used to form the Management Program, which details responsibility and a timescale of achievement for each objective and target.
- The objectives and targets will be set and revised as follows:
 - on an annual basis as part of the management review process
 - on relevant changes to the register of applicable legislation and other requirements.
 - in response to other changed circumstances
 - when failure to meet targets is highlighted through audits.
 - as a consequence of a relevant complaint, documented in accordance with the requirements of the OHSE management system
 - Technological advances

SECTION 4 – OHSE ACCOUNTABILITY AND LEADERSHIP

4.1 Purpose/Scope

This procedure is used to determine the organizational roles and personnel responsibilities for the BPDB's OHSE Management System.

4.2 OHSE Responsibilities and Accountabilities

OHSE responsibilities and accountabilities for all levels in BPDB management are clearly described and communicated for understanding. The OHSE Management System organization roles, responsibilities and accountabilities are defined as below

4.3.1 Project Director

Project Director is ultimate accountable for OHSE Management within BPDB GPS.

4.3.2 Executive Engineer

As a part of the commitment the top management of the BPDB appoints a specific Management Representative (MR) with defined roles, responsibilities and authority to Executive Engineer

The Executive Engineer irrespective of other responsibilities, shall

- ensure that an OHSE MS is established, implemented and maintained in accordance with the requirements of the OHSAS 18001:2007 standard, and for these facilitate availability of appropriate resources in a timely and efficient manner,
- assign and communicate appropriate OHSE responsibilities to persons working for or on behalf of the organization whose work relates to its OHSE management, not confining to only OHSE function, but including other functions of the organization,
- report to Project Director on the performance of the OHSE for review, including recommendations from improvement,
- facilitate management review of the OHSE by the top management at planned intervals, to ensure its continuing suitability, adequacy and effectiveness,
- keep records of the outputs from the management reviews in terms of decisions and actions related to possible changes to OHSE policy, objectives, targets and other elements of the OHSE consistent with commitment to continual improvement,
- review the internal audits, the OHSE objectives and targets, and control measures for significant hazards, and
- interact with interested parties on issues pertaining to the OHSE MS.

4.3.3 Superintending Engineer

Superintending Engineer has ultimate responsibility for OHSE Management within BPDB GPS. This responsibility is discharged by:

- Complying with all relevant regulatory and legislative environmental requirements for the operations;
- Ensuring that all staff and contractors are aware of the BPDB OHSE Policy;
- Influencing JV Partners to manage the operations in compliance with BPDB's OHSE Policy, procedures and guidelines;
- Provide direction in setting of appropriate objectives and targets to ensure continual improvement in overall OHSE performance, including the commitment to prevention of pollution;

4.3.4 Assistant Engineer

- Ensuring the asset / operations / functions complies with relevant regulatory and legislative environmental requirements in the asset or operation;
- Ensuring that asset / operations staff and contractors are aware of the BPDB OHSE Policy;
- Ensuring that the BPDB OHSE Management System is effectively implemented in the assets / operations, including the development of a RISK REGISTER and OHSE Management Program for the Asset, and the setting of appropriate objectives and targets to ensure continual improvement in overall OHSE performance.

4.3.5 OHSE Manager

- The OHSE Manager has the primary responsibility for assuring that the appropriate structure is in place to develop and implement the OHSE MS. As needed the OHSE Manager will assign responsibility for specific tasks and make assignments to OHSE Team members and other facility personnel.
- Setting annual OHSE Manager performance targets
- Ensuring the monitoring and reporting of appropriate OHSE performance data and information;
- Reporting Performance on OHSE Management System to Management Team for review and as a basis for improvement;
- Ensuring that OHSE incidents are fully investigated and the lessons learnt from incidents is communicated to all assets and employees;
- Providing feedback to the Project Director and identifying where improvements in OHSE performance can be made.
- Coordinating the preparation of Asset emergency response and oil spill contingency plans and regular drills and exercises to test their effectiveness.

4.3.6 Onsite Chief Engineer

- Clearly display BPDB OHSE Commitment to maintaining a healthy and safe work environment, and to actively encourage superior safety and environmental performance
- Champion GPS 'Environmental and Safety Leadership' culture
- Ensuring that suitable resources are made available to achieve the aims and objectives of the OHSE Management Systems, Plans and associated policies
- Lead the Emergency & Crisis Management team as the Incident Response Team Commander

4.3.7 Functional Line Managers / Supervisors

- Ensure that OHSE aspects within their area of responsibility are identified and documented and that adequate risk controls are in place.
- Ensuring that all the OHSE systems are implemented effectively. This includes developing, documenting, implementing and reviewing OHSE Plans.
- Ensuring any OHSE incidents, hazards or other OHSE related deficiencies are reported, analysed and rectified;
- Ensuring personnel have the requisite skills to carry out their OHSE functions;
- Ensuring those personnel in OHSE critical roles are appropriately trained and competent;

4.3.8 Site EHS Manager

- Supporting the delivery of the business strategy and plans, in particular the BPDB's OHSE performance targets.
- Overseeing the development and implementation of local initiatives aimed at improving BPDB's OHSE performance;
- Take as a lead to update OHSE risk register on a regular interval;
- Providing assistance to Assets in developing their OHSE Management Programs;
- Ensuring installation & implementation of the OHSE performance database and reporting system
- Ensuring the appropriate systems, hardware and plans are in place to control and/or treat pollution incidents and are regularly tested;
- Supporting the development & implementation of effective waste management systems in all assets;
- Ensuring support to organization on regulatory compliance matters, in particular as it relates to OHSE regulatory approvals and consents;

4.3.9 Site Deputy Manager- Environment

- The BPDB site Deputy Environmental Manager (DEM) is responsible for developing the yearly audit schedule in consultation with EHS Manager for the coming fiscal year, initiating internal audits and assigning an audit team.
- The DEM will maintain Environmental audit records, including a list of auditors, audit schedules and procedures and all audit reports.
- The DEM will be involved for identification of environmental aspects and effects in the Assets and the preparation of the Asset Aspects Register;
- Coordinating the monitoring and reporting of appropriate environmental performance data and information in the Asset;
- Coordinating the reporting and investigation of environmental incidents, and ensuring that the lessons learnt are communicated within the asset and to other assets;

4.3 Review

This document will be reviewed as a consequence of:

- a management review
- the audit process
- a complaint, documented in accordance with the requirements of the OHSE managementsystem
- any other circumstances, as appropriate

SECTION 5 – OHSE ORIENTATION AND TRAINING

5.1 OHSE Orientation

5.1.1 Components of Orientation

All employees and contractors shall attend a long day site specific safety orientation prior to commencing work. A site designate will be appointed to oversee this process and will be assigned by the Chief Engineer.

At the completion of the general OHSE orientation workers will be tested for their knowledge of site OHSE expectations. A dated site OHSE Orientation sticker will be issued upon successful completion of the orientation process.

5.1.2 Supervisor Orientation

All subcontractor/trade Supervisors/Lead-hands will attend an orientation in addition to the standard site specific orientation. The supervisor orientation will include an overview of site expectations for safety management and daily/weekly/monthly administrative requirements such as Pre job safety instruction (PSI), tailgate meetings, man counts, etc.

5.2 OHSE Training

5.2.1 Purpose/Scope

This procedure is used to develop and implement a training program that complies with OHSE regulations requiring training and addresses high-priority risks jobs and objectives and targets.

5.2.2 Responsibility

The BPDB Training and Competence Manager (or delegate by CHIEF Engineer) in conjunction with the area and operational managers, will be responsible for the development of an OHSE training plan. The area and functional managers are responsible for ensuring that the appropriate employees receive training required under the plan. The company's human resources representative will be responsible for ensuring that all employees receive introductory training on the OHSE Management System..

5.2.3 Procedure

5.2.3.1 Task-Specific Training

1. A training program will be developed to ensure that employees are capable of accomplishing the tasks required to meet OHSE objectives and targets. This program will identify training topics, who should receive the training, when training should be given, and the training method. The program will also distinguish between training conducted to comply with OHSE regulations and other training.
2. A critical first step in developing a training program is to assess employee training needs. The Executive Engineer and functional managers will review past training and the nature of the employee's work. Based on this review, specific training requirements for each employee or type of employee will be documented.
3. The BPDB Training and Competence Manager will document the OHSE Training Program.
4. The training plan will be implemented by the area and functional managers. Upon completion of training by employees, the area and functional managers shall make the Executive Engineer aware of the training completed.

5. The BPDB Training and Competence Manager will document the training completed form and Training Log
6. Specific documentation pertaining to training received will be maintained by the operational work areas for a minimum of two years, or as required by regulation.
7. Training effectiveness will be evaluated to ensure that the OHSE Management System is being implemented effectively when changes are made to significant risks, objectives, targets or operational controls. Improvements to the training plan will be made accordingly.

5.2.3.2 General EMS Training

1. All employees shall receive introductory training to make them aware of the OHSE Management System.
2. The human resources representative shall be responsible for coordinating the effort to assure that all new and existing employees have received suitable training.

5.2.4 Frequency

The training plan shall be updated whenever changes are made to the significant risks, objectives, targets, or operational controls. General OHSE training shall be made available on a continual basis to ensure that new employees are made aware of the OHSE MS

Table 5.1: Draft OHSE Training Plan

Training Subject	Target Personnel
Leadership and project management training	BPDB senior management (Dhaka and site based staff)
OHSE Management System awareness-detailed	BPDB senior management (Dhaka and site based staff)
OHSE Management System awareness-basic	All staff
Emergency response and management	IRT, ERG and IMT team
Handling, use & disposal of hazardous material	Construction workers with authorized access to hazardous material storage areas and required to use hazardous material during their works
Waste Management	All staff (construction and camp staff)
Defensive and Evasive training- Efficient & safe driving practices, including road & vehicle restrictions	Drivers & mobile plant operators
Actions to be taken in the event of major or minor pollution event on land	All construction staff

Training Subject	Target Personnel
Use of flexible booms and surface skimmers in event of pollution event in water	All construction staff working on the jetty renovation (if required)
Pollution prevention: Best practice	All staff
Refuelling of water borne plant – pollution prevention	Operators of water borne plant & vehicles
Health & Safety: Safe way to work & hazard awareness	All construction staff
Health & Safety: Safe use of plant & equipment	Operators of plant & equipment
Front line leadership and project management training	Senior management of BPDB (both Dhaka and field personnel)
Health & Safety: Working at height	Boiler decommissioning, turbine hall, HRSG and cooling tower refurbishment construction staff
Health & Safety: Working near/on water	All staff working on jetty strengthening and unloading heavy equipment from ship
Health & Safety: Use of PPE	All construction staff
Emergency procedures and evacuation	All staff
Fire fighting	All staff
Health & Safety: Confined space entry	Designated workers
Health & Safety: Lifting and rigging	Crane operator and all riggers
Culturally sensitive awareness rising on HIV/AIDS and the spread of sexually transmitted diseases. Awareness raising on risks, prevention and available treatment of vector-borne diseases	All staff
Cultural sensitivities of the local population	On induction of all non-local staff

SECTION 6: OHSE COMMUNICATION AND CONSULTATION

6.1 Purpose

The purpose of this section is to detail the requirements for OHSE consultation and communication with employees and other stakeholders.

6.2 Scope

This Standard applies to operations and activities within BPDB GPS.

6.3 Definitions

Consultation	In the context of this Section, means a discussion between groups (e.g. management and employees) on HSE-related issues, aimed at exchanging views and opinions, taking these into consideration, and attempting to reach a consensus, so as to foster participation, involvement and ownership
Key Performance Indicators (KPIs)	A range of important indicators that measure Environmental, Health and Safety and Process Safety performance normally relative to a preset target or benchmark
Material Safety Data Sheet (MSDS)	A range of specific safety-related data on materials/substances, handled at BPDB GPS facilities.
Toolbox Meeting	A daily meeting to ensure the free communication of OHSE and operational issues and for the planning of daily activities on each site

6.4 Requirements

6.4.1 Consultative Arrangements

Consultative arrangements shall be put in place to provide employees, contractors and external stakeholders with an opportunity to contribute to the OHSE decision making process, and to comply with legislative requirements (in relevant jurisdictions).

6.4.1.1 Employees

Generally, consultation with employees shall be via OHSE Committees, and Health and Safety Representatives. Other consultation processes may also be required to ensure all employees have an opportunity to contribute and participate in OHSE issues as appropriate.

Consultation shall occur on matters such as:

- OHSE and Process Safety Improvement Plans
- development or review of HSE Policies
- OHSE and Process Safety objectives and targets
- the assessment of risk and implementation of control measures
- other matters which directly affect employees or have the potential to affect their health and safety or surrounding environment.

6.4.1.2 External Consultation

Operations that have a significant impact on the local community are required to establish periodic community consultation meetings, to enable affected individuals to raise any concerns with the operation's management. Proactive consultation is encouraged before potential OHSE impacts, which may cause community concern, occur.

Formal agendas are to be developed for these meetings covering issues of most concern for the community. Minutes and actions arising from the meetings are to be recorded. Where applicable, monitoring data is to be presented at these meetings to support statements made by the operator.

Consultation with government agencies, authorities and other organizations shall be maintained in order to contribute to the development of public policy, relevant legislation, improved industry performance and educational initiatives.

Where a site/area has regular consultation with external stakeholders then procedures shall be developed and maintained to manage this consultation.

6.4.2 Communication

6.4.2.1 Employees and Contractors

The BPDB OHSE Policies, OHSE MS and Process Safety Standards, and relevant OHSE issues and performance shall be communicated to employees and contractors. Where required, OHSE information shall be provided in languages other than English. Methods of communication include:

- OHSE Inductions;
- Health Safety and Environmental Committees;
- Toolbox meetings;
- Presentation of OHSE and Process Safety KPIs;
- OHSE training;
- OHSE notice boards and bulletins;
- Management visits; and
- Awareness programs and initiatives.

6.4.2.2 Site OHSE Communication Meetings

Regular meetings shall be held including communication and discussion of OHSE matters at BPDB GPS site. The meetings shall be led or coordinated by the site OHSE Manager. Contractors, whether on-site full time or on a sporadic or inconsistent basis, are required to send a representative to each OHSE Meeting.

The OHSE Committee Meetings will be held the first Wednesday of every month for the duration of the project, with the JHSC Safety Inspection conducted 1-2 days before the meeting.

Committee members shall undergo appropriate training to ensure that they can effectively participate. A meeting agenda shall be prepared and distributed prior to each meeting

Records of the meetings shall be kept, including:

- status of actions from previous meetings;
- attendees;
- matters discussed; and
- actions arising from the meeting.
- committee members;
- site supervisors; and
- appropriate managers.

The minutes shall also be posted on the site notice boards and filed for future reference.

6.4.2.3 Management & Operational Meetings

All meetings, where appropriate, should start with a discussion of relevant OHSE issues.

6.4.2.4 Toolbox Meetings

Toolbox meetings shall be held for work groups including the relevant supervisor, employees and relevant contract personnel.

The meetings should be held at a set time, preferably at the start and/or finish of each day. The meetings should:

- review any environmental, safety or process safety issues occurring since the last meeting;
- review new relevant hazards and incidents;
- include "toolbox talks" on specific OHSE issues of interest; and
- plan, communicate and delegate the day's work.
- To ensure that the Toolbox meeting is effective the Supervisor shall:
- prepare for their Toolbox meetings;
- involve participants in the meeting; and

6.4.2.5 External Communication

Communication shall be maintained, both proactively and upon request, on OHSE matters with external stakeholders.

OHSE information may be provided to interested parties including:

- OHSE Policies;
- OHSE Standards;
- General brochures and information sheets; and
- MSDS for Santos chemical products and wastes.

6.4.2.6 Complaints Management

Complaints received from stakeholders shall be managed. Stakeholders may include:

- internal (BPDB employees)
- external (contractors, regulators, landholders, Aboriginal groups).

6.4.3 Statutory Reporting

Notification of OHSE incidents, where required by statute, shall be reported to the appropriate government agency.

6.4.4 Annual Public Reporting

OHSE reporting shall be included in the BPDB Annual Report Responsibility

6.5 Responsibility

Position	Responsible for:
Project Director	<ul style="list-style-type: none">• ensuring that consultative arrangements are in place for employees, to participate in relevant EHS decision making processes.• ensuring that consultative arrangements are in place for contractors and external stakeholders to be involved in relevant OHSE processes.• ensuring that OHSE communication forums and Environmental and Health and Safety Management Committees are established and are functioning effectively.

Site Chief Engineer	<ul style="list-style-type: none"> • ensuring that Site OHSE communication forums and site OHSE committees are established and functioning effectively. • ensuring that appropriate communication and consultation forums are established with local landholders and communities. • ensuring that, where required, procedures are developed for managing regular consultation with external stakeholders.
Managers	<ul style="list-style-type: none"> • ensuring that OHSE is the first agenda item at Management and Operational meetings.
Supervisors	<ul style="list-style-type: none"> • ensuring daily Toolbox meetings are adequately prepared, duties shared and all members are actively involved.
OHSE Manger	<ul style="list-style-type: none"> • preparing OHSE report for inclusion in the Annual BPDB Report. • providing OHSE support and advice to OHSE committees. • management of incident notification and reporting process.

SECTION 7 – HAZARD IDENTIFICATION AND CONTROL

Hazard Identification and Control are key components in maintaining a safe and healthy workplace. Health hazards, occupational factors or illnesses, arising in and from the workplace, which may cause impaired health and well being, sickness, or significant discomfort and inefficiency must be identified, monitored, and controlled.

The hazard identification and control process will be implemented and maintained throughout the tenure of the project. General site hazards and controls will be identified on the Hazard Identification and Control.

List and placed within this section of Project Specific OHSE Plan. It will be reviewed monthly with changing site conditions and updated as the findings necessitate. Copies of the reviewed and/or updated hazard identification and control list will be provided to all stakeholders for communication with their team from Management to Supervisors to Workers.

Ongoing hazard(s) and control(s) will be addressed by safe work practices, job hazard analyses, safe operating procedures, and the Pre-Job Safety Instruction Program contained within this standard.

7.1 Hazard Evaluation

An evaluation of identified hazards will be done so that adequate controls can be implemented. The evaluation process will include:

- Risk potential for worker(s);
- Magnitude of potential risk;
- Hazards involved;
- Control measures already in place;
- Effectiveness of control measures;
- What was included in evaluation process;
- Documentation of evaluation results; and
- Advising all stakeholders.

7.2 Hazard Categories

Hazards are generally divided into four categories, which include:

- Chemical hazards;
- Physical hazards;
- Biological hazards; and
- Ergonomic hazards.
-
- Thermal or heat radiation related hazards

7.3 Construction Hazard Assessment

The Construction Hazard Assessment (CHA) is essential to identify hazards and risks and appropriate controls prior to mobilization to site. All hazards identified must be prioritized. Information collected during the CHA is used in the development of this Project Specific OHSE Plan.

7.4 Job Hazard Analysis

The completion of a Job Hazard Analysis (JHA) is required to verify that hazards and risks associated with a specific task are identified and appropriate controls are implemented prior to execution of the task.

All hazards identified must be prioritized. The JHA must be communicated to all workers involved with the task prior to the start of the task. BPDB project management will be responsible for the development of JHAs for all hazardous Ghorashal repowering project work.

Subcontractor will be responsible to develop their own JHAs or safe work procedure for any work in their scope that is hazardous and/or complex.

7.5 Pre-Job Safety Instruction (PSI)

Pre-Job Safety Instruction (PSI) is a documented program designed to assist supervisors and workers to safely accomplish their day-to-day activities and responsibilities through the application of hazard identification and control where the work is conducted. PSI is used to enhance communication between workers and supervisors resulting in increased awareness between all crew members. Workers and supervisors will be trained in the proper completion of a PSI.

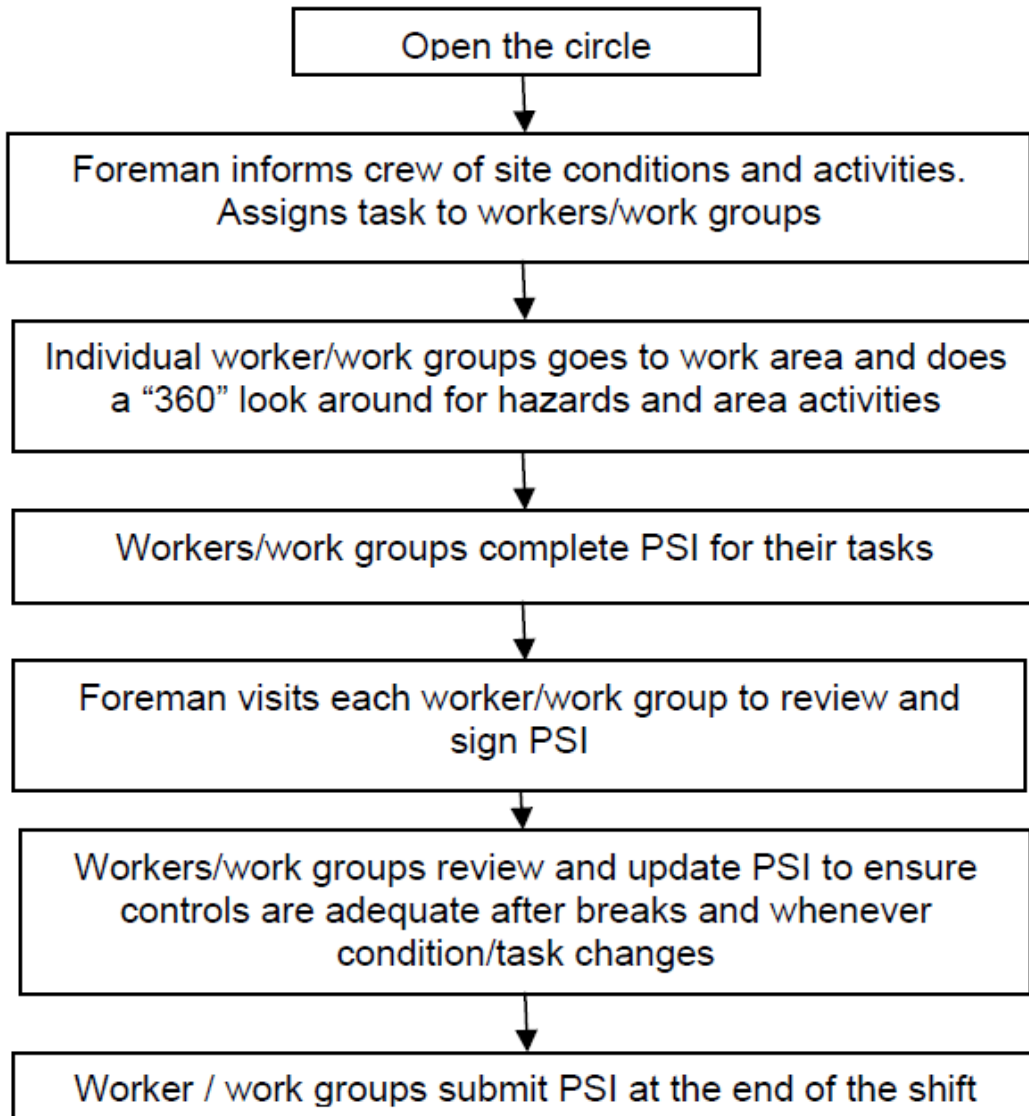
Foremen/Supervisors are responsible for the following steps:

- Assigning work tasks to their workers and coaching on general hazard information for the tasks.
- Ensuring that a PSI has been completed for each task, that the appropriate hazards/controls have been identified, and that the required controls have been implemented.
- Ensuring that PSIs are updated and/or reviewed after breaks or when conditions or tasks change.

Workers will be responsible for the following:

- Identifying specific hazards in their area of work and completing a PSI for that task
- Updating and/or reviewing the PSI after breaks and whenever the task changes.
- Advising his or her foremen of concerns regarding the work or of hazards that require additional attention.

PSI Flowchart



PSI Audits

PSI audits will be conducted by the BPDB Project management staff during the work day to commend, correct, and coach proper completion of a PSI. Ten percent of all PSIs completed in the field will be audited.

7.6 WHMIS (Workplace Hazardous Materials Information System)

Where subcontractors are required to work with, or adjacent to hazardous materials the law requires persons using these products are educated to work safely with these substances. To

commit to the Workplace Hazardous Materials Information System (WHMIS), the responsibility is upon each subcontractor to ensure that the product brought to site meets the specifications outlined in the contract and to label all applicable containers according to WHMIS legislation. Subcontractors are to notify BPDB of flammable, explosive, or otherwise dangerous substances. Subcontractors using controlled substances are also required to train employees in WHMIS and meet the requirements for Transportation of Dangerous Goods (TDG).

WHMIS uses classifications to group chemicals with similar properties or hazards. The Controlled Products Regulations specifies the criteria used to place materials within each classification. There are six classes, although several classes have divisions or subdivisions. Each class has a specific symbol to help people identify the hazard quickly. For clarification, these classes are:

Class A – Compressed Gases

Class B – Flammable and Combustible Materials

Class C – Oxidizing Materials

Class D – Poisonous and Infectious Materials

Class E – Corrosive Materials

7.7 Class F – Dangerously Reactive Materials Safety Data Sheets

A requirement of WHMIS is to ensure any controlled substance brought to the jobsite is accompanied with a current (less than 3 years) Material Safety Data Sheet (MSDS). Before a controlled substance is brought onto site, a copy of the MSDS must be provided to the BPDB Project Superintendent and a copy kept by the subcontractor and made readily available for review by their respective workforce.

SECTION 8: DOCUMENT AND RECORD MANAGEMENT

8.1 Document Management

8.1.1 Purpose

Documentation is created to record information that is required to show conformance with legislation, OHSE improvements, audits and reviews. Documents such as procedures and work instructions are also required to achieve greater operational control. The procedure applies to the following documents (and any changes to them) that must be controlled: the OHSE manual; facility-wide OHSE procedures; process-specific or activity-specific procedures and work instructions; and forms, checklists, and drawings used for OHSE purposes.

8.1.2 Responsibility

The control of the OHSE manual and records is the responsibility of the Executive Engineer and all other facility-wide procedures and records is the responsibility of the site Chief Engineer. The control of process or activity specific procedures and records is the responsibility of the applicable area or functional manager.

8.1.3 Procedure

8.1.3.1 OHSE Manual

1. The Executive Engineer owns all the corporate documentation in the OHSE and is responsible for authorising, issuing and maintaining these documents. The Executive Engineer is also responsible for co-ordinating Function and Local documentation to minimise repetition.
2. The Function Managers (e.g. Waste) own the Function documentation and are responsible for authorising, issuing and maintaining these documents.
3. The field based OHSE Manger own the locally controlled documentation in the OHSE MS, and are responsible for authorising, issuing and maintaining these documents.
4. All documentation vital to the operation of the OHSE MS will be controlled documents, and will be given a unique reference number.
5. The Executive Engineer, or nominated delegates, has write access to update or changes in the intranet site.
6. All controlled documentation shall contain the following :
 - A creation date;
 - A revision date and number;
 - A unique reference number,
 - A title describing the document.
7. All documents are logged on the Document Register. Only the Executive Engineer or nominated delegates, have write access to the database.
8. The Executive Engineer, shall inform the Training Manager of the potential for training requirements when documents are created or revised.

9. The Executive Engineer, are responsible for ensuring that all relevant personnel are informed of OHSE documents.
10. All staff is responsible for providing feedback on the continuing suitability of the OHSE documentation. All OHSE documentation will be reviewed annually.

8.1.3.2 Facility-wide Procedures

1. The site based Chief Engineer is responsible for controlled documents from all points of issue and use.
2. All facility wide final documents will be stored in electronic form on the intranet
3. Revision of facility-wide procedures is controlled and is the responsibility of the Chief Engineer
4. Depending on the type of document, controlled copies are identified by stamp, signature or other similar means.
5. Uncontrolled copies of documents may exist for illustrative, instructional, knowledge preservation, or external distribution purposes only.
6. All controlled documents are approved prior to issue and are marked with the revision number and date.
7. Unless otherwise specified, the originator of a document is responsible for review and approval of any subsequent changes to the document.
8. The site based Chief Engineer is responsible for removal of obsolete controlled documents from all points of issue and use.

8.1.3.3 Process-Specific or Activity-Specific Procedures and Work Instructions

1. Revision of process-specific or activity-specific procedures and work instructions is the responsibility of the applicable area or functional manager (or designee).
2. Distribution of process-specific or activity-specific procedures and work instructions is specified on the Distribution List. Controlled copies are stamped "Controlled" with the distribution date.
3. The area or functional manager (or designee) is responsible for distribution of new or revised activity-specific procedures and work instructions. A copy of the Distribution List is signed and dated by the area and functional manager and initialed by each recipient.

8.1.4 Frequency

This procedure shall be implemented on a continual basis.

8.1.5 Obsolete Documentation

A copy of obsolete OHSE documentation will be maintained by the Executive Engineer. An Amendment Control Record will be maintained by the Executive Engineer, as a separate file detailing all amendments to the OHSE Manual documentation

8.2 Record Management

8.2.1 Purpose/Scope

This procedure is used to identify, maintain, and dispose of OHSE records. The procedure is applicable to all facility activities that create records associated with the OHSE Management System.

8.2.2 Definitions

Records - documented information that is evidence of an environmental activity or event that has been performed or that is required to be retained for future reference

8.2.3 Responsibility

The Executive Engineer is responsible for identifying records that must be maintained as part of the OHSE MS. The records that pertain to the entire facility will be maintained by the Executive Engineer. The records that are specific to a process or activity will be maintained by the applicable area or functional manager.

8.2.4 Procedure

A. The Executive Engineer, the OHSE Committee, and other facility personnel are responsible for identifying records that will be maintained by the company as part of the OHSE MS and ensuring compliance with OHSE statutes and regulations.

B. The Executive Engineer will maintain all records that pertain to the entire facility in a single location. The area or functional managers will be responsible for maintaining records that are applicable to their specific operations and activities.

C. The Executive Engineer will maintain an OHSE Document Index of all records that are maintained as part of the OHSE MS. The OHSE Document Index will note the person responsible for the last revision and the length of retention for each type of record.

D. The Executive Engineer will identify and note on the OHSE Document Index any restrictions on records necessary for security.

E. The Executive Engineer and other facility personnel will review the records and purge obsolete records at least every 3 months.

F. All OHSE MS auditing and inspection (both internal and external) actions will be managed through BPDB intranet system.

F. The records will be captured in any electronic or filing manner. The records includes but not limited to

- OHSE monitoring results
- All inspection and audit reports (relates to OHSE MS) along with corrective and preventive actions
- Environmental scorecard update and actions of environmental objectives

8.2.5 Frequency

This procedure shall be implemented on a continual basis

SECTION 9 – OHSE AUDITS

9.1 Purpose

This procedure defines the process for conducting periodic internal audits of the OHSE Management System (HS MS). The procedure defines the process for scheduling, conducting, and reporting of HS MS audits. The purpose of the audit includes but is not limited to determining continued conformance with OHSAS 18001:2007 and applicable regulatory requirements and that the OHSE MS is properly maintained and documented.

9.2 Scope

This procedure applies to all associated activities within the BPDB GPS.

9.3 Definitions

- **OHSE Audit:** a periodic process to assess the OHSE MS documentation and records.
- **Lead Auditor:** an auditor who is authorized to plan, organize, and direct OHSE audits in the operation sites. The Lead Auditor will report findings and observations, and evaluate the adequacy of corrective and preventive action. The lead auditor should be appropriately trained (Lead auditor course pass certificate etc.,) for this purpose.
- **Audit Finding:** results of the evaluation of the audit evidence compared with the OHSE objective and targets. This could be an observation, minor non-conformance or major non-conformance.
- **Major Non-conformance:** Absence of a mandatory OHSE MS deficiency or many minor non-conformances of the same type or represents a system breakdown
- **Minor Non-conformance:** a minor missing system component or an isolated incident of non-conformance
- **Observation:** suggestion for improvement of system or a practice or the absence of a practice, while not non compliance OHSE MS requirement, could improve the system or result in a future non compliance.
- **Corrective Action Register (CAR):** as a result of the audit findings, CARs are assigned to all nonconformities to initiate corrective.
- **Preventive Action Register (PAR);** as a result of audit findings, PARs are assigned to any observation made that may prevent potential future non-conformances
- **Objective Evidence:** Verifiable information, records or statements of fact, Can be quantitative or qualitative, Used by the auditor to determine whether the audit criteria are met, Typically based on interviews, document review, observations, and monitoring and measurement results.

9.4 Responsibility

9.4.1 Site OHSE Manager

The site OHSE Manager is responsible for developing the yearly audit schedule in consultation with site Chief Engineer for the coming fiscal year, initiating internal audits and assigning an audit team.

The site OHSE Manager will maintain OHSE audit records, including a list of auditors, audit schedules and procedures and all audit reports. The site OHSE Manager will select the Lead Auditor in consultation with the site Chief Engineer and Lead auditor

9.4.2 Lead Auditor

The Lead Auditor (LA) is responsible for notifying, organizing, planning and directing the Audit Team prior to and during the OHSE audit. Selection of auditors and conduct of audits shall ensure objectivity and the impartiality of the audit process.

The LA shall schedule and facilitate all Audit Team meetings, which consist of the opening, closing and any briefing meetings required. The LA evaluates the adequacy of corrective and preventive actions. The LA will prepare the audit team to conduct any follow up audits needed and will prepare the final audit report, summary of findings and forward it to site OHSE Manager and site Chief Engineer for the review and later on site OHSE Manager will forward to Executive Engineer to raise up in the next Management Review Meeting.

9.4.3 Auditors

A qualified and trained individual who is authorized to perform specific OHSE audit functions under the direction of a Lead OHSE Auditor.

Auditors are responsible for collecting, analyzing and documenting objective evidence through interviews, document examination and visual observation during the audit investigation. They shall record their observations and findings and assist the Lead Auditor in the preparation of final report.

9.4.4 Executive Engineer

The Executive Engineer shall provide appropriate resources to support the OHSE MS and its audits. The Executive Engineer shall report progress or findings to upper management and other interested parties.

9.4.5 Employees

It is the responsibility of all employees to perform their job in accordance with the appropriate operating instructions and for notifying their departmental head whenever they discover problems that may adversely affect the OHSE or our legal and safety requirements.

9.5 Procedure

Based upon the fiscal year audit schedule, the audit process shall proceed as follows:

9.5.1 General

- Internal OHSE audits will focus on verifying that activities conform to documented procedures and that corrective actions are undertaken and are effective.
- All audits are conducted by trained auditors. Records of auditor training are maintained in accordance with the Records procedure (section 8).
- When a candidate for OHSE auditor is assigned to an audit team, the Lead Auditor will prepare an evaluation of the candidate auditor's performance following the audit.

- The Executive Engineer is responsible for maintaining OHSE audit records including a list of trained auditors, auditor training records, audit schedules and protocols, and audit reports.
- OHSE audits are scheduled to ensure that all OHSE MS elements and plant functions are audited at least once each year.
- The Lead Auditor is responsible for ensuring that the audit, audit report and any feedback to the plant areas or functions covered by the audit is completed per the audit schedule.
- The site OHSE Manager, in conjunction with the Lead Auditor, is responsible for ensuring that Corrective Action Notices are prepared for audit findings, as appropriate.

9.5.2 Audit Team Selection

One or more auditors comprise an audit team. When the team consists of more than one auditor, a Lead Auditor will be designated by the site OHSE Manager. The Lead Auditor is responsible for audit team orientation, coordinating the audit process, and coordinating the preparation of the audit report.

9.5.3 Audit Team Orientation

The Lead Auditor will assure that the team is adequately prepared to initiate the audit. Pertinent policies, procedures, standards, regulatory requirements and prior audit reports are made available for review by the audit team.

9.5.4 Audit Plan

- The Lead Auditor will review previous audit report findings and the status of CARs or PARs prior to preparing the audit plan. Areas identified by previous audits for corrective or preventive action should be included in the scope of the audit.
- Lead Auditor will complete the audit plan. The audit plan includes the date, audit number, scope and objective; specify sections of OHSE MS being audited and areas of the facility being audited, an audit schedule with auditor assignments, questionnaires and non-conformance report. Auditors may modify the scope and plan if necessary. These changes must be documented.

9.5.5 Prior Notification

The plant areas and/or functions to be audited are to be notified a reasonable time prior to the audit.

9.5.6 Conducting the Audit

- The Lead Auditor shall convene the opening meeting to brief the Audit Team on the general scope of the audit, the details of the audit plan, receive input on the audit plan and schedule and discuss assignments.
- Review key OHSE documentation before touring the site and conducting interviews.
- Records that shall be reviewed include but are not limited to:

- OHSE Policy
 - System Procedures
 - OHSE Management Program
 - OHSE audit reports
 - Results of Management Reviews
 - Status of compliance with regulatory requirements
- Tour the site.
 - Interview staff and observe activities and conditions. Responses and evidence shall be documented.
 - Look for objective evidence to verify information from interviews through observations, records or independent sources paying particular attention to items previously identified for corrective or preventative action or findings from other audits.
 - The Audit Team shall then meet and report on audit progress as directed by the audit plan and schedule.
 - Findings and observations will be documented by the Lead Auditor; including any corrective action taken during the audit. An internal audit report is drafted in preparation for the closing meeting.
 - The Lead Auditor conducts the closing meeting to present audit findings, clarify any conflicting or confusing information, identify positive practices, review objective evidence that supports the findings, and summarize the audit results.

9.5.7 Reporting Audit Results

- After the closing meeting, the Lead Auditor prepares the final audit report. The final audit report includes a summary of the audit scope, identifies the audit team, describes the source of evidence used, summarizes the findings and results. Copies of the final report will be submitted to the site OHSE Manager and Executive Engineer. Once review the report, site OHSE Manager will forward to site chief Engineer and Executive Engineer (Management Representative).
- For findings that require corrective action, the site OHSE Manager will prepare a CAR notice upon consultation with relevant managers and maintain action track records. The original will be assigned to the appropriate department by the site OHSE Manager, as appropriate for implementation.
- The Executive Engineer ensures the availability of the audit report(s) for Management Review.

9.5.8 Audit Follow-up

- The site OHSE Manager and Head of the departments are responsible for any follow-up actions needed as a result of the audit.
- The site OHSE Manager is responsible for tracking the audit action progress and report to Executive Engineer on monthly basis.
- All audit action progress will be discussed in the monthly EHS meeting lead by site OHSE Manager.

9.5.9 Record Keeping

- A copy of this procedure shall be maintained with the records of the division and with each relevant staff person.
- Records shall be maintained
- The official document will have original signatures and be located in the OHSE Manual in the office of the Executive Engineer.
- Changes and updates to this procedure will be made in accordance with the Document Control System Procedure and Record Management System Procedure.

SECTION-10 Monitoring and Measurement

10.1 Purpose/Scope

This procedure is used to implement a measurement and monitoring program designed to support the OHSE Management System and specific OHSE objectives and targets.

10.2 Responsibility

The area and functional managers will be responsible for providing data and monitoring operations that are specific to their functions. The site OHSE Manager will be responsible for consolidating all the data and conducting facility-wide monitoring.

10.3 Procedure

A. Measurement

- The area and functional managers will track the OHSE Monitoring Matrix by collecting and charting data relevant to the metric at the frequency indicated in the matrix. Site OHSE Manager or his delegate shall be responsible for consolidating the data from each functional unit and shall document the metrics on a facility wide basis.
- The area and functional managers will measure the instances of non-compliance in their areas. This data will be consolidated by the site OHSE Manager in order to assess facility wide compliance.
- The developed metrics shall be evaluated and revised as objectives and targets are modified and/or added.

B. Monitoring

- The Executive Engineer and the key facility staff will review facility and target-specific measurement and monitoring data every 3 months to identify trends, evaluate progress toward meeting OHSE objectives and targets, and discuss overall OHSE performance.
- The area and functional managers will ensure that data obtained to monitor their specific activities is continually evaluated to ensure compliance with applicable OHSE statutes and regulations.
- The Executive Engineer will be responsible for providing an annual summary of the results of the facility monitoring program to Project Director. The site OHSE Manager will be responsible for ensuring that the results of the facility monitoring program are broadly communicated to all employees in accordance with the Consultation and Communications procedure.

10.4 Frequency

The monitoring and measurement aspects will be evaluated as objectives and targets are modified or added. A Facility Monitoring Report shall be developed on an annual basis.

SECTION 11 – CONTRACTOR OHSE PROGRAM

11.1 OHSE program Expectation

BPDB Constructors will verify that the respective contractor OHSE program and/or systems in place meet the applicable standards and are integrated with the BPDB Program. Where there is a discrepancy between programs and legislation, the higher standard will be applied. In addition contractors will agree to adopt the minimum expectation from BPDB as stated in the Annex A

All contractors are required to meet all applicable legislated standards as defined in the section 1.

All contractors will ensure compliance with the Alcohol and Drug policies as identified in this manual. Testing of subcontractor employees is the responsibility of the subcontractor.

The contractor shall designate a representative to be responsible for the administration of the subcontractor OHSE program. This person must be a line manager or supervisor.

11.2 Personal Protective Equipment

Contractors are responsible for verifying that their employee's have the appropriate PPE and are trained in its use and maintenance. This OHSE manual describes basic and specialized personal protective equipment requirements. These requirements will be outlined in detail during the site OHSE orientation.

11.3 Incident Reporting

The Contractor is required to notify BPDB of all incidents including near misses. All incidents must be reported to the site superintendent immediately. All incidents that require medical attention, or have the potential for medical attention require the immediate notification of the project management team.

11.4 Investigations

An investigation must be conducted by the contractor supervisors for all incidents involving their workers. The preliminary investigation report must be submitted to the project management team within twenty-four hours of occurrence. These reports must be completed to the satisfaction of the BPDB project management team.

11.5 Audits and Inspections

Contractors shall inspect their work areas and their subcontractors work areas on an on-going basis to verify compliance with OHSE regulations. Contractors are expected to conduct formal

inspections on their job sites and provide copies of the inspections to the BPDB project management team. If non-compliance items are observed, the contractor must rectify any unsafe acts and/or conditions without delay. Work which is not in compliance with applicable OHSE standards will be stopped until corrective action is implemented.

11.6 Training

All Contractor personnel must be trained and competent to perform the assigned work. Training records must be submitted before at risk work is permitted to begin (i.e.

work at heights, confined space, mobile equipment...)

11.7 Meeting Attendance

All Contractor personnel shall attend and/or conduct the following meetings:

- **Weekly OHSE Meetings (Tailgate Safety Talks)** Weekly OHSE meetings are to be held a minimum of once per week. Meeting minutes are to be submitted to the BPDB site OHSE Manager the day of the meeting.
- **Project OHSE Committee Meetings (Joint Health and Safety Committee Meetings)** Project OHSE Committee meetings will include company supervisors, contractor supervisors, foremen, and designated workers.

The intent of these meetings is for workers and supervisors to discuss any OHSE issues that may arise on the project.

SECTION 12 –PERSONAL PROTECTIVE EQUIPMENT

The purpose of personal protective equipment (PPE) is to provide an effective barrier between a worker and potentially dangerous objects, substances, and processes. BPDB will ensure all personnel have the right PPE while perform the job.

12.1 Basic Personal Protective Equipment

At a minimum, basic PPE must include:

- Hard hat;
- Safety Glasses;
- High vis vests;
- Gloves (applicable to task); and
- Safety footwear.

Note: All personal protective equipment must meet the applicable standard as defined by legislation and policy.

12.2 Inspection Defective/Damaged PPE

Workers must inspect PPE prior to use to verify it is fit for use. Defective or damaged PPE must be immediately removed from use. All PPE removed from service will be tagged as out of service.

12.3 Selecting Personal Protective Equipment

PPE will be selected based on the following information:

- Hazard assessments;
- Material safety data sheet (MSDS);
- Customer/client requirements; and
- Legislative jurisdictional requirements

12.4 Mandatory Full Time PPE Requirements

12.4.1 Head Protection

- Personnel shall wear hard hats that are in good condition and meet legislative jurisdictional requirements and standards.
- Bump hats and metal hard hats shall not be worn as head protection.
- Personnel must wear hard hats with their company logo and the workers name clearly displayed on the hard hat.
- Alteration of hard hats is prohibited
- Hard hats shall be worn in the manner prescribed by the manufacturer.
- Only head apparel designed to be worn under a hard hat will be allowed.
- Hardhats are required while welding. They are to be fitted with the appropriate shield.

12.4.2 Eye and Face Protection

- All personnel must wear properly fitting eye and face protection commensurate with PCL policy on active work sites.
- Face and eye protection shall be kept clean and in good repair.
- If a worker cannot wear safety glasses, as documented by a physician's note, alternate arrangements must be made to verify the individual's face and eyes are protected.
- All components of prescription glasses that are being used for eye protection must meet approved applicable regulatory standards.
- The prescription glasses will include side-shields that must meet the applicable regulatory standards.
- Coverall glasses or goggles shall be required for prescription glasses that do not meet the standard.
- Face shields are required when grinding/cutting steel, concrete, chemical use.
- When using a face shield, safety glasses are also required under the face shield.

12.4.3 Hand Protection

All personnel must have appropriate gloves available for their task on their persons. Gloves are to be worn when conducting work activities with hazards that may cause injury to hands.

12.4.4 Foot Protection

- All personnel on a work site must wear safety footwear.
- The minimum is a CSA approved, Grade one (green triangle), 6" high cut boot appropriate to the task.
- No running shoes of any kind are permitted on work sites.

- Safety footwear must be in good repair. It is the responsibility of the employee to verify that their footwear is in proper working condition.

12.4.5 High Visibility Vests

High visibility apparel shall meet WSBC regulations and will be worn whenever worker and mobile equipment are working in a common area.

12.4.6 Hearing Protection

Personnel will receive an overview of hearing protection requirements during the project orientation. The training shall include identification of any hearing protection required areas, the hazards associated with noise exposure, and the purpose, use, maintenance, and limitations of the protective equipment provided on site. Personnel should not be exposed to noise in excess of the occupational exposure limits (OEL) listed below:

85 dBA Lex daily noise exposure level;

140 dBC peak sound level.

This may be accomplished by:

- Instituting engineering controls;
- Work practices/administrative control; and/or
- Providing personal hearing protection.

There are two types of recognized hearing protection available for use in effectively reducing noise exposure – earplugs and earmuffs. In most instances, earplugs are acceptable hearing protection. Cotton plugs are not acceptable and shall not be used. When using earmuffs for hearing protection special care must be given to check they are disinfected before being used by another employee.

Workers are to be informed of the hazards associated with exposure to noise and the purpose and limitations of protective hearing devices by their respective Supervisors. As per legislated requirements hearing testing is required to be conducted within six months of tenure and annually after that. To assist subcontractors / trade contractors in meeting this requirement hearing testing will be scheduled throughout the tenure of the project and dates communicated to the stakeholders.

12.4.7 Limb and Body Protection

Where there is risk of injury to a worker's limb and/or body, adequate limb and body protection must be worn and equipment designed to protect employees from injury to their limbs and body must be used (i.e. chainsaw chaps).

Where there is risk of injury due to congested work area and/or the movement of heavy equipment in and/or around the work area, all employees must wear high visibility apparel. When work is being done in extreme hot or cold temperatures, the protective clothing being worn must be reviewed to verify that it is adequate.

Personnel must be informed of any special precautions that need to be taken or special protective

clothing that needs to be worn. At a minimum a 4 inch sleeve is required (no tank tops / muscle shirts are permitted)

12.4.8 Respiratory Protection

This section provides a description of various types of respirators that may be used at the jobsite for respiratory protection. Respiratory Protection Options include:

Disposable Dust/Particulate Respirators - Single use disposable particle masks (double strapped types) are designed to protect the lungs from nuisance particles.

Air Purifying, Half Mask Respirators - Air purifying, half mask respirators have a rubber face seal that fits over the nose and under the chin. It is fitted with cartridges which purify the air as the wearer breathes. Different types of cartridges are available for different types of air contaminants.

Air Purifying, Full Face-piece Respirators - Air purifying, full face-piece respirators work on the same principal as the half-mask respirators described above. The face-piece extends around the entire face, covering the eyes, nose, chin, and mouth. This type of mask should be used when working with highly corrosive chemicals to protect the eyes and face from chemical splashes or where a face-shield and respirator combination is required.

Powered Air Purifying Respirators (PAPR) - PAPR features a battery powered, portable fan which draws air through a particulate or chemical filter and blows it to the face-piece. The fan and filter unit may be an integral part of the face-piece or mounted on the wearer's back or belt. Full and half mask face-pieces are available as well as a variety of helmets and hoods. This type of respirator is typically used when high particulate concentrations are present.

Airline Respirators - Airline respirators provide clean, fresh air to the wearer from a stationary source such as compressor or compressed air cylinders. They may be equipped with a full or half mask face-piece, helmet, or hood. Breathing air must be high quality and meet regulatory specifications.

Respirator Fit Testing

Prior to issuing a reusable, face-fitting respirator to a worker, the worker must successfully pass a qualitative fit test on that respirator. Aspects of the fit test requirements are outlined below:

- A worker cannot be fitted with a face-sealing respirator if there is any facial hair present that would come between the skin and facemask sealing surface. Moderate stubble at the sealing surface is considered excessive facial hair.
- Any worker who exhibits difficulty breathing or a severe psychological reaction during any phase of fit testing the worker must be examined by a physician, and the examining physician must be provided with sufficient information to allow the physician to advise the employer of the ability of the worker to wear a respirator.
- Fit testing repeated at least annually, or more frequently, if any change occurs which may alter respirator fit (i.e. weight loss or gain)

Note: Records of fit tests are to be submitted to the BPDB Superintendent

12.4.9 Fire Retardant Clothing

Fire retardant clothing (FRC) must be used where there is risk of fire (i.e. welding) or explosion, legislative requirements dictate, or client requirements dictate. Where FRC is required, the outer layer of worker's clothes, including rain gear, must be made of fire retardant material.

12.4.10 Clothing and Jewelry

For personal protection and to limit the spread of construction related contaminants throughout the facility, workers will not be permitted to wear:

- loose fitting clothing or jewelry
- greasy or oily clothing;
- torn or ragged clothing;
- cut-off or "muscle" shirts (4" sleeve shirt is the minimum sleeve length allowed); or
- short pants

Work site personnel wearing shirts, other clothing and stickers displaying any offensive language or opinion will be asked to remove the offensive material or leave the site immediately.

SECTION 13 – SITE SECURITY

The purpose of this section is to prevent loss caused by intentional acts and reduce the opportunity for public incidents in our workplaces. Deputy Director- Security of BPDB will ensure appropriate security measures are exists.

13.1 Fencing and/or Physical Barriers

The purpose of fencing and/or physical barriers is to keep the general public off the site and to keep materials and equipment inside the site. No fencing is to be removed unless it has been authorized by the BPDB site Chief Engineer.

13.2 Gates

All gates will be identified and numbered as well the gates will be identified on the site safety plan. Gates should be closed when not in use and opened only when required for specific deliveries or other authorized entries.

13.3 Lighting

BPDB will illuminate walkway areas and “common” areas to an adequate degree of brightness. For safe access & egress, (Task lighting is by trades) each site will have specific identified emergency route lighting that is automatically initiated when there is an electrical power loss. These emergency light systems will be inspected and tested on a regular basis, and identified on the site safety plot plan.

13.4 Visitor Control (inspectors, “one off deliveries”)

All visitors must report to the project office prior to going on site and be provided with an escort. All visitors will be required to sign in and out at the project office. The responsible person from BPDB Constructors or the applicable Contactor who has completed the full orientation will be responsible to escort and supervise the visitor and be present at all times. The escort will be responsible for the safe acts and conditions of the visitor while they are on site as well as completing a PSI with his or her visitor(s). All visitors must wear the required personal protective equipment while on the project site.

13.5 After Hours Activities

Any personnel and subcontractors/trade contractors that return to the project after hours or on weekends must be authorized to do so by the project superintendent or operations designate. An extended hours work permit must be completed and submitted to the BPDB site OHSE Manager for approval.

13.6 Parking Overview

Parking is not provided for workers on the Project. If parking is required to facilitate the work it is to be arranged through the BPDB site Chief Engineer. Consideration of the project traffic plan is to be given for all vehicular traffic including deliveries to the site. BPDB Contractors are to ensure companies delivering material and/or equipment to the site are familiar with delivery locations, procedure and safety/environmental requirements prior to coming to the site.

13.7 Vehicle Access

Only authorized vehicles are allowed on site. BPDB Project management will control vehicle entry. All vehicles entering and exiting site are subject to search.

13.8 Tools and Equipment

The security of the tools and equipment is the responsibility of the applicable owner. Contractors are responsible for their equipment on the project.

13.9 Shipping, Receiving, and Material Control

13.10 Each Contractor is responsible for their own shipping and receiving of materials and equipment. Key Control

The BPDB site Chief Engineer is responsible for key control. Keys that access general areas will only be issued to supervisors. An inventory and signature system will be set up to control keys, including vehicle and equipment keys

SECTION 14 – PREVENTATIVE MAINTENANCE

The purpose of this Preventative Maintenance standard is to verify that the tools and equipment provided to workers are properly maintained.

14.1 Inspection

Tools and vehicles/equipment shall be inspected daily and prior to each use by the user/operator to verify that they are in proper working order. Equipment that has a pre-operation inspection checklist must have them completed and be kept on the piece of equipment for verification. Damaged or defective tools must be tagged “DO NOT USE / OUT OF SERVICE” and returned to the Supervisor immediately. Under no circumstances may tools or equipment in need of inspection or repair remain in service.

14.2 Maintenance

Competent workers will maintain all tools, vehicles, and mobile equipment in accordance with the manufacturer’s maintenance requirements. Records of maintenance will be kept. Only “Qualified” persons may repair tools and equipment.

14.3 Site Requirements

All tools and vehicles/equipment, company owned or rented, dispatched to the site shall be sent in good mechanical condition and with the required OHSE equipment installed and be accompanied by operation manuals, testing (inspection) forms, and maintenance instructions. This is a requirement of legislation, codes, and company procedure.

SECTION 15 – INCIDENT INVESTIGATIONS

15.1 Purpose

Investigations are a methodical examination of the facts of an incident that resulted, or could have resulted in injury, illness, loss, property damage, or liability. They are conducted not to find blame, but to determine root causes and ultimately determine corrective actions or controls designed to prevent a recurrence of the incident.

15.2 Definitions

Incident

An incident is an undesired event that results in harm to people, loss of process, environmental interference, property damage, or liability.

Near Miss

A near miss is an incident where something could have resulted in personal harm, property damage, loss, or liability.

Loss of Process

Loss of process is an undesired incident that results in the disturbance of normal construction operations caused by an incident, damage to property, equipment, or the environment.

Lost Time Injury (LTI)

A lost time injury (LTI) is an injury where a medical professional directs the injured worker to remain away from work longer than the day on which the incident occurred.

Modified Work (Restricted Work)

This refers to work duties that have been modified to accommodate an injured worker who cannot perform their regular work duties as directed by a medical professional.

Medical Treatment (Medical Aid)

An injury or illness-related procedure other than first aid or preventative treatment that is intended to provide remedy or palliative care.

First Aid

Any one time treatment and subsequent observation(s) of minor, superficial injuries (ie. minor scratches, cuts, burns, abrasions and splinters or foreign objects embedded only in surface tissue) that do not require the professional medical care of a medical professional even though such an individual may have delivered the care.

15.3 Objective

The objective of investigating and reporting an incident is to determine the underlying causes that allowed the incident to occur and to implement effective corrective measures regarding:

- An incident;
- Damage to property, equipment, and environment; and
- Loss of process.

An investigation is a systematic process of examination, observation, and inquiry comprised of three parts including:

- Description of Incident
- The description identifies in detail how, when, and where the incident occurred including all related factors (i.e. weights, heights, distances, time of day, weather conditions).
- Root Cause (Why did the incident occur?)
- What acts, failures to act, and conditions contributed to the incident.
- Recommendations
- After the cause of the incident has been determined, recommendations (corrective actions) to prevent recurrence will be prepared.

15.4 Incident Investigation Procedure

The purpose of an investigation is to gather factual information which is pertinent to the incident or near miss which has occurred.

The investigation will be proportionate to the loss potential. As the degree of loss potential increases, so will the degree of investigation. The following information has been prepared to assist the investigation process.

Investigation Team

The BPDB Project management team is responsible to conduct or assign someone to conduct on site investigations. Where incidents involve serious injury or major equipment / property / environmental damage, project management can request assistance from the t OHSE manager. Where minor incidents involving non-disabling injuries or minimal equipment damage occur, it is permissible for the project management team to utilize a competent designate providing the project superintendent oversees all investigation proceedings.

Incident Response

First Aid/Emergency Services

People's lives and their well being come first. Have first aid administered following the emergency response plan (Elaborately described in the separate document).

Establishing Control

Establishing control at the scene where the incident occurred is critical to the success of the investigation. The success of an investigation is generally the result of a prompt and efficient response. Many things can happen in a short period of time that can mitigate or compromise evidence and information. The following is a list of some initial steps to assist and support this process.

Control Potential Secondary Occurrences

Prior to entering an area where an incident has occurred, an assessment of potential hazards must be done. Secondary occurrences can sometimes be more serious because normal controls can be weakened or modified as a result of the incident. Positive temporary actions need to be taken after timely but careful consideration of the consequences.

Photographs

Photographs effectively preserve the visual aspects of the scene. When properly done, they can save hours of note taking, drawing, and writing. Photographs can also be used for training purposes.

Photographs will be taken as follows:

- Use a long range, medium range, and close up sequence;
- Take a general scene photograph;
- Take a photograph of work station(s);
- Take a close up shot of deficiency items, damaged and impacted area(s);
- Photograph the scene from all sides; and
- Number each photograph and document the location of each shot on the sketch where the incident occurred.

Sketching the Scene

A sketch will be made of the area(s) where the incident occurred. In most cases a plan view is sufficient however, elevation views may be necessary to identify certain items. Sketches will include directional orientation (i.e. North, South, East, West) so that recorded information adequately describes the site where the incident occurred. Measurements will be included to identify and determine who and what was where. Witness locations (when incident occurred) will be noted on the sketch as well as photograph locations. Some affected areas may require a grid that in turn will be included in the sketch. Identify Sources of Evidence Conditions can change quite rapidly after an incident has occurred. Emergency rescue work involving equipment, machinery, lights, ventilation, and people can alter the scene and destroy valuable evidence. The investigator needs to know and recognize these things while taking other initial

actions. This is when photographs can be very useful. If photographs are taken, note the locations at which photographs were taken on the sketch plan.

Preserve Evidence

Affected areas will be cordoned off, work stopped in that area immediately, and people restricted from entering the area until the investigation has been completed.

Collection of Evidence

Equipment Examination - An investigation will include the tools, equipment, and materials that people were using at the time of the incident. In some cases this may require the services of an expert. Guards, warning labels, condition of tools, application of tools, equipment, and materials as well as wear and tear can reveal evidence of what may have happened.

Records Check

Review all records (training, maintenance, schedule of work practices, and job procedures) to determine possible contribution to the incident (PSI, work plans, drawing, JHA, disciplinary actions).

Medical Condition

Investigate thoroughly; that is, evaluate all factors that may or may not be relevant. Consider, among other things, substance abuse, mental health, physical disabilities, fraudulent behavior, and future job continuity.

Re-enactment

On occasion, a re-enactment of the incident may become necessary to see what happened and how it occurred. Re-enactment will only be used when:

- The information cannot be gained in any other way;
- It is vital to the development of remedial or corrective actions; and
- It is absolutely necessary to verify critical facts.

Interviewing Witnesses

Immediately after the site has been secured, witnesses must be interviewed (Witness Statement attached at the end of this standard). A witness is anyone who knows something related to what happened.

Eyewitnesses and the people involved in the incident will be interviewed first. The first details from these witnesses give the investigator symptoms of the problem(s) and/or causes of the incident. The investigators will obtain more objective information when they demonstrate a calm, supportive, nonjudgmental attitude.

The Interviewing Process

Interviews will be conducted as follows:

- Interview as soon as possible;
- Find fact, not fault;
- Interview near the scene (if possible) where incident occurred;
- Mark the locations where witnesses were when incident occurred on the site sketch;
- Interview one on one separately from other witnesses;
- Put the witness at ease;
- Ask open ended questions;
- Ask witness to complete a witness statement;
- Repeat information to witness for verification;
- Offer the witnesses a copy of their statements;
- Thank the witnesses for their time and effort; and
- Keep communication open by advising them if they remember anything else to call you.

Incident Analysis

After all information and evidence has been collected, the analysis of what happened can begin. This process will include but not be limited to:

- Write down all facts;
- List the facts that contradict one another;
- Compare facts with physical evidence to establish the most likely answer;
- List the sequence of events;
- Identify root causes; and
- Corrective actions.

Notification/Report

The report will include all pertinent information including copies of gathered documents and lessons learned. Report shall be completed and submitted to BPDB Chief Engineer in Dhaka no later than 24 hours after the occurrence of the incident.

Lessons Learned (Corrective Actions)

TEMPORARY ACTION includes those items that can be implemented immediately to prevent recurrence of the incident.

PERMANENT ACTION includes those items that take substantial time to implement such as training and/or developing or modifying a particular practice, standard, or procedure. In any case, corrective action will be monitored until fully implemented.

15.5 Documenting and Reporting Procedure

General

All serious incidents including near misses must be reported, investigated, and documented immediately.. The success of the company OHSE program depends entirely on the cooperation and commitment of all employees to all phases of the program. It is of the utmost importance that all managers and supervisors know and comply with the procedures as outlined herein. Investigation action items are to be signed off by the project manager.

Regulatory Reporting

All contact and reporting to government officials is to be done by the district OHSE manager in consultation with Member- Generation of BPDB. In regards to injuries, all compensation carriers have specific legislative reporting requirements for the employer, worker, and attending physician(s).

Internal Reporting

All incidents must be reported to the site supervisor immediately. All incidents that require medical attention, or have the potential for medical attention require the immediate notification of the project OHSE supervisor or superintendent. All serious incidents must be reported to the district OHSE manager immediately – the notification of any government agencies will be coordinated by OHSE manager.

First Aid Injuries

All injuries, major and minor, must be recorded in the project first aid treatment log maintained by the first aid attendant.

Medical Aid Injuries

All injuries requiring medical attention must use the following administrative procedures:

- The foreman or project OHSE supervisor initiates the company medical treatment memorandum.
- If possible, accompany the injured worker to the medical facility.
- After treatment, the attending physician completes the memorandum.
- The supervisor forwards copies of the memorandum to the OHSE manager and retains a copy for the site records.

Reporting Equipment and Property Damage

The OHSE manager and the district administration manager must be promptly notified of equipment or property damage. The Incident Report Form must be completed for all incidents and forwarded to the district office for administrative processing.

SECTION 16 - SAFE WORK PRACTICES

16.1 Safety preparation before starting removal of asbestos insulation

The safety majors include rules for safe decommissioning in compliance with health, work, environment and fire protection. These majors shall be implied by EPC contractor. Owner's Engineer shall maintain the strict adherences of all safety requirements.

Implementation should preferably take place immediately after the shutdown of the Unit. Safety majors include the following work:

- Ascertain that all the majors described in the detailed procedure boiler decommissioning are properly implemented.
- Ensure that facilities unwanted entries are locked up to prevent unauthorized access.
- Provide security at both the entries
- Issue identity passes to the employees going to work for decommissioning and dismantling activity.
- Allow only authorized person to enter Unit # 4 working area.
- Clearance of buildings. (Remove all the material such as equipment, files, computers, etc.).
- Idling of electrical installations relating to Unit # 4.
- Disconnect the water supply to the cooling water condenser.
- Disconnect the 132 kV and 230 kV facilities from switch yard.
- Utility separation (water, heating, electricity, compressed air, fuel).
- Emptying and cleaning of plant components (tanks, gearboxes, etc.).
- Disposal of the consumables such as fuels, lubricants, chemicals, etc. conventional disposal channels in Ghorashal Power Station should be used to dispose of the various removed material.
- Ensure that the fire load is zero' (disposal of oil, greases, chemicals, etc.)
- Ensure that the ground stability of abandoned installations and structures.
- This operational activity of isolating different systems shall be carried out by existing trained Operating Staff.
- Proper LOG IN LOG OUT procedure shall be used at all isolated valves, switch gear breakers and isolators.
- Safety tags shall be placed in such a manner that they will remain intact for entire duration of outage. This will avoid accidental charging of any auxiliary system.
- Support of existing plant personnel shall be obtained while implementing the above measures.

16.2 Fall Protection

The purpose of Fall Protection is to protect construction workers from the risks of injuries due to falls when working at elevated heights. All contractors will supply a site-specific fall protection plan to the BPDB site Chief Engineer; prior to starting work that meets the applicable regulatory requirement as outline in the section 1.

All workers are responsible to utilize fall protection in areas where it is possible for a worker to fall a vertical distance of greater than 1.83 meters or 6 feet from a temporary work area or 1.2 meters or 4 feet from a permanent work area. The following fall protection hierarchy will be followed.

1. Eliminate the fall hazard/potential.
2. Conventional Systems (Guardrails)
3. Fall Restraint
4. Fall Arrest
5. Procedures (Control Zone and Monitor)

The hierarchy noted above must be followed in the order identified. Each practice must be found not practicable with the work process before moving onto the next. Where work activities are taking place on a roof, no personnel may approach within 1.98 meters or 6.5 feet of the leading edge without the use of fall protection system in place. A Control Zone that meets the legislated requirements must be installed 1.98 meters or 6.5 feet back from the leading edge.

A Personal Fall Protection System consists of four distinct parts

1. Anchor
2. Anchorage Connector (note: lifeline with knots cannot be used as an anchorage connector on a Ghorashal power plant site)
3. Body Holding Device
4. Rescue Plan

Anchor

Anchors must have an ultimate load capacity in any direction in which a load may be applied of at least 2200 kgs

Fall Restraint anchor must be a minimum 360 kgs or 4x the workers total weight.

Fall Arrest anchor must be able to withstand a minimum 2200 kgs or twice the maximum arresting force.

Anchorage Connector

Anchorage connectors, connect from the worker to the anchor.

Examples of these are:

- Shock absorbing lanyards
- Self-retracting lifelines
- Lifeline with rope grab
- Anchorage slings

Body Holding Device

A body holding device is another term for a fall protection harness. Depending on the type of work being conducted a specific harness may be required (i.e. Confined Space is an “E” Type Harness). Note: Safety Belts are not permitted to be used on BPDB Projects.

Rescue Plan

A Rescue Plan is required for all fall protection scenarios. Only qualified, trained persons are permitted to rescue a worker who has fallen and is suspended. In most circumstances it is the local Fire Rescue Service that provides high angle rescue.

Training and Supervision

No personnel will be permitted to use fall protection unless provided with adequate instruction and training. Proof of training documents are required to be submitted to BPDB for all subcontractor/trade contractor workers who will be on site working at heights. All workers who are authorized to be using fall protection must be supervised by the responsible supervisor.

Standards

All fall protection equipment is to be used as per manufacturer’s instructions and applicable standards. All fall protection equipment must be CSA or ANSI Approved. (i.e. lifting/rigging slings are not permitted to be used in a fall protection system. Careful consideration is required to ensure that each piece of equipment is “compatible” with each system component. 100% fall protection is required on all BPDB project sites. This is defined as constant fall protection at 6’ or above which could include systems such as double shock absorbing lanyards etc.

16.3 Scaffolds

Where work cannot safely be done on or from the ground, or from part of a building, or other permanent structure, there shall be provided, placed and kept in position for use and properly maintained either scaffolds or, where appropriate, ladders or other means of support, all of which shall be sufficient and suitable for the purpose for which it is used. BPDB is not responsible for the erection or the approval of any scaffold structure. The erection of all scaffolds must be done by a competent person, as per industry standards.

Current OH&S guidelines / manufactures specifications must be adhered to when the use of a scaffold is required (meaning proper deck, all braces, etc.) Scaffold greater than 3x the height of the minimum base dimension requires out riggers to increase the base dimension on all sides and/or to be rigidly tied back to structure at specified intervals. (This includes guardrail heights of the scaffold).

Note: Guardrails will be installed on all scaffolds greater than 4' if they do not interfere with the work process and mandatory on scaffolds 6' and higher. Additional elements that must be followed while working on a scaffold structure include:

Supervision of Work

No scaffold shall be erected or be substantially added to or altered or be dismantled except under the immediate supervision of a qualified person and by trained and experienced personnel. During scaffold erection and dismantlement fall protection is required. The qualified erector is required to provide a written fall protection plan prior to commencing erection or dismantling of the scaffold. Upon completion of the scaffold erection, the qualified erection Supervisor will install a tag indicating that the scaffold is ready for use and advise as such.

Maintenance of Scaffolds:

Every scaffold shall be properly maintained and every part shall be kept so fixed, secured, or placed in position as to prevent accidental displacement.

Construction and Material:

Every scaffold, and every part thereof, shall be of good design and construction, of suitable and sound material and of adequate strength for the purpose for which it is used. The type and quantity of material shall be in accordance with current OH&S regulations and manufacturers specifications.

Partly Erected or Dismantled Scaffolds:

Any scaffold that is partly erected or partly dismantled cannot be used unless it is deemed safe for use by the responsible erection Supervisor. In case a scaffold that is partly erected or partly dismantled does not comply with OH&S either:

- a prominent warning notice indicating that the scaffold or part, as the case may be, is not to be used is affixed near any point at which the scaffold or part, as the case may be, is liable to be approached for the purpose of use, or
- access to the scaffold or part, as the case may be, shall be prevented by suitable barriers or other equally effective means.
- scaffolds that are load bearing, must adhere to industry practices as well as have engineered stamped drawings immediately available in accordance with OH&S Regulations.

Engineering

In the event that the scaffold requires engineering as per legislated requirements. A copy of the stamped engineered drawings must be provided to BPDB prior to these activities taking place.

Inspection

Scaffolds are required to be inspected prior to each shift. A Scaffold inspection tag will be provided by BPDB to the responsible subcontractor/trade contractor that is required to be affixed to the scaffold and signed off each shift by the identified qualified competent person.

16.4 Opening Penetrations (cutting/coring)

Cutting or disruption of existing services when opening penetrations into floor space creates a falling hazard to those within the immediate area. To prevent injury, the following must be strictly adhered to when opening a penetration:

- Two-worker operation minimum (One worker above and one worker below the penetration).
- Communication between top and bottom worker at all times.
- Plotting and referencing penetrations to be done from existing services.
- Flag off area in floor space where penetrations will be opened. Punch or drill a pilot hole in low ridge of Q-Decking with punch or screwdriver.
- Place a color-coded marker through punch hole to verify proper location.
- Confirm plotting and referencing of the penetration opening.
- Commence to open the penetration and proceed with caution.
- Flag off the area or secure a cover (e.g. plywood marked with a circle with X) over the opening if the penetration is left unsupervised for any length of time.

16.5 Open Penetrations (floor/wall)

All floor and wall openings in a floor, walkway, roof or wall must be securely covered with a cover of adequate size and strength or with guardrails. Covers will be clearly marked with a circle and an 'X'. Workers should avoid crossing over covered floor openings when possible. Mobile equipment, scaffolds, or other materials will not be placed on covered openings.

16.6 Ladders

Ladders shall be checked by the user for general condition prior to each use. Ladder use will be followed in accordance to the manufacturers specifications and recommendations. Due to product specification changes that may occur, the users when in doubt should always consult the manufacturers specifications. If the ladder is found to be unsafe, it must be tagged out and removed from service immediately and repaired or destroyed.

No worker shall use the top two rungs on a step ladder. All portable extension ladders shall extend a minimum of 36 inches (1 meter) past the area to be accessed. Three point contact must be maintained at all times when climbing a ladder.

Equipment and/or materials shall not be carried up a ladder. A rope shall be utilized to transport equipment and/or materials. Extension ladders must be tied off (secured) at the top and bottom at all times unless the ladder is being used for short duration work and is being stabilized by another worker. One worker shall hold the ladder while another worker climbs and secures the ladder. Only then can the worker stabilizing the ladder let go of the ladder.

Extension ladders should be installed using the 4:1 angle ratio.

Extension ladders must not be taken apart to use the extension as a second ladder as no swivel feet are on this section of the ladder.

Workers performing “light duty work” from a portable ladder at a height of 6 feet or greater, where the ladder will be at any one spot for sporadic, short-term work must follow the guideline below:

- The worker shall keep his/her centre of gravity (worker’s waist) between the side rails of the ladder.
- The worker will have one hand available to hold on to the ladder or other support to maintain three points of contact.
- The ladder is not to be positioned near an edge or floor opening that would significantly increase the potential fall distance.

Note: that if the work on a ladder is likely to exceed 15 minutes at one spot, some form of fall protection shall be used.

16.7 Self Propelled Elevating Work Platforms (Scissor / Boom Lifts)

All self propelled elevating work platforms will only be operated by trained and authorized personnel. Manufacturers specifications and recommendations are to be reviewed prior to use. Pre-operation inspection checklists are required to be completed by each operator prior to use and must be kept with the equipment for verification. All workers using self-propelled elevating work platforms shall be trained in their proper use and have proof of training documentation. Subcontractor/trade contractors are required to submit proof of operator training to BPDB. All personnel working in boom-lifts will use fall protection and connect to the identified fall protection anchor points. The basket guardrail is not a fall protection anchor point. Lanyard length can be no longer than 5', or as per manufacturers requirements.

All self propelled elevating work platforms must be situated on firm level, solid ground with the outriggers (if equipped) fully extended. If unsure of ground conditions, do not proceed – report to Supervisor for remedial action (i.e. road plates).

No ladders or other raising devices are permitted on/in the platforms. Operators are not permitted to stand on the mid or top rail of the basket guardrail. The operators feet must never leave the floor of the platform. The only acceptable exception to this is when there are two workers in basket and they are using the lift to access an elevated area. A written procedure is required for this and must identify that the individual leaving the basket must remain tied off to the basket until tied off in the area they are exiting to.

The second person in the lift can then disconnect the fall protection from the basket connection

The total load, including personnel, tools/equipment and supplies must not exceed the manufacturers indicated capacity. If hot work is taking place from within the basket, a 20lb. fire extinguisher must be immediately available in the basket, fire blankets utilized to protect controls and area below delineated as per standard practice.

16.8 Communication and Signage

Every site will be equipped with signage that informs all workers and visitors of the regulations, hazards and site or job specific safety equipment required. Any unsafe area should be identified with a barricade and hazard signage. Each contractor is responsible for the assembling and dismantling of warning barricades and/or applicable signage that pertains to their scope of work (e.g. welding, overhead work, electrical hazards, etc.). Hazard/caution tape is not to be used on this project except for short duration or emergency situations. In lieu of this, 3/8" poly propylene rope is to be used to prevent or restrict access.

Signage is to be suspended from the rope identifying the hazard(s) and rules or safe work requirements or other appropriate means as approved by BPDB.

16.9 Fire Protection Overview

A fire extinguisher rated at not less than 10kgs. ABC Dry Chemical shall be the minimum standard for general use on the project site. All fire extinguishers shall be inspected monthly and identified as such on the monthly inspection tag required by the NFPA (National Fire Protection Association). All inhabited spaces on the project site will have a fire extinguisher immediately accessible. This includes trailers, lunch rooms and storage areas.

Fire extinguisher access shall not be covered or blocked by material or debris. Clear access to fire protection equipment must be maintained.

Fire blankets shall be used beneath or adjacent to any welding/burning operation where it is necessary to catch sparks or slag.

Fuel storage areas will have a fire extinguisher nearby within close proximity, not immediately adjacent to the storage area.

Any equipment with a combustion engine is required to have a fire extinguisher attached, unless there is an integral automatic fire suppression system designed into the equipment. Any fuel tanks on site must be grounded during transfer or fuel.

16.10 Motorized vehicles (i.e. trucks, forklifts, tractors, etc.)

All operators and passengers in vehicles shall wear their seatbelts while being transported in the vehicles. No personnel are permitted to ride in the back of any vehicle, unless designed to transport passengers in this manner. All vehicles and equipment required by legislation and applicable standards will have a functioning reverse audible warning device. In the event that the vehicle or piece of equipment does not have this device as per the legislated requirements or applicable standard, the operator is to utilize the horn or a spotter and horn combination.

All operators' of motorized equipment shall hold a current operator's license for the equipment they are operating. Fork-lift trucks of all classes shall be only operated by trained and certified (as per CSA Standard) operators and must be operated within the parameters of the equipment design.

16.11 Manual Lifting and Moving Equipment and Material Overview

Back injury is the leading cause of lost time injuries. Experience and statistics have shown prevention programs significantly reduce the incidence of back injuries. Below are a few basic suggestions to lifting that may prevent the occurrence of a back injury.

- Avoid lifting where possible and practical by pushing, pulling, rolling or sliding the object to be moved.
- Use mechanical aids (hand trucks, carts, winches, forklifts, etc.)
- Request help from other employees when necessary, particularly when you find yourself in a difficult or awkward lifting situation.

When lifting heavy objects from the floor or ground can not be avoided, here are some basic principles to prevent back pain and injury:

- Lift only loads you can safely handle.
- Establish good footing.
- Keep the load close to the body.
- Bend at the knees as you grasp it and keep your eyes looking straight ahead.
- Get a full handgrip and keep your body erect.
- Lift smoothly by straightening the legs (avoid jerky or snatching lifts).

- Avoid the lift and twist action. When turning, shift the position of your feet rather than twisting your body at the waist.
- Reverse the procedure to set the object down.

REMEMBER that the secret to proper lifting is to bend your knees, not your back, and let your leg muscles do most of the work.

16.12 Workplace Lighting

BPDB will illuminate walkway areas and “common” areas to an adequate degree of brightness. Where lighting is required in specific rooms or for specific tasks, each contractor is responsible for task lighting where they work.

16.13 Fuel Storage

A fuel storage area will be designated by BPDB. All fuel storage requires the appropriate containment. Tidy tanks of diesel are allowed to and from the work area up to 100 gallons, but must be approved by BPDB Project Management. Jerry cans (CSA approved) of gasoline are acceptable.

The criterion for storage tanks in the designated area is as follows:

- Tank must be mounted on a steel cradle and grounded;
- Must have approved vent cap, fill nozzle and tank shut-off;
- A 10kg. dry chemical extinguisher must be within a 7 meter radius of the storage facility (not directly beside the fuel itself).

16.14 Electrical Safety

All electrical equipment shall be of construction grade and CSA/ULC approved. This means that it must be certified in accordance with the electrical code. Portable electrical hand tools must be double insulated or grounded.

All electrical cords and cables if practicable must be elevated or covered to protect them from damage and to mitigate tripping hazards.

Qualified electricians are the only personnel authorized to repair electrical equipment. Field repairs or tampering with any electrical equipment by unauthorized personnel will not be tolerated.

Temporary lighting must have guards over bulbs.

Electrical cords must be of commercial gauge with heavy-duty insulation, weather and sun resistant with a ground conductor and free from splices.

All electrical equipment is to be visually inspected by the user daily or before each use. When performing work on live electrical equipment, lockout must be used. All trades performing this work must submit their own lock out procedure to BPDB for review and approval.

All electrical cords must be in accordance with "Assured Grounding Program". Electrical cords are tested for grounding every three months and the identified colour of electrical tape is put on the male end of the cord approximately 1.2 meter from the plug.

Red: January, February, March

White: April, May, June

Blue: July, August, September

Green: October, November, December

This program is the responsibility of the owner of the electrical cord. Electrical cords found in use not in accordance with the assured grounding program will be removed from service until confirmed.

All temporary electrical cords must have ground fault circuit interrupter (GFCI) protection.

16.15 Hand and Power Tool Overview

All workers using hand/power tools are to inspect these tools prior to each shift to determine if they are in a safe operating condition. Ensure all guards are in place and operational (i.e. grinder guard and second handle in place).

All tools requiring repair or missing guards will be immediately removed from service and reported to the workers supervisor. Such tools will be taken out of service, tagged and repaired before making them available to any other worker. Only hand tools that are in good condition and that are the right tool for the job should be used.

16.16 Powder Actuated Tools

User must be properly instructed, trained and able to provide proof of training. User must ensure area behind shot is clear and material will take the shot applied. A procedure for the disposal of used and unused shot cartridges will be provided and implemented by the contractor.

16.17 Welding

Special precautions must be taken to ensure proper ventilation and air quality of area when burning or welding as well as ensuring proper personal protective equipment is used including the use of fire blankets to prevent fire or damage to other products as required. Fire blankets must always be kept in good condition.

In the event hot work must take place inside the building, adequate notice to the BPDB Superintendent is required, so that adequate ventilation can be evaluated or other controls implemented. A hot work permit must be completed and signed off by superintendent. Use of local exhaust ventilation (smoke eater) will likely be required.

Sufficient welding screens/blinds must be used during welding operations to protect persons from welder's flash.

A 10kg. ABC Dry chemical fire extinguisher must be readily available in the immediate vicinity of any welding/burning operations.

Welding/burning shall never be performed on flammable materials (dunnage), barrels or other systems that may have contained a combustible or unknown product and have not been cleaned or purged.

Workers shall ensure that all welding leads and oxygen/acetylene hoses are clear of walkways and stairways by routing them away from walk areas or by suspending them overhead. And that all short or unused pieces of welding rod are discarded or put away.

All oxygen/acetylene bottles shall have the regulators removed and caps in place when not in use and shall be stored and transported in such a manner as to prevent personal injury or property loss. Flash back arrestors shall be installed on both the torch and the regulator ends of the hoses.

16.18 Storage of Compressed Gasses

The handling, storage, and use of all compressed gases in cylinders on site shall be in accordance with the provisions of the BPDB and applicable provincial legislation, as well as NFPA (National Fire Protection Association).

Typically, compressed gasses are not to be transported or stored inside the building. However, some work practices require compressed gas as a tool to complete a project. If compressed gas is required, adequate notification must be given to BPDB management before the compressed gas is brought on-site. At no time is propane or another compressed gas to be stored overnight within any structure without prior approval from BPDB.

General Guidelines for Compressed Gasses

If, as a result of a visual inspection, a cylinder appears to be damaged or leaking, it should be immediately removed from site to the vendor or manufacturer for repair or replacement. (No one shall use a damaged or a leaking pressure cylinder)

Pressure cylinders should not be subjected to a temperature above 50 Celsius (125° Fahrenheit), nor should a flame ever be permitted to come in contact with any part of a compressed gas cylinder. Smoking and any form of hot work are prohibited within 15 meter of a cylinder storage area.

- Individual cylinders or small groups of cylinders must be chained to a fixed object, whether in use or in storage, unless they are chained in a cylinder cart.
- Propane gas cylinders must be fitted with a flashback arrester at the regulator end of the hose.
- Pressure cylinders shall be stored in a well-ventilated area.
- Do not drop compressed gas cylinders or permit them to strike each other violently.
- Qualified vendors or manufacturers may only fill cylinders.
- It is illegal to remove or change the numbers or marks stamped on compressed gas cylinders.
- Do not use a sling when handling compressed gas cylinders.
- Cylinders are not to be used for rollers, supports, or for any purpose other than that to carry gas.
- Pressure cylinders should always be stood in the upright position.
- All oxygen valves, gauges, regulators, pipes and fittings must be scrupulously free of oil, grease, graphite or any other oxidizing substance. Such pipes, gauges, fittings, etc must at no time be allowed to come to an elevated temperature due to proximity to welding operations, burners or other heat sources.
- All compressed gas cylinders must comply with WHMIS (workplace hazardous materials information system) and TDG (transportation or dangerous goods) requirements.

16.19 Housekeeping Overview

Housekeeping is a basic requirement on all construction sites and must be maintained at all times. Special attention must be given to maintaining clear walkways and roadways. Removal of trash, slipping and tripping hazards, and proper storage of materials is an ongoing requirement.

Trash containers and/or garbage cans must be available in the various work areas.

Removal of protruding nails staples, screws or other objects that present a hazard to personnel or equipment. Hoses, cables and cords where practicable should be suspended from overhead or effectively covered when on the ground. Excess hose, cord, cable found on the ground shall be removed from the work area. Any cylindrical waste (i.e. welding rods, conduit, pipe, coil rod) shall be removed from the floor, ground and gratings.

Scaffold decks must be kept clear of debris.

16.20 Material and Equipment Storage

All materials must be properly stacked and secured to prevent sliding, falling or collapse. Aisles, stairs and passageways must be kept clear to provide for the safe movement of personnel and equipment and to provide access/egress in an emergency.

To protect the other parties, tools and equipment are never to be left unattended. Always store tools and equipment (unless flammable, corrosive, or explosive) within a designated storage area or a construction area. The tools should be locked up or locked to a secure object to prevent theft. PCL is not responsible for missing or stolen tools or equipment.

16.21 Cellular Phone and Radio Use

Personal music devices (radios, iPods, MP3 Players, etc.) are not permissible on BPDB construction sites. At no time are operators of equipment or vehicles permitted to use a cell phone while operating the equipment. The standard rule for employees required to use a cell phone while on site is to stop and move to a safe place, where you can be aware of any potential hazards around you such as moving equipment, and conduct your phone conversation. No personal cell phone usage is permitted on site unless you are using that phone for company business.

16.22 Dust and Airborne Aerosols

Construction activities and airborne particulate matter (dust, smoke, etc.) often go “hand-in-hand”, meaning construction and renovations often result in the creation of airborne dusts and other matter. For healthy people, unprotected exposure to these contaminants often results in nothing more than a brief period of sore eyes and minor irritation of the airway. However, to ill individuals, exposure to even a minor concentration of airborne contaminate may result in serious health consequences.

During construction activities, small dust particulate and other microscopic entities travel through the airways, and if not controlled they could travel to non-construction areas. These microscopic entities could travel to non-construction areas that treat ill or injured persons that require a “clean air” environment. Therefore, “dust-control” procedures were developed to control construction generated dusts and other contaminants within a specific and controlled boundary. Procedures within construction zones may include, but are not limited to the following:

- enclosing a construction zone with temporary walls, structures, or hoarding
- negative pressure within construction zones;
- procedural changes for activities that generate dust;

- air cleaners; and
- worker education, training, and supervision.

16.23 Noise and Vibration

Noise created during construction process may produce or have adverse effects upon residents in the area. Noise is a reality of the process of construction, but all efforts must be made to reduce, eliminate, or schedule activities that generate noise that could be considered excessive. BPDB Project management team to identify and provide to subcontractor/trade contractors a copy of the local municipal noise bylaws that indicates days and times that construction work is permitted. If construction activities that generate noise are required outside of the identified times, a noise variance must be applied for with the municipality. It is duly noted that municipal approval for a noise variance may take time and this time must be considered in advance of the application.

Activities that generate considerable noise during the process of construction will be identified to BPDB on a daily basis. Notification of tasks and times of noise creations will be relayed to the managers of the area's most likely to be affected by the BPDB representative. Not all noise related tasks can be detailed, but identifying the ones that are foreseeable will allow BPDB directed forces or owner staff the opportunity to direct their procedures accordingly.

16.24 Permits Overview

A permit to work system may be used to coordinate work and particularly to approve work, which affects construction operations. (i.e. Confined Space Entry Permit, Hot work or Lock-out) Contact the BPDB site chief Engineer for specific requirements prior to the start of work.

16.25 Smoking Overview

All BPDB construction sites are designated non-smoking. Smoking is only permitted in designated smoking areas. These smoking areas will be identified on the site plan.

SECTION 17: MANAGEMENT REVIEW

17.1 Purpose/Scope

The purpose of this procedure is to document the process and primary agenda of issues to be included in the Management Review meetings for evaluating the status of the organization's OHSE Management System (OHSE MS). This procedure applies to all Management Review meetings conducted by the organization.

17.2 Responsibility

The Executive Engineer shall be responsible for coordinating the Management Review and providing the data and information needed to accomplish the review. The Executive Engineer shall also be responsible for action items that result from this effort.

17.3 Procedure

A. The Management Review process is intended to provide a forum for discussing needed improvements to the OHSE MS. It provides management with a vehicle for making changes to the OHSE MS that are necessary to achieve the organization's goals.

B. The Executive Engineer is responsible for scheduling and conducting at least two Management Review meeting per year. The Executive Engineer is also responsible for ensuring that necessary data and information are collected prior to the meeting.

C. At a minimum, each Management Review meeting will consider the following:

1. Assessing the improvement and the need for changes to the OHSE MS. e.g., including HSE, and OHSE objectives and targets
2. Evaluation of compliance with legal and other requirements
3. The results of any OHSE MS audits conducted since the last Management Review meeting
4. Communication from external interested parties, complaints, etc.
5. OHSE performance of the organization
6. Status of the OHSE objectives and targets
7. Status of corrective and preventive actions
8. The suitability, adequacy and effectiveness of training efforts
9. Follow up actions from previous management review
10. Follow up of OHSE incidents
11. Review of the recommendations from last external audits and status of actions

D. Minutes of the Management Review meeting will be documented. These meeting minutes will include, at a minimum:

1. a list of attendees
2. a summary of key issues discussed
3. any actions items arising from the meeting

E. A copy of the meeting minutes will be distributed to attendees and to any individual assigned action items. A copy of the meeting minutes will also be retained on file.

F. The Executive Engineer is responsible for ensuring that action items resulting from the Management Review receive appropriate attention. These action items shall be dealt with in accordance with the applicable standard operating procedures.

17.4 Frequency

A Management Review shall be conducted on annual basis.

Annex A: EPC Contractor OHSE Pre-requisite

Health, Safety and Environmental (HSE) Management is an integral and essential part to run a smooth business. BPDB would engage an EPC for the repowering of the existing Power Plants of 210MW (Unit No. 4) Steam Turbine Units at Ghorashal to Convert to Combined Cycle Units.

The potential EPC to create a work place that protects worker health and safety with due respect for the environment, and promote an atmosphere to grow employee learning and opportunity in a way that is fulfilling, recognized and fairly rewarded during decommissioning and construction phase of the power plant (UNIT #4). The EPC contractor have to have their own OHSE Management System

Expectaion from the EPC contactors are as:

A1. Commitment and Leadership

Management shall provide strong visible commitment, leadership and personal involvement in health, safety and the environment. Management shall make available the resources necessary to achieve BPDB's OHSE objectives.

Expectations

- Set a personal example day to day by following OHSE rules.
- Make decisions that consider OHSE matters equal to cost, quality, morale and production.
- Delegate the necessary authority to the appropriate personnel and allocate resources to carry out OHSE functions.
- Visit operations on a regular basis to demonstrate commitment and recognize performance in OHSE matters.
- Hold those in positions of authority accountable at all levels of the company for compliance with company policies and global standards.
- Develop OHSE objectives at your level of responsibility.
- Communicate with employees, clients, subcontractors and industry personnel so that they know and understand the intent of OHSE policies.
- Celebrate and promote your OHSE success.

A2. Policies and Objectives

Develop and communicate policies demonstrating a commitment to OHSE that is consistent with, and at least equal to, other business aims. Supporting objectives shall be defined, deployed and maintained at all organizational levels.

Expectations

- Develop local OHSE policies that support and are consistent with corporate standards.

- Set objectives for continuous improvement.
- Involve all levels of management and personnel in the development of objectives for the division.
- Develop specific objectives for the reduction of risk.
- Communicate the policies and objectives to all employees in a clear, readily understood, medium.
- Develop performance measures to guide and gauge progress towards achieving objectives.
- Meet and strive to exceed regulatory requirements in all jurisdictions.
- Review policies and objectives at all levels on a regular basis, to determine continued validity.

A3. Organization, Resources and Documentation

Define, document and communicate the roles, responsibilities and accountabilities to enable every individual to fulfill their role in improving OHSE performance.

Expectations

- Define the interrelationships between individuals, operating groups, support functions, employees, clients and partners in joint activities, trade associations and regulatory bodies.
- Appoint and support a management team representative to act as the focal point for OHSE matters.
- Ensure that each group and individual receives sufficient information and training to fulfill their role with respect to HSE.
- Allocate sufficient resources to support policies and work towards achieving objectives set for OHSE issues.
- Ensure a system that provides and maintains effective procedures, resource material and records on OHSE subjects.

A4. Risk Evaluation and Management

Continually evaluate the OHSE risks to the workforce, customers and the environment. Continually evaluate processes and activities for specific hazards – assess potentials, record and control the subsequent risk to a tolerable level.

Expectations

- Establish a methodology that identifies both acute and chronic hazards and their associated impacts. Address routine and non-routine tasks, emergencies and outside influences.

- Conduct hazard assessments during the design, development, operating and decommissioning stages of equipment, processes and facilities.
- Control hazards and reduce risk to a tolerable level through mitigating and recovery measures.
- Apply risk management tools to all proposed activities including acquisitions, bids and new business development.

A5. Planning

OHSE considerations shall be integral to all aspects of business planning or changes in the design, development, purchasing and delivery of our products and services.

Expectations

- Identify and evaluate the consequences to health, safety and the environment when making changes to organizational structure, personnel, equipment, processes or procedures.
- Assign responsibility for the achievement of OHSE objectives in plans at all levels of the organization.
- Determine the resources required to achieve the plan.
- Identify the means by which the plan is to be achieved.
- Set a time scale and develop milestones for implementation.
- Develop contingency plans for emergencies and in cases when plans or objectives cannot be completely achieved.
- Regularly review and follow up on progress towards achieving the OHSE plans and objectives.

A5. Implementation, Recording and Monitoring

Determine and record whether those actions are effective. Activities shall be conducted in accordance with defined standards, and continuous improvement shall be promoted and monitored through active employee participation.

Expectations

- Assign necessary resources and authority to groups or individuals to implement plans, processes, procedures and work instructions.
- Hold personnel accountable for completing tasks according to plans and OHSE performance standards.
- Develop and use systematic monitoring systems for both proactive and reactive performance measures to measure and support OHSE objectives.
- Determine non-compliance and the opportunity for practicable improvement against performance measures.

- Determine what records are needed to meet OHSE policies, objectives, company standards, local laws or regulations and customer requirements.
- Create records that are clear, easily understood and unambiguous in the language applicable to Ensign. Store records for a time interval consistent with good practice and local regulations.
- Collect and record information on incidents which actually, or have the potential to, affect health, safety and the environment.
- Evaluate incident information to determine the need for corrective action to prevent recurrence. Distribute lessons learned.

A6. Audit and Review (Assessment and Continuous Improvement)

Audits and reviews shall be conducted to verify the implementation and effectiveness of the OHSE Management System and its conformation to this specification.

Expectations

- Set frequency and level for audits for each division or operation.
- Document and distribute the audit report for corrective action and future reference. Review with all affected employees.
- Monitor progress towards achieving and completing corrective actions at scheduled time intervals.
- Schedule periodic management system reviews to include, but not be limited to:
 - Audit finding summaries
 - Analysis of incidents, regulatory citations and non-compliance to divisional standards
 - Current and future requirements of customers and regulators
 - Feedback from customers and regulators
 - Feedback from employees
 - Analysis of risk management processes
 - Appropriateness of current systems to meet business needs
- Create review team with the authority to change the system and update the system requirements.