

# Balmer Lawrie & Co. Ltd.

Ref: CA/HSE /1/ 2013-14

Date : 30/08/2013

From: C&MD & Whole –Time Directors

To: All COOs/Corporate Function Heads & Unit / Establishment Heads

## Health Safety & Environment Manual

We at Balmer Lawrie are fully committed to creating, providing and sustaining a safe working environment and promoting and maintaining the highest Health, Safety and Environment (HSE) standards. Towards achievement of these objectives, a HSE manual has been developed which enumerates the guiding principles and objectives for the HSE Management System in the Company. The Manual has been documented keeping in mind all applicable statutory provisions / requirements under various statutes and laws. It lays down procedures that we need to follow in our day to day operations. Needless to mention that the implementation of HSE Manual requires the participation and support of all personnel within the organisation and this can only be possible with the commitment and support of leadership at various levels. By this communication, we are requesting every Business Head, Corporate Function Head, Unit Head & each and every employee of the Company to personally commit themselves to the cause of HSE in the Company and ensure proper implementation of the HSE Policy and Manual at their respective Businesses / Functions / Units and Establishments.



C&MD



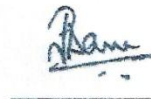
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**Balmer Lawrie & Co. Ltd.**

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# Health, Safety & Environment (HSE) MANUAL



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Rev No. : 00



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# **Chapter – 1**

## **HSE MANAGEMENT**



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# Balmer Lawrie & Co. Ltd.

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## HSE & Sustainability Policy

Balmer Lawrie is committed to the goal of sustainable development by balancing social, environmental and economic considerations whilst managing its businesses. It will develop leadership committed to Health Safety and Environment (HSE) and strive to adhere to best standards of HSE management system in its entire operation and thus contribute to the overall betterment of employees, communities, and other stakeholders.

### Health and Safety

Balmer Lawrie is committed to operating in a safe manner and work towards an accident free workplace by:

- Providing Health & Safety training across all levels of organizational hierarchy.
- Abiding by applicable OHS regulations and maintaining a positive culture of health & safety.
- Identifying and mitigating occupational health and hygiene hazards.
- Actively engaging with contractors, suppliers and business partners for safe performance of their part of responsibility.
- Reporting and investigating all incidents to prevent recurrence.
- Integrating health & safety with all business decisions.
- Periodically auditing and reviewing progress for continual improvement.

### Environment

Balmer Lawrie aims to preserve the ecological balance in its areas of operations by:

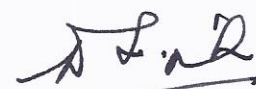
- Adhering to environmental standards and applicable environmental legislations thereby minimizing the environmental impacts of its operations.
- Improving energy efficiency, reducing emissions to air, water and land by using best available technology and thereby address to the cause of climate change.
- Working with stakeholders to mitigate the environmental impacts of product life cycle and the supply chain.

### Social Responsibility

Balmer Lawrie will strive to provide a HSE conducive work ambience to all its employees and contribute to the social and economic development of communities associated with its operations or in its neighborhood. To achieve this BL will:

- Identify communities and other stakeholders associated with its operations and/or in its neighborhood and actively engage with them throughout the life cycle of its operations.
- Work with governments – central & state, local authorities, inter-governmental and non-governmental organizations and other concerned parties to develop and support projects for the benefit of the communities where it operates.
- Treat all employees including indirect personnel engaged for and/or in connection with Company's operation/activity equally in the matters of health, safety and well being.
- Strictly enforce a smoke, drug and alcohol free workplace and work towards minimizing adverse effect of occupational hazards to the best of its ability.

Date: 01/08/2013



Chairman & Managing Director





# बामर लॉरी एंड कंपनी लिमिटेड

## एच.एस.ई. एंड संधारणीयता नीति

बामर लॉरी अपने कारोबार के साथ साथ सामाजिक, पर्यावरणीय एवं आर्थिक पहलुओं के संतुलन के द्वारा संधारणीय विकास के लक्ष्य को प्राप्त करने के प्रति प्रतिबद्ध है। कंपनी स्वास्थ्य सुरक्षा एवं पर्यावरण के प्रति प्रतिबद्ध नेतृत्व का विकास करेगी और अपने समस्त प्रचालन कार्यों में एच.एस.ई. के सर्वोत्तम मनकों के पालन के लिए प्रयास करेगी एवं इसके द्वारा कर्मचारियों, समुदायों एवं अन्य भागीदारों की समग्र उन्नति की ओर योगदान देगी।

### स्वस्थ एवं सुरक्षा

बामर लॉरी सुरक्षित प्रचालन के प्रति प्रतिबद्ध है और निम्न के द्वारा दुर्घटना मुक्त कार्य क्षेत्र सुनिश्चित करेगी:

- संगठन के सभी स्तरों के कर्मचारियों को स्वास्थ्य एवं सुरक्षा का प्रशिक्षण दिलाना ।
- लागू ओ.एच.एस. विनियम का पालन एवं स्वास्थ्य एवं सुरक्षा की सकारात्मक संस्कृति को बरकरार रखना।
- व्यावसायिक स्वास्थ्य एवं स्वच्छता संकटों की पहचान व निवारण उपाय।
- ठेकेदारों, आपूर्ति कर्ताओं एवं कारोबार के भागीदारों को अपनी जिम्मेदारी को सुरक्षित रूप से निभाने हेतु उनके साथ सक्रिय रूप से कार्य करना।
- दुर्घटनाओं की पुनरावृत्ति न हो, इसके लिए सभी दुर्घटनाओं का रिपोर्ट देना व इनका जांच करना ।
- कारोबार के सभी निर्णयों के साथ स्वास्थ्य एवं सुरक्षा को एकीकृत करना।
- अनवरत सुधार के लिए आवधिक रूप से ऑडिट करना व प्रगति की समीक्षा ।

### पर्यावरण

बामर लॉरी निम्न के द्वारा अपने परिचालन क्षेत्रों में पारिस्थिकी का संतुलन को बनाए रखने के लक्ष्य की ओर अग्रसर होगी:

- पर्यावरण के मानकों व लागू पर्यावरणीय कानूनों का पालन करना ताकि अपने परिचालन कार्यों से पर्यावरण पर कम प्रभाव पड़े ।
- उपलब्ध सर्वोत्तम प्रौद्योगिकी का उपयोग करते हुए ईंधन की दक्षता को बढ़ाना, वायु मण्डल में छोड़नेवाले उत्सर्जनों को कम करना ताकि वातावरण में परिवर्तन के कारकों का पता लगाया जा सके।
- उत्पाद जीवन काल और सप्लाई चैन के पर्यावरणीय प्रभाव को कम करने के लिए भागीदारों के साथ कार्य करना ।

### सामाजिक उत्तरदायित्व

बामर लॉरी अपने सभी कर्मचारियों को एच.एस.ई. अनुकूलित परिवेश उपलब्ध कराने का प्रयास करेगी एवं अपने परिचालन क्षेत्र व आस पास के समीप रहनेवाले समुदायों का सामाजिक व आर्थिक विकास के लिए योगदान देगी। इसे प्राप्त करने के लिए बामर लॉरी निम्न कार्य करेगी:

- अपने परिचालन क्षेत्र एवं/या आस पास रहनेवाले समुदायों व अन्य साझीदारों की पहचान एवं अपने परिचालन कार्य के जीवन चक्र पर्यन्त सक्रिय रूप से जुड़े रहना।
- परिचालन क्षेत्र के निकट समुदायों के हित हेतु परियोजनाओं का विकास और समर्थन के लिए केंद्र व राज्य सरकारों, स्थानीय निकायों, अंतर-सरकारी व गैर सरकारी संगठनों एवं संबन्धित अन्य समर्थकों के साथ कार्य करना।
- स्वास्थ्य, सुरक्षा और कल्याण संबंधी मामलों में परोक्ष रूप से एवं/या कंपनी के परिचालन/कार्य कलापों से जुड़े कर्मिकों सहित सभी कर्मचारियों को समान रूप से तवोज्जो देना ।
- कड़ाई से कार्य क्षेत्र को धूम्रपान, नशीले पदार्थ एवं दारू मुक्त बनाए रखना एवं अपनी दक्षता का सर्वोत्तम उपयोग करते हुए व्यावसायिक संकटों के विपरीत प्रभावों को कम करने की ओर प्रयास करना।



दिनांक 01.09.2013

अध्यक्ष & प्रबंध निदेशक



SINCE 1967



### **Introduction**

Balmer Lawrie & Co. Ltd (BL) is a Public Sector Enterprise under the administrative control of Ministry of Petroleum & Natural Gas, Government of India. It is engaged in a number of diverse businesses spanning manufacturing and services sectors, with operations spread across the country. Whereas the company is a leading player in Industrial Packaging, Greases & Lubricants, Performance Chemicals, Tours & Travel, Logistics Services & Logistics Infrastructure, it also has presence in Refinery & Oil Field Services.

The Company is committed to highest standards of corporate conduct towards its various stakeholders and the environment in which it operates. Towards this, the Company recognises its responsibility to ensure safety and protection of health of its employees, contractors, visitors and neighbourhood in all its operating sites, which include manufacturing, sales and distribution, research laboratories and offices.

This Policy document defines the vision, mission, aim, scope of application and required actions of the policy as well as the responsibility for its execution.

### ***HSE Vision***

Our vision is to be an organization which neither causes or nor provides any opportunity to cause any harm or injury to people in general and/or cause any damage, of whatsoever nature to the environment.

### ***HSE Mission***

Health, Safety & Environment (HSE) shall be of topmost priority to the operation of our organization and will constitute an integral part of our business process. We will realize our HSE Vision by adopting an integrated approach to the management of Health, Safety & Environment by focusing on People, Processes, Systems, Technology and Facilities. HSE in the organization will be driven by the leadership and will be demonstrated through employee commitment at all levels.



### **Eight HSE Principles**

Our Health, Safety & Environment Policy is based on and supported by the following eight Principles:

- 1. All injuries, occupational illnesses & environmental incidents are preventable*
- 2. All operational exposures can be safeguarded*
- 3. Safety & environmental assessment of all business processes is vital*
- 4. Working safely is a condition of employment*
- 5. Training all employees to work safely & environment friendly is essential*
- 6. HSE Management audits are a must*
- 7. Employee involvement is essential in all HSE issues*
- 8. All deficiencies must be reported and corrected promptly.*

### **Implementation Responsibility**

The Management of BL at all levels is responsible for the implementation of the HSE Policy. Every Unit, Workplace, Site shall prepare a responsibility matrix with respect to this Policy. Such HSE responsibilities shall form an integral part of the overall job responsibilities of all employees. All Standards, Rules and Procedures on HSE, including those that may be specific to a site are integral to this Policy. All employees are required to strictly adhere to them and ensure their proper implementation.





## **HSE GOVERNANCE**

### **1.0 Purpose**

The purpose of the HSE Governance structure is to define the policy & principles of the HSE Management System and to provide guidance & directions in implementing the requirements of HSE Policy and its deployment

### **2.0 Scope**

Covers all SBUs/Corporate Functions and/or Sites in which BL operates.

### **3.0 HSE Organisation & Responsibilities**

#### **3.1 Chairman & Managing Director**

The C&MD shall approve the HSE policy and will Head the HSE Steering Committee.

#### **3.2 Directors (Manufacturing & Service Businesses)**

As Operational Directors they will define and approve the HSE systems & procedures for SBUs under their control.

#### **3.3 Director (HR&CA)**

The Director (HR&CA) will assist C&MD and the Operational Directors in setting and monitoring the HSE policy and its implementation and ensure HSE training.

#### **3.4 Director (Finance)**

The Director (Finance) will ensure that all financial resources required for the proper implementation of the HSE Policy are made available.

#### **3.5 SBU / Corporate Function Heads**

The SBU / Corporate Function Heads shall ensure that:

- i) HSE at workplace is strictly adhered to in respect of all Units/Branches/Sites under their control.
- ii) HSE Review Meetings are conducted as laid down for their Business/Function
- iii) HSE Objectives and targets are set for their respective SBU/Function.
- iv) Resources, as required for proper implementation of HSE is made available

#### **3.6 Unit/Branch/Site Heads**

The Unit/Branch/Site Heads, as the case may be, will ensure that:

- i) The HSE policy & procedure is fully and properly implemented as laid down
- ii) Suitably trained and experienced HSE Representative(s) are in place
- iii) Appropriate HSE training is carried out

#### **3.7 Corporate HSE Resource**

The Corporate HSE Resource shall assist the Directors and the SBU/Function Heads in proper implementation, monitoring and review of the HSE policy and processes, including HSE Audit and Management Review.

#### **3.8 Unit/Branch/Site HSE Representative**

The Unit/Branch/Site HSE Representative shall assist in proper implementation of all HSE regulations at workplace and report incidents and/or deviations, if any, with respect to HSE policy & practice.



#### **4.0 HSE Governance Structure & Process**

##### **4.1 HSE Governance Structure & Process**

4.1.1 There will be a 3 tier HSE Governance structure as under:

- i. The HSE Steering Committee (HSESC) at the Corporate level under the Chairmanship of C&MD shall comprise of Director(HR&CA), Director(MB), Director(SB), Director(F), ED(CA), SVP(HR), and HSE Corporate Resource. The committee will meet once in 6 (six) months and decide on policy matters, review HSE & sustainability performance of the Company and provide necessary guidance to the Business HSE Committees. The Corporate HSE Resource shall be the Convener of the Committee.
- ii. The Business HSE Committee (BHSEC) for each SBU under the Chairmanship of the SBU Head shall comprise of the Unit/Branch/Site Heads, the SBU Head of Finance and the Regional HR Head. BHSEC will meet once in a quarter and will review HSE & Sustainability performance of SBU as a whole, suggest means of improving the HSE performance of the SBU, disseminate policies & procedures to Unit HSE Committees & take up specific HSE & Sustainability projects, as required. The Regional HR Head shall be the Convener of this Committee.
- iii. Each Unit, employing 20 or more persons, in whatsoever capacity, will have a Unit HSE Committee (UHSEC), chaired by the Unit Head and comprising of at least 2 other Executives of the Unit. This Committee will meet once every month and review the status of HSE in the Unit.

4.1.2 The status of HSE implementation in the Unit/SBU/Company will be communicated to all employees and other relevant stakeholders after each review and be displayed in prominent locations e.g. notice boards etc.

4.1.3 All employees will be briefed as to their personal responsibilities with respect to the HSE policy and such responsibilities will be documented in an appropriate format such as job descriptions, function descriptions or in the management system

#### **4.2 Documented Management System**

4.2.1 Documentation of systems and procedures will be developed and maintained to meet the requirements of ISO 14001, OHSAS 18001, IMS etc.

#### **4.3 Audits**

4.3.1 Unit Heads will ensure that assessment/audit procedures and programs, appropriate to the needs of the organization, are in place and implemented.



## **Procedure No.: 1.1**

### **HSE Reporting & Monitoring**

#### **Introduction**

#### **Purpose of HSE reporting**

**The main objective of HSE reporting is to support operational management: “we can only manage what we can measure.”**

Balmer Lawrie & Co. Ltd. HSE reporting has been made to align with common international standards as stated for example in the Global Reporting Initiative - Sustainability Reporting Guidelines

The intention is to produce transparent, reliable, data every year which further help in Sustainable reporting & help to achieve the vision of an organization which operates without causing any harm & injury to people & no damage to environment.



Following information related to Health & Safety to be captured month wise from all units---

**HSE & Sustainability Monthly Information System**

SBU :		UNIT:	Month:		
Health & Safety data					
Category	Indicator	Direct employee	Indirect personnel	Cumulative for the year	Remarks
HS01	Number of Employees				
HS02	Man Hours Worked				
HS03	Fatalities				
HS04	Loss Time Injury(LTI)				
HS05	Injury Frequency Rate(IFR)				
HS06	Lost days				
HS07	Injury Severity Rate(ISR)				
HS07	First Aid Case				
HS08	Near Miss				
HS 09	Property Damage Case				
HS 10	Spillage of Oil				
HS 10	HSE training conducted (man- hrs)				
Environment Data:					
Category	Indicator	For the Month	Cumulative for the year	Remarks	
ENV01	Water Consumption				
ENV02	Waste Water Discharged				
ENV03	HSD consumption in MT				
ENV04	LDO consumption in FT				
ENV 05	FO consumption in MT				
ENV06	Gas(LPG, Natural gas) consumption in MT				
ENV07	Hazardous waste Generated in MT				
ENV08	Hazardous waste disposed in MT				
ENV09	Non Hazardous waste generated in MT				
ENV10	Non Hazardous waste disposed in MT				
ENV11	Electricity consumption from Grid in MWH				

- **Specify if any special event like Mock Drill, Specific HSE audit, Health Camp, safety promotional events organized in the month:**





## Definitions

1. **Direct Employee:** Employees who are on Company's pay role.
2. **Indirect Personnel:** Personnel who may be engaged for and/or in connection with the operation/activity of the Company but are not on Company's pay role
3. **Lost Time Injury (LTI):** Any work related injury which results in a person being unfit for work for a period of 48 hours or more immediately following the occurrence of the occupational injury (as per the Indian Factories Act,1948) "The period of 48 hours" includes rest days, weekend days, leave days, public holidays or days after ceasing employment.
4. **IFR (Injury Frequency Rate):**  

$$\text{IFR} = \frac{\text{LTI} \times 1000000}{\text{Total Man hours worked (Own + Contract)}}$$
 Definition as per IS 3786
5. **ISR (Injury Severity Rate):**  

$$\text{ISR} = \frac{\text{Lost days} \times 1000000}{\text{Total Man hours worked (Own + Contract)}}$$
 Definition As per IS 3786
6. **Lost Days:** The number of days lost beyond the day of injury to the employee , who was away from work due to an occupational Injury
7. **First Aid Case:** Number of Occupational minor injuries suffered by Balmer Lawrie employee or contractor where first aid was administered & injured person resume work as usual.
8. **Near Miss:** An incident where no injury, ill health or fatality occurs, but which could have easily resulted into an accident.
9. **Hazardous waste:** Any waste by means of its characteristics may cause danger to health or environment. Example: used oil, waste oil, oily soaked jutes, filters, paint sludge, paint/oil contaminated barrels, sludge from wet scrubber.



**HSE performance to be reviewed at the beginning of any business review.**

Attached format to be used for reviewing & monitoring HSE performance:

HSE PERFORMANCE REVIEW														
		UNIT:				SBU:				Reporting Manager				
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	FY-13
<b>Man Hours Worked</b>														
<b>Leading Indicators</b>														
1	HSE Training(man Days)													
2	HSE Inspections													
3	Safety Committee Meetings													
4	Tool Box Talk													
5	Job Safety Analysis													
6	Near Miss													
<b>Lagging Indicators</b>														
1	Fatality													
2	Loss Time Injury													
3	First Aid Incidents													
4	Loss days													
5	IFR(Injury Frequency Rate)													
6	ISR( Injury Severity Rate)													
7	Spill in Lts													
<b>Environmental performance</b>														
1	Water intensity													
2	Electrical intensity													
3	Carbon Intensity													
4	Waste generated													



## Procedure No.: 1.2

### **Identification, Evaluation and Control of Occupational Health & Safety Risks and Environmental Aspects and Associated Impacts**

#### **1.0 Purpose**

To establish a procedure for identification of occupational health & safety risks and evaluate the same for implementing control on significant risks

#### **2.0 Scope**

All activity carried out by the company and its contractors that have risk associated with occupational health & safety of employees, contractors and visitors

#### **3.0 Definitions**

**Hazard:** Anything that has the potential to cause harm or injury, or damage to human, property or the environment

**Risk:** The likelihood that an event will occur (i.e. the evaluation of a hazard)

**Risk Assessment:** Process of evaluating the risk arising from a hazard, taking into account the adequacy of any existing controls and deciding whether or not the risk is acceptable

(Ref: OHSAS18001: 2007: Occupational Health and Safety Management Systems – Requirements)

**Workplace:** Any physical location in which work-related activities are performed under the control of BL (Ref: Adapted from OHSAS18001: 2007: Occupational Health and Safety Management Systems – Requirements)

#### **4.0 Responsibilities**

##### **4.1 Operational Managers/Functional Head**

- i) Ensure that risk assessments are performed
- ii) Ensure that systems and / or controls are in place to manage the risks
- iii) Ensure that adequate resources are available for risk management, including the provision of personnel competent to perform
- iv) Review the effectiveness of the risk control measures

##### **4.2 Site Supervisors:**

- i) Ensure that systems and / or controls are in place to manage the risks associated with their process
- ii) Implement any actions necessary for risk management
- iii) Provide feedback to the Senior Management within their organization, concerning the effectiveness of the risk mitigation measures

##### **4.3 Site HSE Representative**

- i) Will provide guidance for preparation of risk assessments



#### **4.4 Employees**

All employees must participate in any identified training, to ensure the effective implementation of risk control measures

#### **5.0 Process**

#### **5.1 Workplace Risk Assessment**

##### **5.1.1 Risk Assessment**

An identification of the hazards present in a workplace and an estimate of the extent of the risks involved, taking into account whatever precautions are already being taken, involves:

- i. Identification of all the hazards
- ii. Identification of people at risk
- iii. Evaluation of the risks and of existing precautions
- iv. Recording and communication of the findings
- v. Periodic review

In addition to this, the following should be considered:

- vi. The human behaviour of people involved
- vii. Any external risk to the activity from other activities within the site or from other organizations
- viii. Management of change
- ix. Ergonomics
- x. Recent changes to the Management System
- xi. Changes in legal requirements

##### **5.1.2 When to Conduct a Risk Assessment**

- I. A Risk Assessment must be undertaken before the commencement of the activity so that hazards are identified and control measures are determined to minimize the risks to personnel and property.
- II. Hazards must be identified during the planning stage of the activity. This will keep cost for any subsequent modification to a minimum. A risk assessment must be carried out:
  - a. When required by legislation
  - b. For all new engineering design work and specifications
  - c. For all new / different site activities that could be deemed as hazardous
  - d. For all hazardous activities / processes
  - e. When new equipment or machinery is introduced
  - f. When required by a Permit to Work





### 5.1.3 Who should carry out a Risk Assessment?

The risk assessment is the duty of those, responsible for carrying out any activity in order to protect employees and other persons affected by BL activities. A group of experienced qualified employees of various departments, facilitated by unbiased leader, is formed to identify and evaluate risks in their respective area. The employees who carry out the task may also require specialist guidance on certain aspects from an appropriate person e.g. the Site HSE Representative / Qualified Medical Practitioner / Engineer.

### 5.1.4 Conducting the Assessment

#### I. Hazard Survey

All activities together with methods and systems of are to be subjected to a hazard survey. The extent and depth of this survey will be dependent on the potential outcome arising from the activity. Important criteria to be considered include:

- a. Exposure of people (both the workforce and the public) to any dangers that may arise
- b. Legal requirements
- c. The value of the plant or equipment in financial and economic terms
- d. Any inherent toxic, explosive or fire risk associated with any stage of the activity / process

II. Based on received information identify the significant risks that have potential impacts on OH&S.

III. Hazards can result in different forms of harm. It is useful to record both the hazard and the harm so that it is easier to identify the correct precautions to take. Hazard identification can be helped by:

- a. Viewing a situation or activity
- b. Discussing it with those involved in the activity
- c. Referring to:
  - i. Manufacturers' or suppliers' manuals or data sheets
  - ii. A checklist of hazards as an aide-memoir
  - iii. Accident/incident reports
- d. Reviewing legislation and legislative guidance notes

#### IV. Hazard Analysis

The hazard identified must be analyzed. The main elements of this are probability, frequency and severity.

#### V. Control Measures

If the risk assessment has determined that something needs to be done then the following two questions must be considered and appropriate control measures implemented:

- i. Can the Hazard be removed altogether?
- ii. If not, how can the risks are controlled so that harm is unlikely?



In answering these questions the following “Hierarchy of Control” must be considered:

- a. Elimination; b. Substitution; c. Engineering control
- d. Administrative control; e. use of PPE

Once the control measures have been implemented the Risk Assessment process must be repeated to quantify the residual risk and the risk from any new hazards introduced inadvertently by the control measures. These risks should now be tolerable.

### 5.1.5 Procedure for establishing significant risks.

Significant risks are established from list of the high risk level concerns as emerged from Group Risk Assessment.

Short listing is done based on following criteria:

- i. All risks with statutory compliance, if any
- ii. Risks with Extreme and High risk level.

The process also considers relevant chemical hazard, physical hazard, biological hazard, ergonomic hazard, Monotonous work, influence of shift work, overtime loading, fatigue and other stresses. The process considers normal working / operating conditions, shutdown and start up conditions as well as realistic potential significant risks associated with reasonable or foreseeable emergency situations.

### 5.1.6 Risk Assessment Reviews

The risk assessment must be periodically reviewed and revised as necessary at least every 12 months, for example if there is a significant change to the work area or for any other reason that it is suspected that the assessment is no longer valid. Reviews must be documented.



6.0 References

6.1 Clause 4.3.1 of OHSAS18001

Risk Control Action required			
Hierarchy of Control	PPE		
	Admin Control		
	Engg Control		
	Substitution		
	Elimination		
Over riding factor (LC/DC)			
Risk Evaluation	Risk Level		
	Risk Rating		
	Severity		
	Probability		
	Existing Control		
Consequences/Possible Outcome			
Classification of Risk			
N/AB/E			
Direct/Indirect			
Who may be harmed?			
Hazard Description			
R/NR			
Activity			
S N			



(Annexure 1)

**GENERAL RISK ASSESSMENT**

Probability & Frequency	Score						
Negligible	1						
Low	2						
Moderate	3						
High	4						
Definite	5						
Severity	Score						
Minor	1						
Moderate	2						
High	3						
Major	4						
Catastrophic	5						
Probability & Frequency	Definite	5	5	10	15	20	25
	High	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	Low	2	2	4	6	8	10
	Negligible	1	1	2	3	4	5
			1	2	3	4	5
			Minor	Moderate	High	Major	Catastrophic
			Severity				
	Risk Level	Risk Priority					
	Negligible	Tolerable					
	Low	Medium Priority					
	Medium	High Priority					
	High	Immediate					

NOTE : Abbreviations	
R	Routine Activity
NR	Non Routine Activity
N	Normal Condition
AB	Abnormal Condition
E	Emergency Condition





## **Procedure for Identification, Evaluation and Control of Environmental Aspects and Associated Impacts**

### **1.0 Purpose**

To establish a procedure for Identification, Evaluation and Control of environmental aspects and associated environmental impacts.

### **2.0 Scope**

All activity carried out by the company and its contractors that have significant impact on the environment.

### **3.0 Responsibility**

3.1 Functional Heads are responsible for identifying the aspects in their respective areas and evaluate the same for their impact on the environment

3.3 HSE representative are responsible for coordinating the Environmental Review and also for guiding for the aspect / impact identification.

### **4.0 Description**

#### 4.1 Definition

Environmental Impact: Any change to the environment, whether adverse or beneficial, wholly or partially resulting from a product's environmental aspect

Environmental Aspect: Element of an organization's activities or products or services that can interact with the environment. (Ref: ISO 14001:2004: Environmental management systems -

Significant Environmental Aspect: An environmental aspect that has or can have a significant environmental impact.

Workplace: Any physical location in which work-related activities are performed under the control of BL (Ref: Adapted from OHSAS18001: 2007: Occupational Health and Safety Management Systems – Requirements)



SL. NO.	ACTIVITY	RESPONSIBILITY
4.2.0	Collect periodic information about various environmental aspects and their impacts related to activities, products or services during normal, abnormal and emergency situations.	Operational Managers & MR
4.2.1	Use environmental impact analysis format (Annexure 1) for gathering information from the concerned employees in the department.	
4.2.2	The identification of significant environmental aspects are covered where relevant: a) Emission to air; b) Discharge to water c) Waste stored; d) Contamination of land e) Impact on communities; f) Use of raw material and natural resources; g) Concerns of interested parties	
4.2.3	The identification also to cover applicable legislative and regulatory requirements.	
4.2.4	Identify all aspects with any impacts, whether beneficial or adverse.	
4.3.0	Consider any accidents, minor or reportable as well as potential emergency situations and assist the HOD in its review	All concerned personnel
4.4.0	Based on the received / validated information, identify the aspects that have an impact on the environment.	Operational Managers & MR
4.4.1	The identified impacts be evaluated by discussion between HOD's where necessary	
4.4.2	The criteria for evaluation are: 1. Legal Concern; 2. Probability; 3. Severity 4. Resource Savings Potential; 5. Interested Party Concern 6. Existing control measures	
4.4.3	The environment impact rating should be achieved utilizing values for the above six criteria, as provided in the "Environmental Impact Analysis Format (Annexure 1)	
4.4.4	Based on the above evaluation, the impacts be classified 1, 2, 3, 4, 5, 6. The ranking of impacts can be done based on the product of 1, 2, 3, 4 & 5 of all aspects.	
4.5.0	Compile the information and validate the information by visit to the site as applicable	MR(HSE)
4.6.0	Record the significant aspects in the Significant Environmental Aspects register	MR(HSE)
4.8.0	Maintain and review the environmental impacts register under following circumstances a) When there is new information regarding environmental Aspects/ Consequent impacts during audits or in the case of amendments to the legislative requirements. b) New process/ Activity introduction and/ or amendment to the existing process / activity c) Change in ranking due to effective implementation of programme(s) related to an impact(s).	MR(HSE)



- 5.0** On establishing a new site, location or service contract (or an any existing site where a review has not been performed), the Site HSE Representative or nominee, must conduct a review of environmental aspects associated with BL activities on the site / location, as described below. The results of the review must be recorded.
1. The site or location to be evaluated should be broken down into manageable areas for examination.
  2. Identify as many environmental aspects of the activity, product or service as possible. (See Table 1)
  3. Identify as many environmental impacts (See Table 2) as possible associated with each identified aspect, taking into consideration normal, abnormal and emergency conditions.

<b>TABLE- 1 (Identification of Environmental Aspect)</b>	
<b>Category</b>	<b>Environmental Aspect</b>
General Aspects	Noise/ vibration
	Size/ appearance of plant/ chimney/ building etc.
	Road use
Releases of substances onto/ into the ground	Discharge to ground
	Leaching (migration of liquid to the ground)
	Leakage of oil/ chemical/ fuel/ process liquid
	Spillage of oil/ chemical/ fuel/ process liquid
Releases of substances to water	Discharge to sewer
	Discharge to surface water body
	Leakage of oil/ chemical/ fuel/ process liquid
	Spillage of oil/ chemical/ fuel/ process liquid
Releases of substances to air	Release of asbestos
	Release of Carbon Monoxide
	Release of dusts/ particulates
	Release of HCFC/ HFC
	Release of SF6
	Release of Nitrogen oxides
	Release of Odour
	Release of other hazardous substance
	Release of ozone depleting substances (CFCs etc.)
	Release of radiation/ radioactive particles
	Release of sulphurous oxides
	Release of visible plume
	Release of VOC's (Organic solvents)
Waste resulting from an activity, product or service	Generation of difficult waste
	Generation of general non-hazardous waste
	Generation of special waste
Waste disposal	Incineration
	Recovery of energy
	Recycling/ re-use
Resource use	Use of energy/ fuel
	Use of land
	Use of raw material
	Use of water



<b>Table 2: Default List of Environmental Impacts</b>	
<b>Environment Affected</b>	<b>Environmental Impact</b>
Emissions to Air (1)	(a) Acid Rain
	(b) Air Pollution / degradation of air quality
	(c) Global Warming
	(d) Ground level ozone formation
	(e) Ozone layer depletion
Releases to Water (2)	(a) Damage to sewers / sewerage systems
	(b) Groundwater pollution
	(c) Water pollution
Land Contamination (3)	(a) Contamination of land
Natural Resources Usage (4)	(a) Depletion of non-renewable resources
	(b) Overuse of renewable resources
	(c) Reduced depletion of non-renewable resources
	(d) Sustainable use of renewable resources
Human / Nuisance (5)	(a) Directly hazardous to health
	(b) Loss of amenity
	(c) Noise nuisance
	(d) Odour nuisance
	(e) Road congestion
	(f) Visual impact
Ecological (6)	(a) Hazardous to local Flora / Fauna

## 6.0 Reference

6.1 Clause 4.3.1 of ISO – 14001:2004

## 7.0 Record

7.1 Environmental Impact Analysis Register

7.2 Significant Environmental Aspects Register

7.3 Impact Control Plan Register





(Annexure 1)

**ENVIRONMENTAL IMPACT ANALYSIS**

NS		ACTIVITY / SERVICES / PRODUCT		
N/A/E		ASPECT		
IMPACT DETAILS	Air Pollution			
	Water Pollution			
	Land Pollution			
	Natural Resources/ Energy Depletion			
	Flora/ Fauna/Human			
IMPACT				
Existing Control Measures				
IMPACT RATING	Legal Concern			
	Probability			
	Severity			
	Resource Savings Potential			
	Interested Party Concern			
TOTAL				
Significant				
(EMP/OCP) Additional Control Required				

Legal Concern		Probability		Severity		Resource Savings Potential		Interested Party Concern	
SCORE	CRITERIA	SCORE	CRITERIA	SCORE	CRITERIA	SCORE	CRITERIA	SCORE	CRITERIA
1	Full Compliance	4	High	4	High	4	High	4	High
2	Half Compliance	3	Moderate	3	Moderate	3	Moderate	3	Moderate
3	Zero Compliance	2	Low	2	Low	2	Low	2	Low
		1	Very Low	1	Very Low	1	Very Low	1	Very Low

**NOTE:**

N	Normal Condition
AB	Abnormal Condition
E	Emergency control
EMP	Environment Management program



Unit following Integrated Management System (IMS) can use a combined Risk and Environment Aspect Impact register as follows:

HSE RISK / IMPACT REGSITER													
Sr No	Activity	D/I/R/NR/Abnormal	Concern	OHSAS/EMS	Existing Control	Likelihood	Severity	Strength of existing control	Compliance to legislation	Risk/ Impact Rating	Additional Control for significant risk/ Impact	Control by Elimination/substitution/Engineering Control/Admin control	Residual risk/Impact

Scorings to be decided based on the following guideline:

Likelihood	Scoring
Definite	5
High	4
Moderate	3
Low	2
Unlikely	1

Severity		Scoring
Environment	Safety	
Permanent Damage to Environment	Catastrophic/ Multiple fatality	5
Major Damage to environment	Single Fatality	4
Moderate damage to environment	LTI( Loss time injury)	3
Low damage to environment	MTC ( Medical treatment Case)	2
Negligible damage	First Aid	1

Strength of existing Control	Scoring
Absence of control	5
Not reliable control	3
Available & effective control	1

Compliance to legislation	Scoring
Not meeting legislation	5
Complied/ Not covered under any legislation	1



**Procedure No.: 1.3**

**Identification and Compliance of HSE Legal Requirements**

1.0 Purpose

To ensure that legislation and other requirements applicable to Balmer Lawrie activities are identified, reviewed and implemented.

2.0 Scope

All business locations and activities under Balmer Lawrie and its control.

3.0 Definitions

None for this procedure

4.0 Responsibilities

4.1 Operational Managers

Ensure that all site operations meet legislative requirements.

4.2 Site HSE Representative

Ensure that HSE processes are established, implemented, maintained and are conforming to appropriate codes, standards & legislation.

5.0 Process

5.1 Process Inputs

- i. Registers of Risk & environmental aspects and impacts
- ii. Consent Conditions
- iii. Guidance and information from regulatory and local authorities
- iv. Technical journals
- v. Internet websites (e.g. Regulatory Bodies)

5.2. Balmer Lawrie Register of Legislation

5.2.1 The Site HSE Representative must co-ordinate the compilation of a register of legal requirements relevant to the Site activities

5.2.2 In order to ensure that the Site continues to comply with all relevant legislation and requirements, The Site HSE Representative along with Operational Managers need to review compliance on half yearly basis & sent a compliance status report to Corporate HSE.

5.2.3 Employees must be provided with sufficient training to provide them with the knowledge to ensure legal compliance.



5.2.4 Where changes in legislation have a significant impact on the business the appropriate register must be revised in line with the periodic reviews

- Legislation-specific checklists may be developed for assessments and / or inspections.

Sample Legal Register

Applicable Law	Requirement (Rule no.)	License no/ Submission of Forms	Date of expiry	Frequency of renewal	Remarks / Compliance status



**Procedure No.: 1.4**

**HSE Objectives, Targets and Improvement Agenda**

1.0 Purpose

To ensure that:

- i. Improvements are made to protect employees' health and safety and reduce adverse environmental impacts.
- ii. All Balmer Lawrie units have established HSE objectives and targets and have implemented suitable action plans to ensure continual improvement within the business.
- iii. Processes are monitored and evaluated in order to provide the basis for continual improvement.

2.0 Scope

All business locations under Balmer Lawrie control.

3.0 Responsibilities

3.1 Business Head

Business Heads are responsible for

- i. Deploying Business HSE policies, objectives and targets
- ii. Co-ordination of the review of their HSE performance against objectives and targets
- iii. Implementation of actions necessary for overall HSE improvement

3.2 Site Managers

Site Managers are responsible for ensuring that:

- i. The requirements of this procedure are implemented
- ii. Suitable business driven objectives and targets are established during the annual HSE Management Review
- iii. HSE performance reported to senior management.

3.3 Site HSE Representative

The Site HSE Representative is responsible for:

- i. Co-ordination of objectives and targets, using a suitable register.
- ii. Periodic (quarterly as minimum) review of HSE programmes.

3.4 Employees

All employees:

- i. Are encouraged to contribute to the improvement process and the identification of areas for improvement.
- ii. Must comply with the requirements of applicable elements of the management system.





### 4.0 Process

#### 4.1 Performance Improvement

Each Site must consider the following when defining objectives and setting targets:

- i. Corporate, Business and Operational objectives and targets.
- ii. The review of new, current or revised legislation.
- iii. Environmental aspects Impact and risk assessments.
- iv. The results of Site HSE inspections and audits
- v. Accidents, incidents, near misses and dangerous occurrences
- vi. HSE non-conformance reports including complaints from stakeholders
- vii. Lessons learnt
- viii. Existing objectives and targets, which have not been achieved

#### 4.2 Performance Measurement

4.2.1 Performance improvement to be measured by continuous monitoring and measurement of following parameters.

- i. Management Commitment
- ii. Cost of HSE
- iii. Training
- iv. Communication
- v. Reporting of Accidents & Incidents
- vi. Audit, Inspection
- vii. Procurement
- viii. Waste Management
- ix. Water Conservation
- x. Conservation of Energy

4.2.2 Details of specific measurements are mentioned in individual procedures.

4.2.3 If equipment is required to monitor or measure performance, the unit must establish a procedure for that. Records of calibration and maintenance activities and results must be retained.

### 5.0 Records

- i. Defined Annual HSE objectives & targets.
- ii. Evidence of continuous monitoring of the performance.
- iii. Records of maintenance, calibrations etc.



## Procedure No.: 1.5

### Reporting of Accidents, Incidents, corrective and preventive action

#### 1.0 Purpose

To ensure that all HSE accidents and incidents are reported, investigated and actions taken so as to prevent their re-occurrence

#### 2.0 Scope

All operation sites, facilities & offices of Balmer Lawrie.

#### 3.0 Definitions

1. **Accident:** Any event which results in harm to personnel, damage to property, production loss or causes damage to the environment.
2. **Company Employee:** Any person employed directly by the company including those on contract.
3. **Contractor Personnel:** Any person employed by a Contractor or Contractor's Sub-Contractor(s) who are directly involved in execution of prescribed work under contract with the Company. Workers in fabrication yards of contractors or any other party located at any of the BL sites come under this category. Fabrication yards of contractors / third party **not** located in BL site premises shall not come under this category.
4. **Environment:** Surroundings and conditions in which an organisation operates, or which it may affect, including all living systems, and other biodiversity.
5. **Environmental Effect:** The direct or indirect effect, of an organisation's activity, products or services to the environment.
6. **Fatality:** Any work injury resulting in death of the individual irrespective of the intervening period. Fatalities arising, for example, from natural causes, suicide, or inexplicable personal behaviour shall be excluded from this category.
7. **Fire:** Fire includes unintentional fire of any magnitude and unintentional electric arc. All fires regardless of whether the fire was extinguished by an extinguishing medium or self extinguished shall be reported as fires. Fires with no visible flame e.g. oil soaked insulation, pyrophoric fires, smoldering in coke/sulphur piles or other self ignitable materials etc. are also included in this category. The size and extent of damage shall not determine whether it shall be classified as fire or not. Grass fires in the plant areas shall also be included as they pose potential problems to the plant. However, fires shall be classified as 'Process /Plant Areas' or 'Non-Process /Non-Plant Areas'.  
Fires are further classified into 'Major Fires' and 'Minor Fires' as below.
8. **First Aid Case (FAC):** Work related injury that requires one time treatment and subsequent observation (for example minor scratches, burns, cuts, which do not ordinarily require medical care) and does not result in a Medical Treatment Case (MTC).
9. **Hazard:** Potential to cause harm, including ill health or injury; damage to property, plant or the environment;



10. **Immediate Cause:** Is the direct reason why an incident has occurred. It can encompass *unsafe conditions (which are not under the control of the person in the workplace), as well as unsafe acts (which are under a person's control)*.
11. **Incident:** Incident includes 'Accident and Near Miss'; An Incident is an event or a chain of events that has caused, or could have caused fatalities, injuries, and/or damage to assets, the environment, or third parties.
12. **Job Factor:** Any circumstance that may cause or contribute to the development of an unsafe condition.
13. **Lost Time Injury (LTI):** Any work related injury which results in a person being unfit for work for a period of 48 hours or more immediately following the occurrence of the occupational injury (as per the Indian Factories Act,1948) "The period of 48 hours" includes rest days, weekend days, leave days, public holidays or days after ceasing employment.
14. **Medical Treatment Case (MTC):** Medical treatment case is not LTI but requiring medical treatment from a professional physician or qualified medical person and MTC case is more than a First Aid.  
As a guide a "yes" answer to any of the following questions (due to work related injury) would be a medical treatment case:
  - i. Treatment of infection?
  - ii. Antiseptic during second or subsequent visits to medical personnel?
  - iii. Treatment for second or third degree burns?
  - iv. Application of sutures (stitches)?
  - v. Application of butterfly adhesive dressing?
  - vi. Removal of foreign body embedded in the eye?
  - vii. Complicated removal of foreign bodies from a wound?
  - viii. Use of Prescription medications?
  - ix. Cutting away of dead skin (surgical debridement)?
  - x. Application of heat therapy during second or subsequent visits?
  - xi. Positive X-ray diagnosis (fractures, broken bones, etc.)?
  - xii. Admission to a hospital for treatment (more than observation)?
15. **Loss of Consciousness:** If one loses consciousness as a result of a work-related injury, even for a short period, the case must be considered as an MTC.
16. **Near Miss:** A 'Near Miss' is an unplanned event, which under slightly different circumstances could have resulted in harm.
17. **Risk:** Product of the chance that a specified undesired event will occur and severity of the consequences of the event.
18. **Spills/ leaks:** Any loss of containment of hazardous, flammable or toxic gas, liquid or solid. There is no difference between a leak and a spill. The type of containment shall not determine whether to report or not - A spill even in a bounded area on concrete floor shall be reported even though there is no environmental impact. Spills are classified into 'Major Spills and 'Minor Spills' as below.
  - a. **Major Spill:** A spill of 500 litres / kg or more & needs to be reported.
  - b. **Minor Spill:** A spill less than 500 litres / kg but more than 5 litres / kg, needs to be recorded for investigation
19. **Release / seepage reaching outside plant boundary:** Accidental release of liquid hydrocarbons, contaminated / saline water or effluent which can cause negative impact on company reputation should be considered as spills.



**20. Work Related Activity:** A work related activity is an activity in a work environment, which is or ought to be subject to management controls. All incidents that occur in work related activities are reportable.

#### 4.0 Responsibilities

##### 4.1 Site Manager

- a. Initiating the investigation of reported incidents
- b. Ensuring that accident / incidents are reported within BL, as required
- c. Ensuring the implementation of any corrective and / or preventative measures

##### 4.2 HSE representative

- a. Coordination of accident and incident reporting and investigation
- b. Maintenance of accident and incident records

##### 4.3 Employees

All employees have a responsibility to report accidents and incidents occurrences to the Site Manager or HSE Representative.

##### 4.4 Unit Head has the overall responsibility to ensure implementation of this Table – 1

<b>(TABLE – 1) Reporting of Incidents (in Format I)</b>				
	<b>Report</b>	<b>Responsibility</b>	<b>Report to</b>	<b>Time Line</b>
1	Fatal, Serious Accidents, Major Fire or any incident resulting in disruption of Operation for more than 2 days	Unit/Establishment Head	C&MD, D(HR&CA), Director (I/C), SBU Head, RHR (Head) and Sr Manager (HSE)	Immediate
		Unit HR head	All relevant Statutory Authorities	Immediate
2	LTI (Loss Time Injury). Work related injury which results in a person being unfit for work for a period of 48 hours or more	Unit Head	C&MD, Director (I/C), SBU Head, RHR (Head) and Sr Manager (HSE)	Within 24 hrs
		Unit HR head	Factory Inspector	After 48 hrs of the accident but within 72 hrs
3	Fire/Spillage (Greater than 200 lts) / Toxic release	Unit Head	Director (I/C), SBU Head and Sr Manager (HSE)	Within 24 hrs
4	Incident leading to property damage of more than INR 20,000/-	Unit Head	Director (I/C), SBU Head, Sr Manager (HSE)	Within 24 hrs
5	High potential near miss (event which could have lead to major accident)	Unit Head	SBU head & Sr Manager SHE	Within 24 hrs

<b>(TABLE – 1) Reporting of Incident Investigation (in Format II)</b>				
1	Investigation Report in case of fatality & serious accident	Unit Head	C&MD, D(HR&CA), Director (I/C), SBU Head, RHR (Head) and Sr Manager (HSE)	Within 7 days of the incident
2	Investigation Report for all other incidents reported	Unit Head	Director (I/C), SBU Head, RHR (Head) and Sr Manager (HSE)	Within 7 days of the incident



Initial Incident Notification:

Form No:

<b><u>INITIAL INCIDENT NOTIFICATION REPORT</u></b>					
<b>Classification of Incident</b> (Type of Incident - Tick more than one if appropriate):					
Near Miss:	<input type="checkbox"/>	First Aid Case:	<input type="checkbox"/>	Medical Treatment Case:	<input type="checkbox"/>
Lost Time Injury:	<input type="checkbox"/>	Fatality:	<input type="checkbox"/>	HIPO incident:	<input type="checkbox"/>
Oil Spill:	<input type="checkbox"/>	Chemical Spill:	<input type="checkbox"/>	Fire / Explosion:	<input type="checkbox"/>
<b>Name of the company:</b> (BL / Contractor):		<b>Date &amp; Time of Incident:</b> Date: (dd/mm/yyyy) Time: (hh:mm)		<b>Site/Location/Area/Plant:</b>	
<b>Event Potential Category</b> (Low / Medium / High):					
<b>Level of Analysis</b> (Summary or Detailed):					
<b>Brief Description of Incident:</b>					
<b>Name of Injured</b>	<b>Sex M/F</b>	<b>Age</b>	<b>Years of Experience:</b>	<b>Designation</b>	
<b>Location Status / Immediate Actions Taken:</b>					
<b>Name of Reporter:</b>				<b>Position:</b>	
<b>Name of Supervisor:</b>				<b>Position:</b>	

Signature of Unit Head:



Summary Analysis Report/ Investigation Report

Form No:

<b>SUMMARY INCIDENT ANALYSIS</b>			
<b>Reference</b> (Incident Report no.): _____		<b>Date &amp; Time of Incident:</b> _____	
<b>Plant/Location of Incident:</b> _____			
<b>Type of Incident:</b>			
Near Miss:	<input type="checkbox"/>	First Aid Case:	<input type="checkbox"/>
Loss Time Injury	<input type="checkbox"/>	Minor Oil /Chemical spill:	<input type="checkbox"/>
Minor Fire / explosion	<input type="checkbox"/>	Others including minor traffic accidents	<input type="checkbox"/>
<b>No. of Persons involved</b>		<b>Name of Contractor:</b>	
_____		_____	
<b>Employee / Contractor:</b>			
_____			
<b>Incident Details:</b>			
_____			
<b>Immediate causes:</b>			
_____			
<b>Basic causes &amp; Root causes ( where applicable):</b>			
_____			
<b>Sr. No.</b>	<b>Corrective Action</b>	<b>Responsibility</b>	<b>Target Completion Date</b>
<b>Prepared by:</b>		<b>Approved by:</b>	
<b>Name:</b> _____		<b>Name:</b> _____	
<b>Designation:</b> _____		<b>Designation:</b> _____	





## GUIDE WORDS FOR INVESTIGATIONS

Events	Immediate Causes	Basic Underlying Causes
<ol style="list-style-type: none"> <li>1. Falls from height (from different levels);</li> <li>2. Falls from the same level (trips &amp; slips);</li> <li>3. Struck by;</li> <li>4. Exposure to sharp &amp; sudden sound;</li> <li>5. Long term exposure to sound;</li> <li>6. Exposure to variations in pressure (other than sound);</li> <li>7. Repetitive movement with low muscle loading;</li> <li>8. Overstress, overexertion, overload;</li> <li>9. Other muscular stress;</li> <li>10. Working in cramped conditions;</li> <li>11. Contact or exposure to electricity;</li> <li>12. Contact or exposure to heat &amp; cold;</li> <li>13. Single contact with chemical substance (excludes insects and spider bites &amp; stings);</li> <li>14. Contact with, or exposure to, biological factors;</li> <li>15. Exposure to mental stress factors;</li> <li>16. Unspecified events;</li> <li>17. Caught in between;</li> <li>18. Excessive or irregular hours of work;</li> <li>19. Breach of site Rules or Standards;</li> <li>20. Environmental event;</li> <li>21. Spills (hydrocarbon, chemical, other);</li> <li>22. Gas leak;</li> <li>23. Other Environmental Event;</li> <li>24. Event leading to asset damage /Production loss;</li> </ol>	<p style="text-align: center;"><b>Unsafe Acts</b></p> <ol style="list-style-type: none"> <li>1. Operating equipment without authority;</li> <li>2. Lack of planning;</li> <li>3. Lack of warning/failure to observe warning;</li> <li>4. Inappropriate speed/mistiming;</li> <li>5. Bypassing or removing safety devices;</li> <li>6. Using faulty tools/equipment;</li> <li>7. Lack of or inappropriate PPE;</li> <li>8. Failure to secure/improper loading;</li> <li>9. Incorrect lifting methods;</li> <li>10. Incorrect position for task;</li> <li>11. Not following procedures;</li> <li>12. Inattention / poor judgments /decision making;</li> <li>13. Working on operating equipment;</li> <li>14. Impaired ability;</li> <li>15. Horseplay /Taking shortcuts;</li> </ol> <p style="text-align: center;"><b>Unsafe Conditions</b></p> <ol style="list-style-type: none"> <li>1. Inadequate or defective guards/barriers or safety devices;</li> <li>2. Unprotected height;</li> <li>3. Inadequate or incorrect isolations;</li> <li>4. Damaged Tools/Equip;</li> <li>5. Congested workplace;</li> <li>6. Lack of warning system;</li> <li>7. Inadequately controlled Fire and explosion hazards;</li> <li>8. Poor housekeeping;</li> <li>9. Poorly controlled chemical, electrical or radiation hazards;</li> <li>10. Inadequately controlled</li> </ol>	<p style="text-align: center;"><b>Personal Factors</b></p> <ol style="list-style-type: none"> <li>1. Lack of knowledge/experience;</li> <li>2. Lack of relevant skills;</li> <li>3. Stress;</li> <li>4. Improper motivation;</li> <li>5. Abuse/improper use of tools/equip;</li> <li>6. Memory failure;</li> <li>7. Change of task conditions/environment;</li> <li>8. Pre existing personal condition;</li> <li>9. Lack of capability (physical, mental etc);</li> <li>10. Time pressures (actual/perceived);</li> </ol> <p style="text-align: center;"><b>Job Factors</b></p> <ol style="list-style-type: none"> <li>1. Inadequate Leadership/Supervision/Standard setting;</li> <li>2. Lack of training;</li> <li>3. Inadequate engineering;</li> <li>4. Inadequate purchasing;</li> <li>5. Lack of Maintenance/or wear and tear;</li> <li>6. Lack of routine inspections or hazard Identification;</li> <li>7. Incorrect equipment;</li> <li>8. Inadequate tools/equipment;</li> <li>9. Inadequate work standards or procedures;</li> <li>10. Confusing/out of date or procedures with missing steps;</li> <li>11. Lack of employee input to procedure development;</li> <li>12. Ineffective communication;</li> </ol>



Events	Immediate Causes	Basic Underlying Causes
25. Fire & explosion; 26. Event leading to reputation damage;	temperature extremes; 11. Adverse weather conditions; 12. Noisy workplace; 13. Inadequate ventilation; 14. Inadequate /excessive light; 15. Inadequate or defective PPE;	



**Procedure No.: 1.6**

**Training, Awareness and Competence for HSE**

**1.0 Purpose**

To ensure that employees are competent and adequately trained to perform their duties safely.

**2.0 Scope**

It covers all the personnel working in the company including contractor's personnel, whose activities affect the environment health & safety of the company.

**3.0 Responsibility**

Unit Head

- i. Oversee the training policy and the control of training records at site
- ii. Ensure that all training, including site inductions, is conducted

HR Head

It is the responsibility of the Unit Head – HR to ensure that the procedure is updated. The training plan covering all personnel is prepared, implemented and records are maintained by the office of HR

Operational Managers

- i. Ensuring delivery of job-specific induction training
- ii. Setting of training objectives for employees within their scope of responsibility, in
- iii. conjunction with the individual employees
- iv. Evaluation of the effectiveness of the training administered, usually in conjunction with

The HR / Training Manager

- i. HSE representative
- ii. Performance of Site HSE inductions
- iii. Assist HR in conducting HSE related trainings

Employees

- i. Identify and agree training requirements with their Manager
- ii. Provide feedback concerning the effectiveness of any training received



#### 4.0 Training Modules for HSE Awareness

Module No.	Training Title	Target Group	Remarks
M1	Safety Leadership Training	All executives	Once in every 3 years
M2	Hazard Identification & risk assessment	All executives at operational Sites & offices	Once in every 3 years
M3	Techniques of root Cause analysis	All executives at operational Sites & offices	One time
M4	Emergency Management	All executives at operational sites & offices	Once in every two years
S1	Work at Height	Executives, & supervisors & workmen at Operational sites & offices	Every Year
S2	Working at Confined spaces	Executives, supervisors & related workmen at Operational sites & offices	Every year
S3	Electrical Safety & energy Isolation	Executives, supervisors & related workmen at Operational sites & offices	Every year
S4	Use of Personal Protective equipments	Executives, supervisors & workmen at Operational sites & offices	Every year
S5	Safety in Excavation work	Executives, supervisors & related workmen at Operational sites & offices	Every year
S6	Safety in Lifting Operations	Executives, & supervisors & Crane drivers & riggers at Operational sites	Every year
S7	Safety In Hot work	Executives, supervisors & related workmen at Operational sites & offices	Every year
E1	Waste Management	Executives, & supervisors & workmen at Operational sites & offices	Every year
E2	Environment Management System	Executives, & supervisors at Operational sites	Every year

#### 4.1 Induction Training

All new employees & contractors are to be told about the following as a minimum.

- i. Security access/ egress control
- ii. General hazard and risk associated with the site activities
- iii. Requirements for first aid and welfare and how statistics are collected
- iv. HSE legal requirements and those standards imposed by BL site
- v. Work related significant risks and/ or environmental impacts and their personal contributions to safe and environmentally improved site
- vi. HSE policy and general site rules
- vii. Permit system
- viii. Emergency plans and procedures
- ix. Disciplinary procedures

#### 5.0 Records

Training Records



## **Procedure No.: 1.7**

### **Emergency Preparedness**

#### 1.0 Purpose

To ensure that robust, clear and tested emergency plans exist and that suitable persons are trained to implement them.

#### 2.0 Scope

All business locations under BL control

#### 3.0 Definitions

Emergency Organization: The personnel, systems and procedures put in place to ensure that emergency conditions are managed efficiently and effectively.

#### 4.0 Responsibilities

##### 4.1 Unit Head

Unit Head will ensure that adequate and appropriate resources are provided to ensure that the requirements of this procedure are applied.

##### 4.3 Site HSE Representative

The Site HSE Representative will ensure that the requirements of this procedure are implemented within the scope of the Site organization

#### 5.0 Process

##### 5.1 Development of a Site Specific Emergency Plan

A Site Specific Emergency Plan must be developed for each BL business location & new construction site. It will be based upon the generic emergency plan included as Appendix 1 of this procedure and developed according to the methodology described within this procedure.

##### 5.2 Emergency Plan Scope

In most instances the scope of the emergency plan will be limited to fire related emergencies; however, depending upon the geographic location of the Site other types of catastrophe must be taken into consideration and emergency arrangements made proportionate to the identified risk

Consideration should be given to the following:

- Flooding
- Earthquakes Risk
- Lightning
- Wind



Further guidance and preventative measures associated with these risks is included in the Generic Emergency Plan – see Appendix 1

### 5.3 Preparation of the Emergency Plan

The Site Manager or nominee will ensure the preparation of the emergency plan, using the generic plan in Appendix 1.

### 5.4. Review and Approval Process

#### 5.4.1 The emergency plan must be prepared, checked and approved as indicated below.

The same person must not do more than one of these functions.

- Prepared by: The Site HSE Representative
- Checked by: BL Organization HSE Representative
- Approved by: Site Manager / Organization Manager

#### 5.4.2 The Site HSE Representative will control this document Emergency Plan Implementation

#### 5.5.1 The Site HSE Representative is responsible for the implementation of the emergency plan at site. This includes:

- i. Ensuring all personnel on site are aware of the emergency arrangements and receive an induction detailing its requirements. In addition, the emergency plan must be posted in areas where all BL employees and contractors can have access to it
- ii. Ensuring necessary persons involved in the emergency team are appropriately trained and that such training is upgraded, as required
- iii. **Other methods by which emergency arrangements may be tested / simulated include audits, inspections and desk top reviews**



**Generic Emergency Plan (Insert Site Name) – Appendix 1**

Emergency Plan

1.0 Introduction

1.1 This plan has been prepared to provide information and guidance for responses to emergency situations. This plan is not, nor is it intended to be, a substitute for good common sense, which must prevail in any given emergency situation.

2.0 Scope

2.1 Types of Emergencies

This plan is intended to cover any potential emergency that may occur at the (insert location/project) site including:

- i. Serious Work Accident: A serious accident is any accident that involves either serious injury requiring urgent medical aid, or involves entrapped persons whose health or safety is in immediate danger.
- ii. Non-Work Medical Emergency: A medical emergency is any situation where a person through illness requires urgent evacuation to intensive or specialist medical care.
- iii. Fire Emergency: Is any unwanted occurrence of fire that cannot be quickly brought under control by use of a hand held fire extinguisher.
- iv. Environmental Emergency: An environmental emergency is any situation where there is a serious risk to the environment, employees or the public due to spill or leak of a hazardous substance.
- v. Bomb Threat: Any received bomb threat will be regarded as an emergency.
- vi. Major Gas Leak: Any gas emission or leak either onsite or on neighboring sites

3.0 Communications

The site has set up suitable arrangements for contact with the site medical staff, fire crew and emergency response team:

**(Insert site Emergency Contact Numbers)**

Site Contacts Internal Phone External Phone

EMERGENCY PHONE

Security

BL Reception

Site Nurse

BL Site Manager

BL HSE Representative

etc....

**Off Site Contacts Phone**

Ambulance

Fire Station





Police Station  
Local Hospital Emergency Department  
Customer  
Government Authorities  
Local Doctor  
etc.....

#### 4.0 Responsibilities

A Trained Emergency response team is set up as described below.

(Insert emergency organization and responsibilities; this will generally include the following

- The person raising the Alarm
- The Emergency Communication Co-ordinator e.g. Security Guard
- The Emergency Response Team
- The Site Nurse

#### 5.0 Evacuation Arrangements

The Site has made the following arrangements in case of evacuation:

- i. Responsibilities as per the clause 4.
- ii. Muster points have allocated and are indicated on the attached site plan.  
(provide the site plan)
- iii. An alarm has been installed (if more than one alarm is present state sound of alarm if different for each type of emergency e.g. gas leak, fire)
- iv. An Evacuation Notice has been appended to the site notice boards
- v. Simulation Exercises shall be conducted every (define intervals). (If alarm is also periodically tested also state time, day etc)

#### 6.0 Containment

6.1 Spill kits are available at locations shown on the attached site plan for chemical/oil spills and include the following items:

- a. Oil/chemical absorbent material (mats, booms, sand etc)
- b. Hand pump
- c. Electric pump
- d. Empty drums
- e. Chemical resistant gloves
- f. Chemical resistant overalls
- g. Chemical resistant calf length boots
- h. Chemical resistant face shield
- i. Respirators with cartridges suitable for chemical mist
- j. Hazard warning tape



6.2 Spill kits shall be inspected weekly to ensure that the inventory of the kit is as it should be and to ensure that the location of the spill kit is appropriate to the site activities such as storage, offloading and use of materials. Outfalls and interceptor pits shall be inspected daily as part of the daily site inspection system.

### 7.0 Emergencies

#### 7.1 Medical

Contact the site medical staff and if casualty is in an obscure location or is trapped alert emergency response team. Casualty must not be moved until examined by site medical staff except where casualty is in further danger by not being moved e.g., likely collapse of nearby structure etc. In case of multiple casualties summon Statutory Emergency Services and where applicable notify the Regulatory Authority.

#### 7.2 Fire

Call for assistance from the trained Emergency Response team. If a minor fire, try to extinguish using fire extinguisher but ensure escape route away from the fire is available at all times. Hand the situation over to the emergency response team on their arrival

#### 7.3 Environmental

##### (i) Oil Spills

- a) Call for assistance from the trained Emergency Response Team.
- b) Use appropriate Personal Protective Equipment from the emergency spill kit and ensure oil cannot enter storm water drains, rivers or run into the sea.
- c) Bund area of spill as quickly as possible using sand, oil booms or other suitable material.
- d) Use hazard-warning tape to cordon off the area and establish as no smoking, no source of ignition zone, position foam filled fire extinguishers close to the area.
- e) Arrange tanker if large spill or transfer to oil drums as soon as possible. Soak up remaining oil with absorbent material and excavate contaminated soil.
- f) Treat used absorbent material and contaminated soil as hazardous waste and dispose of through a licensed contractor to a licensed facility.
- g) Recovered oil should be considered for recycling.
- h) At any time during this action that the emergency response team arrives, hand over to that team informing them all that you know about the incident and what you have done in preparation for their arrival. Stay available for investigation purposes.

##### (ii) Chemical Spills

- a) Call for the emergency response team and take only that action required to prevent further damage only if certain of the chemical, its toxicology and if you have appropriate PPE.



- b) If there is a chemist on site seek immediate advise, if not refer to material safety data sheet (MSDS) for information on safety precautions and whether or not it is necessary to evacuate the area.
- c) Wearing the correct personal protective equipment and at a safe distance from the chemical try to divert flow path away from storm water drains, rivers or sea.
- d) If possible create a bund using sand, chemical booms or other suitable material to contain the chemical spill.
- e) Use hazard warning tape to cordon off the area and have fire truck positioned close by and If a significant or if chemical has entered storm water drain, river or sea contact the Statutory Emergency Services and Environmental Agency.
- f) Treat/neutralise chemical as advised by chemist or as stated on the MSDS.
- g) Arrange tanker if large spill or transfer too suitable drums as soon as possible. Soak up remaining spillage with absorbent material and excavate contaminated soil.
- h) Treat waste including absorbent material and excavated soil as hazardous and dispose of through licensed contractor to licensed facility.

### 7.4 Bomb Threats

Terrorist threat / Bomb alert. (Try and obtain as much information as possible)

- a) If a bomb, its exact location and time of detonation.
- b) What demands are being made
- c) Make a note of any background noise on the phone
- d) Make a note of sex and approximate age of the caller
- e) If possible try and have someone else listen in on the call.
- f) Once the connection has been broken do not hang up the phone.
- g) Make a written record of the above including time of call and time of termination.
- h) Contact the police.
- i) Evacuate the site unless instructed otherwise by the caller or the police

### 7.5 Major Gas Leak

Depending upon the size, nature, location and type of gas involved, it may be necessary to evacuate all personnel from the site as the first response. Should the Emergency Commander take this course of action the Evacuation siren should be sounded and the site evacuated. Consideration will need to be given immediately to ensuring that personnel are moved to a safe distance up wind of the leak.

### 7.6 Natural Disasters (As applicable)

(Include information as necessary for the site, see example for earthquake:

If inside a building stay inside, take cover under a sturdy piece of furniture such as a table or desk or crouch up against an internal wall and cover your head with your arms. If on a structure such as the boiler get as close to a major structural item as possible or under a vessel there may be a danger of falling objects such as partially



secured secondary steel work, pipes, pipe supports, scaffolding etc, (the structure should have been designed to withstand an earthquake) crouch down and keep your hard hat in position. If outside stay outside, move away from buildings, structures and overhead power lines.)



## **Procedure No.: 1.8**

### **CONTRACT HSE PERFORMANCE MANAGEMENT PROCESS**

#### 1.0 Purpose

To ensure that contractors are adequately controlled, their safety assured and that BL's reputation is not damaged by their actions.

#### 2.0 Scope

All BL contract orders for the supply and erection, commissioning and servicing

#### 3.0 Definitions

##### **Term Definition**

Contractor: Any company appointed to carry out work on behalf of BL. This includes

- i. All Annual Maintenance Contract
- ii. Contractors appointed for high risk jobs, like Work at height, confined space entry, excavation, hot work etc.
- iii. Contractors appointed for electrical jobs, testing of pressure vessels, etc
- iv. Contractors appointed for manual & mechanical material handling

#### 4.0 Responsibilities

##### 4.1 Site Manager

The Site Manager is responsible for:

- i. The conduct and control of all BL contractors. The responsibility for site activities will include progress, identifying and initiating action to recover delays, delivery schedules, Contractor/ Subcontractor performance and HSE standards.
- ii. Ensuring the implementation of the HSE Plan and/or method statements/ risk assessments on site.

##### 4.2 Site HSE Representative

Monitoring of Contractor HSE performance

#### 5.0 Process

##### 5.1 Pre-Qualification

All contracted companies will be subject to pre-qualification criteria, if involved in high risk activities

##### 5.2 On-Site Management

- 5.2.1 All Contractors will be required to undertake initial induction or familiarization training where their responsibilities will be explained.



5.2.2 Medical fitness certificate to be submitted for all contract workman engaged high risk activities

5.2.3 The Site Manager must review planning, progress and performance on site activities and initiate appropriate actions to ensure timely completion of the activities.

5.2.4 Contractors will be represented at HSE meetings and progress meetings where they will be consulted regarding reciprocal risks associated with ongoing activities in order that they can be minimized.

5.2.5 Pre-Qualifying The Potential Bidder

**Pre-qualification Criteria: To ensure consistent pre-qualification response from all Contractors, the Contract Manager shall enclose the pre-qualification questionnaire to all potential bidders, along with expression of interest.**

**The set of standard questionnaire for prequalification criteria is enclosed in Annexure- A1. The Manager shall evaluate the response to pre-qualification questionnaire from all the potential bidders and provide feedback to Contracts Manager.**

**If required, Manager may contact the potential bidder for additional information and the potential bidder is allowed to visit the site.**

If requested, the Contract Manager shall arrange meeting between Manager and potential bidder for clarifications. The minutes of meeting shall be documented.

## 6.0 Contract Scope & Specific Contract Requirements

**The Contracts Manager shall forward the scope of work to Manager to develop Contract Specific Requirements.**

6.1 The Standard Contract Requirements are enclosed in Annexure- A2. While formulating the Contract Specific requirements, the Contract requirements shall be considered in addition to the following factors,

- a. nature of work activities (civil works, mechanical, material handling, maintenance etc);
- b. location & surroundings;
- c. mobilisation/ demobilisation;
- d. personnel competency requirements;
- e. potential risks;
- f. security threats & arrangements;
- g. standards of equipment used;
- h. regulatory requirements;
- i. raw materials & consumables;

6.2 Techno-Commercial Bids & Standards

The Manager shall evaluate standards of each Contractor separately, against requirements mentioned in tender enquiry and if required, on-site audit may also be carried out. A complete report shall be forwarded to Contracts Manager along with short falls and recommendations. This shall help the potential Contractor to improve and make the management more effective.



The minimum submission with bid document shall include,

- a. policy;
- b. risks management report;
- c. manpower details like names, qualifications & experience;
- d. procedures & standards to be used;
- e. competency & training;
- f.

### 6.3 Mobilisation & Management Plan

**Mobilisation:** The Contractor to whom Contract is awarded shall submit Management Plan prior to mobilisation. The Manager shall review and validate the Contract Management Plan against BL Policy, Management Systems, procedures, standards and regulatory requirements.

**Pre-Execution Audit:** In case high risk or major Contracts, the Manager may opt to carry out Pre-execution audit, to check that Contractor is equipped to meet BL standards. The pre-execution audit shall be based on approved Management Plan. Any issues, grossly affecting risk shall be addressed immediately with the consensus, mutual trust, respect & cooperation.

### 6.4 Contract Execution & Performance Monitoring

The Contract shall submit the performance Monitoring Plan before commencing the work that shall be approved by Manager. The Contract holder shall implement & monitor performance on regular basis.

### 6.5 Contract Close Out & Performance Report

**Site Restoration:** The Contract Holder shall ensure that Contractor demobilizes from site or place of work in accordance with all contractual terms & conditions.

The Manager shall inspect the site and ensure that all regulatory compliances related to site restoration are completed. The Contract Holder shall ensure that Site Restoration Certificate forwarded to Contracts Manager, before closing out the Contract.

**Contract Performance Report:** The Contracts Manager may ask Manager to prepare Contract Performance Report as per Annexure-3 in consultation with Contractor's Representative,. This may be used for future references while working with same Contractor or setting up performance standards for different Contractor for similar work.

### 6.6 ANNEXURE

- Annexure - A1: HSE Pre-Qualification Questionnaire
- Annexure - A2: Standard Contract Requirements for HSE
- Annexure - A3: Post Contract HSE Evaluation





## 6.6.1 Annexure - A1

**Pre-Qualification Questionnaire for Contractor  
Guidelines for Completion of Questionnaire**

- i. The potential bidder is to ensure that the answers provided are focussed against the activities indicated in the pre-tender document.
- ii. The information is supplied in the same format and sequence in which they appear in the questionnaire. A minimum of 12 has to be obtained in the HSE pre-qualification questionnaire.
- iii. Failure to supply information that accurately and fully covers the material requested may result in an individual Contractor failing to meet minimum expectations and therefore being disqualified.
- iv. Contractor shall provide information that is authentic and documentary evidence.
- v. Even after getting pre-qualified, if it comes to the notice that non-authentic documents are provided, the Contractor may be disqualified and if any Contract is in place, it may be terminated immediately.
- vi. BL shall have right to audit Contractors records to verify the authenticity of the documents, during any phase of the Contract.

**Questionnaire for HSE Pre-Qualifications of contractors:**

Contractor Details	
Company Name	
Contact Person for HSE	
Name	
Telephone Number	
E-Mail Address	

	Question	Response		Evidence Required at bidding Stage	Weightage if complied
		Yes	No		
1	Do you have a signed and dated HSE Policy?	<input type="checkbox"/>	<input type="checkbox"/>	Attach HSE Policy	1
2	Do you confirm that you will comply with BL HSE Policy in as much as it is applicable to your scope of work?	<input type="checkbox"/>	<input type="checkbox"/>	None	1
3	Do you have a Health and Safety System certified by an accredited body to a recognized standard? (Eg : OHSAS 18001)	<input type="checkbox"/>	<input type="checkbox"/>	Provide Current Certificate	3
4	Do you have an Environmental Management System Certified by an accredited body to a recognized standard? (Eg : ISO 14001 )	<input type="checkbox"/>	<input type="checkbox"/>	Provide Current Certificate	3
5	Have you identified, documented and maintained your Health and Safety risk assessment of your activities?	<input type="checkbox"/>	<input type="checkbox"/>	None	3
6	Have you identified, documented and maintained your Environmental Impact Assessment of your activities?	<input type="checkbox"/>	<input type="checkbox"/>	None	3
7	If you use subcontractors, will you assess them in terms of HSE?	<input type="checkbox"/>	<input type="checkbox"/>	None	2



	Question	Response		Evidence Required at bidding Stage	Weightage if complied
		Yes	No		
8	Have you produced project/contract HSE plans for recently completed work?	<input type="checkbox"/>	<input type="checkbox"/>	None	2
9	Is HSE Covered in your company's organization chart?	<input type="checkbox"/>	<input type="checkbox"/>	Provide Current Org Chart.	2
10	Have HSE roles and responsibilities been defined in your company?	<input type="checkbox"/>	<input type="checkbox"/>	None	2
11	Have your employees received documented HSE training appropriate to the task they will undertake?	<input type="checkbox"/>	<input type="checkbox"/>	None	2
12	Do you identify and monitor compliance with HSE Legislation?	<input type="checkbox"/>	<input type="checkbox"/>	None	2
13	Do you carry out regular medical examination for your employees?	<input type="checkbox"/>	<input type="checkbox"/>	None	1
14	Is your company free from any charges or notices served by the regulatory authorities in relation to HSE in the last 3 years?	<input type="checkbox"/>	<input type="checkbox"/>	None	1
15	Do you have any procedure of reporting HSE Incident and investigation?	<input type="checkbox"/>	<input type="checkbox"/>	None	2

	<b>Please provide your accident data for the current year and the last 2 calendar years Note: this must include the data of any contractors working for your organization.</b>	Current Year	Current Year -1	Current Year - 2	Period Average (Three years average)
16	Number of Fatalities				
17	Number of Environmental Incidents reported to Pollution Control Board				
18	Number of accidents with 2 or more days lost time.( LTI)				
19	Man Days Lost				
20	Total Hours Worked				

I confirm that the above information is correct and that further evidence to support this will be provided to BL on request.				
Name	Position	Company	Date	Signature

6.6.2 Annexure – A2

**HSE Requirements BY CONTRACTORS (To be a part of contract documents)**

**Housekeeping**

Contractors shall ensure that their work area is kept clean tidy and free from debris. The work areas must be cleaned on a daily basis. Any disposal of waste shall be done by the Contractor.



All equipment, materials and vehicles shall be stored in an orderly manner. Access to emergency equipment, exits, telephones, safety showers, eye washes, fire extinguishers, pull boxes, fire hoses, etc. shall not be blocked or disturbed.

### **Confined Space**

Before commencing Work in a confined space the Contractor must obtain from BL a Permit to Work, the Permit to Work will define the requirements to be followed.

As minimum Contractors must ensure the following:

- i. Confined spaces are kept identified and marked by a sign near the entrance(s).
- ii. Adequate ventilation is provided
- iii. Adequate emergency provisions are in place
- iv. Appropriate air monitoring is performed to ensure oxygen is above 20%.
- v. Persons are provided with Confined Space training.
- vi. All necessary equipment and support personnel required to enter a Confined Space is provided.

### **Tools, Equipment and Machinery**

The Contractor must ensure that all tools & equipment provided for use during the Work is:

- suitable for its intended use;
- safe for use, maintained in a safe condition and where necessary inspected to ensure this remains the case (any inspection must be carried out by a competent person and records shall be available);
- Used only by people who have received adequate information, instruction and training to use the tool or equipment.
- Provided with Earth leakage circuit breaker (ELCBs) at all times when using electric power cords. Use of electrical tape for temporary repairs is prohibited.

### **Working at Height**

Any Work undertaken where there is a risk of fall and injury is considered to be working at height.

For any Contractor Personnel working at height, Contractors shall provide fall prevention whenever possible and fall protection only when fall prevention is not practicable. Before commencing Work in a height the Contractor must obtain from BL a Permit to Work, the Permit to Work will define the requirements to be followed. Supervisor must be present at all point of time, to ensure no deviation occur during the course of work.

### **Fall Prevention System**

Fall prevention systems (e.g. fixed guardrails, scaffolds, elevated work platforms) must provide protection for areas with open sides, including exposed floor openings.



### Fall Protection Systems

Where fall protection systems are used then the Contractor must ensure the following is applied:

- i. Only approved full body harness and two shock-absorbing lanyards are used,
- ii. Prior establishment of a rescue plan for the immediate rescue of an employee in the event they experience a fall while using the system,
- iii. Anchorage points must be at waist level or higher; and capable of supporting at least the attached weight,
- iv. Lifeline systems must be approved by BL before use.
- v. Use of ISI marked industrial helmet at all point of time.

### **Scaffolding**

All scaffolds shall subject to a documented inspection by a competent person and clearly marked prior to use. The footings or anchorage for scaffolds shall be sound, rigid and capable of carrying the maximum intended load without settling or displacement. All scaffolding materials should be of MS tubular type.

Guardrails and toe-boards shall be installed on all open sides and ends of scaffold platforms. Scaffolds shall be provided with an access ladder or equivalent safe access. Contractor Personnel shall not climb or work from scaffold handrails, mid-rails or brace members.

### **Stairways and Ladders**

Ladders should only be used for light duty, short-term work or access in line with the below and the Site Requirements.

- a. Fabricated ladders are prohibited.
- b. Ladders will be secured to keep them from shifting, slipping, being knocked or blown over.
- c. Ladders will never be tied to facility services piping, conduits, or ventilation ducting.
- d. Ladders will be lowered and securely stored at the end of each workday.
- e. Ladders shall be maintained free of oil, grease and other slipping hazards
- f. Ladders will be visually inspected by a competent person and approved for use before being put into service. Each user shall inspect ladders visually before using.
- g. Ladders with structural defects shall be tagged "Do Not Use," immediately taken out of service, and removed from the Site by the end of the day.

### **Roof Work/Access**

Roof work and access to roofs must not be undertaken without prior authorization from BL.

### **Overhead Work**



A secure exclusion zone shall be maintained by Contractor below overhead work to prevent access. It is forbidden to work beneath a suspended load.

### **Lifting Operations**

#### **Cranes and Hoisting Equipment**

Contractors shall operate and maintain cranes and hoisting equipment in accordance with manufacturers' specifications and legal requirements.

Only Contractor Personnel trained in the use of cranes and hoists are permitted to use them.

#### **Lifting Equipment and Accessories**

All lifting equipment / accessories e.g., slings, chains, webbing, chain blocks, winches, jacks etc shall be indicated with their safe working load have an identification number visible on the unit and be inspected and tested in accordance with legal requirements.

Damaged equipment / accessories and equipment shall be tagged "out of use" and immediately removed from Site.

#### **Lockout Tag out ("LOTO")**

Prior to performing work on machines or equipment, the Contractor shall ensure that it is familiar with LOTO and Permit to Work procedures and that all of its affected Contractor Personnel receive the necessary training.

#### **Barricades**

Floor openings, stairwells, platforms and walkways, and trenching where a person can fall any distance shall be adequately barricaded and where necessary, well lit. Where there is a risk of injury from a fall then rigid barriers must be used.

Barricades must also be used to prevent personnel entering an area where risk of injury is high e.g., during overhead work activity or electrical testing etc. Such barricading must provide clear visual warning..

#### **Compressed Gas Cylinders**

Gas cylinder shall be securely stored and transported, and identified and used in line with the local requirements. Hose lines shall be inspected and tested for leaks in line with local requirements. Flash Back arrestor to be used to prevent any explosion due to back fire.

#### **Electrical Safety**

Prior to undertaking any work on live electrical equipment the Contractor must obtain a Permit to Work from BL. Where ever possible live work should be avoided. Any control measures highlighted shall be implemented prior to work commencing.



The below measures will be taken:

- a) Work practices must protect against direct or indirect body contact by means of tools or materials and be suitable for work conditions and the exposed voltage level.
- b) Energized panels will be closed after normal working hours and whenever they are unattended. Temporary wiring will be de-energized when not in use.
- c) Only qualified electrical Contractor Personnel may enter substations and/or transformer and only after being specifically authorized by BL.

### **Hot Works**

A Permit to Work must be obtained from BL prior to any hot works (welding, grinding, open flame work). Suitable fire extinguishing equipment shall be immediately available. Objects to be welded, cut or heated shall be moved to a designated safe location, or, if they cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place. Personnel working around or below the hot works shall be protected from falling or flying objects.

Prior to the use of temporary propane or resistance heating devices approval must be obtained from BL.

### **Trenching, Excavating, Drilling and Concreting**

A Permit to Work must be obtained from BL and all underground lines, equipment and electrical cables shall be identified and located prior to beginning the work. The Contractor shall assign a competent Contractor Personnel to all trenching and excavation work.

Safe means of access and egress shall be located in trench excavations. Daily inspections shall be conducted by a competent Contractor Personnel for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems or other hazardous conditions.

Physical barriers shall be placed around or over trenches and excavations. Flashing light barriers shall be provided at night.

### **Environmental Requirements**

#### **Waste Management**

The Contractor is responsible to remove any waste generated by the work being done on the Site. The Contractor must dispose of the waste in line with the relevant local legislative requirements. The waste disposal route shall be documented and made available for BL to review at any time and may be subject to BL's prior approval.

Wastes (includes rinse from washing of equipment, PPE, tools, etc) are not to be poured into sinks, drains, toilets, or storm sewers, or onto the ground. Solid or liquid wastes that are hazardous or regulated in any way are not to be disposed of in general site waste receptacles.



### Spills

The Contractor is responsible for the provision of adequate spill kits/protection and the clean up and disposal costs arising from such spills.

### Emissions

The Contractor shall identify and quantify any emission sources associated with the Works. The control measures associated with these emission shall be subject to the approval of BL. Emissions include but are not limited to noise, dust, fumes, vapours.

#### 6.6.3 Annexure – A3

POST CONTRACT HSE EVALUATION			
	Question	Answer (Yes / No)	Remarks
1	The contractor demonstrated the application of an effective and robust HSE management system.		
2	The contractor did not cause any additional cost or delays to the project through poor HSE performance.		
3	The contractor prepared suitable and sufficient HSE risk assessments and method statements in a capable, proactive and timely manner.		
4	The contractor proactively reported on HSE Events and Deviations.		
5	The contractor's workforce fulfilled their HSE roles and responsibilities.		
6	The contractor's own/subcontracted workforce demonstrated the required level of competency.		
7	The contractor demonstrated knowledge of and proactively ensured compliance with HSE legislation.		
8	All goods/materials/equipment/substances supplied by the contractor were compliant with the HSE requirements.		
9	The contractor ensured that appropriate and timely medical examinations were performed for his own/subcontracted workforce.		
10	The contractor proactively demonstrated housekeeping and cleanliness.		
11	The contractor demonstrated compliance with the Balmer Lawrie Contractors General Terms and Conditions.		
12	The contractor demonstrated control of high risk activities		
13	Number of accidents with 1 or more days lost time		
14	Fatalities during the Contract		
15	Man Day Lost		
16	Man Hours Worked		

Based on the overall HSE performance of the Contractor, the Contractor:

1. Can be re deployed for future assignments.
2. Needs extensive training & Counseling before reappointing
3. Cannot be considered for future assignments.

Sign of the Evaluator/Contract manager  
Head

Sign of the Unit/ Project



## Procedure No.: 1.9

### HSE AUDIT & INSPECTION

#### 1.0 Purpose

To evaluate implementation of and compliance with the HSE management system and to ensure it's continued effectiveness and efficiency.

#### 2.0 Scope

All business locations under Balmer Lawrie control.

#### 3.0 Responsibilities

##### 3.1 Operational Managers

- Ensure that HSE inspections are planned and performed.  
Ensure adequate numbers of qualified HSE inspectors are available.

##### 3.2 Site HSE Representative

- Planning, performance, coordination and reporting of all site-specific HSE inspections.
- Performance of site inspections and safety tours.

##### 3.3 Inspectors

- Planning and preparation of the inspection
- Performance of the inspection
- Compilation of the inspection report
- Expediting corrective actions to close-out

#### 4.0 Process

##### 4.1. Records of Inspections

The performance of all inspections, checks, assessments, site tours etc must be documented.

As a minimum, the following information must be recorded:

- Type of inspection performed
- Inspector name
- Date of inspection
- Areas inspected
- Findings of the deviations found.

##### 4.2 Observance of activities or occurrences requiring immediate action

During site inspections potential hazards/ unsafe practices etc. may be observed which are considered to be of a serious nature. In such cases work must cease immediately





until corrective action has been taken. The Inspector must also notify the Balmer Lawrie Site Manager at the earliest opportunity, who will monitor, advise and assist with any outstanding action.

### 4.3 Senior Manager's HSE Observation Tours

4.3.1 HSE observation tours are to be undertaken by all Senior Managers when visiting a site. The aim is to observe behaviors or conditions on the site and to provide feedback on what has been observed to enable improvement.

### 4.4 Site Manager Weekly HSE Tour

The Site Manager must perform a site HSE tour on a weekly basis. The inspection consists of a walk around the site (typically not exceeding 1 hour). The Site Manager must be accompanied by the Site HSE Representative who will note any observations. Hazards must be dealt with quickly and on the spot, wherever practical.

### 4.5 General Planned Inspections

4.5.1 General Planned Inspections (GPI) should be conducted:

- Monthly in offices
- Weekly at site / manufacturing facilities.

4.5.2 The responsible manager for each area of work must conduct an HSE Inspection of the work area. Opportunity should be given for worker representatives to be involved. These inspections must as a minimum, address the topics on the GPI standard inspection checklists, however, it is preferred that the site should create a checklist specific for their own needs.

4.5.3 Details of the inspection must be recorded on a Site HSE Inspection Report. The extent of the inspections may vary from site to site depending on the complexity.

4.5.4 The Site HSE Representative will support the area supervisors/workers representatives in this task. The Site EHS Representative must collate all the inspection reports after the inspection and review them.

### 4.6 Detailed HSE Assessment

The HSE Audit Protocol has been developed by Balmer Lawrie to evaluate the performance of HSE for all its sites. **(Annexure A attached at the end of the Manual)**

The Audit Protocol is broken down into **3 Chapters:**

- I. HSE management
- II. Health & Safety
- III. Environment

which are broken down into several procedures.



### The management level for each theme is evaluated by a score from 1 to 4.

The general design approach of the HSE Audit Protocol is the following:

- Level 1:** The unit failed to take action as per the requirement of the theme. *The level is called "Lack of awareness".*
- Level 2:** Standards are established, the situation in relation with the theme is known. Corrective action developed. *The level is called "Awareness" and the level is called as "Managed below Balmer Lawrie Standard".*
- Level 3:** Implementation done as per the corrective actions developed as per requirement of the theme, *this level is called "maintained at per "Balmer Lawrie Standard"*
- Level 4:** Continuous improvement (proactive) is proved, HSE is included in the management, and practices in place are optimized and are subject to benchmarking which situates them above good engineering practice and standard practices in the theme. *The level is called "Excellence/Best Practice".*

#### **Scoring basis**

- Assessor should have reasonable confidence that required processes are in place.
- It is the auditor's role to recognize if missing information is not highly significant or if a criterion is missing due to a gap in the system.
- Themes which are NOT ASSESSED shall be scored as N/A.

The score given for each chapter is the average of the theme's scores.

#### **Utilization & Frequency of Audit**

The HSE audit protocol has been developed with the objective that it will become a tool for self-assessment as well as formal Assessments and a management tool for the improvement of the HSE, performance.

Each Unit will be assessed by an external evaluator at least once a year. Each unit should also make a self evaluation at least once a year as per Annexure A attached at the end of this manual.

#### **Significance of the HSE audit score:**

The score obtained by the unit/establishment will have a direct link to the overall performance of the unit & SBU.

### **5.0 Records:**

1. Internal assessment records.
2. External assessment records.
3. GPI records.



## **Chapter – 2**

# **OCCUPATIONAL HEALTH & SAFETY**

**PROCEDURE No.: 2.1****INDUSTRIAL HYGIENE****1.0 Purpose**

To ensure that all employees, indirect personnel and others who may be affected by BL activities are adequately protected from chemical, biological and physical hazards

**2.0 Scope**

The procedure is applicable to BL facilities to fulfill the general and also the legislative requirement.

**3.0 Responsibilities****3.1 Operational Manager**

- Ensure that appropriate workplace risk assessments are performed
- Ensure adequate maintenance of protective equipment

**3.2 Medical Officer**

- Maintain a register of persons who may be potentially exposed and to review that register at appropriate intervals
- Maintain appropriate documentation for twenty years.

**4.0 Description****4.1. Definitions**

**4.1.1 Industrial Hygiene:** The discipline of anticipating, recognizing, evaluating and controlling a broad spectrum of biological, chemical, and physical hazards that can affect an employee's health. Typically these may include: vapours, gases, mists, dusts, fumes, smoke, aerosols, high frequencies of sound and light, ionizing and non-ionizing radiation and noise and vibration

**4.1.2 Physical Agents:** Sources of energy that may cause injury or disease e.g. noise, vibration, radiation, and extremes in temperature and pressure

**4.2 Risk Assessment**

**4.2.1** A workplace risk assessment must be carried out on all sites in order to identify potential chemical, biological or physical hazards, detrimental to human health and the risk of exposure.

**4.2.2** Risk assessments can be made as part of, or as an extension of a more general risk assessment i.e. if a substance hazardous to health present in the workplace is also a



risk to the safety of employees, e.g. they are flammable, unstable etc, it may be beneficial to perform a combined risk assessment.

#### 4.2.3 The risk assessment must include consideration of:

- i. The hazardous properties of the substance or physical agent
- ii. How the hazard arises i.e. produced or given off, e.g. as fumes, vapour dust etc by a process or an activity or as a result of an accident or incident
- iii. Information on health effects provided by the supplier, including information contained in any relevant material safety data sheet
- iv. The level, type and duration of exposure
- v. The circumstances of the work, including the amount of the substance involved
- vi. Activities, such as maintenance, where there is the potential for a high level of exposure
- vii. Any relevant workplace exposure limit or similar occupational exposure limit
- viii. The effect of preventive and control measures which have been or will be taken
- ix. The results of relevant health surveillance
- x. The results of monitoring of exposure
- xi. In such cases, it is necessary for BL to carry out ambient air and work zone monitoring and / or measurements to determine exposure, particularly where operations are complex or specialized and the substances involved have an occupational exposure limit

#### 4.2.4 The risk assessment must be reviewed regularly (at least annually) or if:

- i. There is reason to suspect that the risk assessment is no longer valid
- ii. There has been a significant change in the work to which the risk assessment relates

### 4.3 Hierarchy of Control

#### 4.3.1 The following principles are adhered to in order to reduce the risk of exposure:

- i. Remove any potential hazard through risk mitigation
- ii. Substitute any known high-risk substance for a less hazardous substance
- iii. Contain the hazard by separating the hazard from the person or by enclosing the person from the risk
- iv. Organize the work to reduce the exposure to the hazard
- v. The use of personal protective equipment (PPE)

#### 4.3.2 Control measures must be periodically reviewed, particularly where exposure level are near to exposure limits subject to regulatory controls, which may change.

### 4.4 Monitoring of Exposure at the Workplace

Monitoring is done when any of the following circumstances apply:

- i. When failure or deterioration of the control measures could result in a serious health effect, either because of the toxicity of the substance or because of the extent of potential exposure, or both



- ii. When measurement is required so as to ensure that an occupational exposure limit or other working standard is not exceeded
- iii. As an additional check on the effectiveness of any control measure
- iv. When any change occurs in the conditions affecting employees' exposure which could mean that adequate control of exposure is no longer being maintained, e.g. an increase in the quantity of a substance used or changing systems of work or introducing new plant

#### 4.5 Health Surveillance

4.5.1 All persons who are potentially at risk to significant exposure to chemical, biological or physical hazards (or when there is a legal requirement to do so for a specific hazard) must be entered into a register, which must be maintained and reviewed on a regular basis

4.5.2 Where PPE is the only source of protection, or if monitoring shows that an exposure above legal requirements has taken place, then those persons exposed must also be subject to health surveillance.

#### 4.5.3 Local Exhaust Ventilation (LEV)

Where LEV or extraction fans are used to remove airborne substances from the breathing zone of persons, the following must be adhered to:

- i. Air monitoring must be carried out periodically
- ii. The extraction systems must be subject to maintenance procedures
- iii. Air monitoring and maintenance documentation must be retained for a period of twenty years

#### 4.6 Information and Training

4.6.1 Information, instruction and training provided will include:

- i. Details of the substances or physical agents hazardous to health to which the employee is liable to be exposed including:
  - a. The names of those substances / physical agents and the risk which they present to health
  - b. Any relevant occupational exposure limit and other legislative provisions which concern the hazardous properties of those substances / physical agents
  - c. Access to any relevant material safety data sheet
- ii. The significant findings of the risk assessment
- iii. The appropriate precautions and actions to be taken by the employee in order to safeguard themselves and other employees at the workplace
- iv. The results of any monitoring of exposure and collective results of any in health surveillance undertaken, in a format calculated to prevent those results from being identified as relating to a particular person
- v. Why, how and when the hygiene measures provided must be used



## 5.0 Records

1. Records of Ambient Air and Work Zone Monitoring
2. Records of Health check-up
3. Pathological Test Reports



## Procedure No.: 2.2

### WORKING AT HEIGHT/FALL PREVENTION

#### 1.0 Purpose

To prevent injury and property damage when conducting work at height.

#### 2.0 Scope

This procedure is applicable to “persons working at Height” in Balmer Lawrie & Contractors.

#### 3.0 Responsibility

##### 3.1 Functional heads / Departmental coordinator / Site Manager

The Site must ensure that arrangements are in place to ensure that:

- i. All work at height is properly planned and organized
- ii. All work at height takes account of weather conditions that could endanger health and safety
- iii. Those involved in work at height are trained and competent
- iv. The place where work at height is done is safe
- v. Equipment for work at height is appropriately inspected daily basis
- vi. The risks from fragile surfaces are properly controlled
- vii. The risks from falling objects are properly controlled

##### 3.2 All Employees

All employees have a duty to:

- i. Report any safety hazard to their Supervisor
- ii. Use any equipment supplied (including safety devices) properly
- iii. Follow Safety training and instructions (unless they think that would be unsafe, in which case they should seek further instructions before continuing)

#### 4.0 Description

##### 4.1. Definitions

Term	Definition
Competent Person	Person trained, experienced and authorized to carry out a particular function
Fall Protection Equipment	Equipment typically consisting of a Double hook full body harness, a lanyard not exceeding 2 meters in length and a deceleration device. The system needs to be attached to an anchor point capable of withstanding a load of at least 2270 kg
Working at Height	All working at height is above 2 m height where there is a risk of falling and a person can become injured as per Factory Act. All high works which are not regular in nature should to be covered under work permit system i.e. a work permit is to be issued and verified and checked by authorised persons prior to start of work





## 4.2 Process

### 4.2.1 Elimination or Minimization Programme for Work at Height

- I. Minimization of work at height via:
  - a. Elimination of the need to perform work at height
  - b. By eliminating the risk of fall (i.e. implementation of fixed barrier's, scaffolds, mobile elevated work platform etc.)
- II. Where reasonably practical as much work as possible will be done at ground level to minimize working at height e.g. sections of steel work can be bolted together, pipes welded, radiography carried out and the items painted before being lifted into position.

### 4.2.2 Actions Prior to Starting Work at Height

- I. Prior to any person working at height a risk assessment must be carried out to identify the risks and the safety measures necessary to eliminate or reduce the risk
- II. Collective protection measures must always be considered in preference to individual protection measures
- III. Where it is not reasonably practicable to provide a safe working platform and a person has to rely on the use of a double hook full body safety harness, life line with fall arrestor, a suitable rescue plan must be considered along with the safety measures.
- IV. A Competent Person must verify that the contents of this procedure have been implemented before the commencement of any work at height. Work may only commence with the written approval of the Competent Person.

### 4.2.3 Verification of Procedure Implementation

- I. For all work of more than 1 day in duration, a systematic verification of the satisfactory implementation of this procedure must be carried out by Competent Person, at a frequency appropriate to the duration and risk of the task.
- II. On completion of the work it must be formally verified by a Competent Person, that the work place has been left in a satisfactory condition and that all persons have safely returned from the workplace.

Note: Many accidents occur because floor gratings have been removed and not replaced, or superfluous materials are left in elevated positions causing slip, trip and fall hazards

## 4.3 General Precautions

### 4.3.1 Fall Prevention

- I. The first consideration must always be to provide a safe working platform.
- II. The sides of all stairways, floors/platforms, walkways, buildings, etc, from where a person can fall and suffer injury or from where articles could fall and injure



someone must be protected with double guard rails and toe boards of at least 150mm in height.

- III. With regard to permanent structures such as stairways and platforms, as much of the permanent handrails as is reasonably practicable should be installed while the structure is at ground level. Where this is not possible then handrails/guard rails must keep place with construction.

#### 4.3.2 Floor Openings

- I. All openings, through which a person can fall and suffer injury, must be covered and secured using material that is sufficiently strong to support any forces that it may be subjected to. The word “Hole” or “Opening” must be printed on the top side. If a cover is not used the opening must be protected by rigid guardrails of adequate strength and toe boards.
- II. When floor gratings are removed for fitting instrument cables etc, the area must be physically fenced off and signs put in place. Rope or warning tape is not considered as being adequate. Fences must not be removed before the floor is re-established and inspected.
- III. Collective safety measures, such as a safety net suspended beneath the area of work, must be adopted for persons installing floor panels and the floor panel's locked/bolted in position as each one is fixed.
- IV. Persons not connected with the works must be prevented from inadvertently walking into the area until all panels are fixed and work complete. Double guardrails must be used for closing off such areas and notices clearly displayed prohibiting unauthorized access.

#### 4.3.3 Hand Tools

- I. Precautions must be taken to ensure that portable tools, hand tools etc, used in elevated work areas cannot fall onto people below. Safety nets and/or toe boards are suitable for this purpose.
- II. So far as is reasonably practicable, barriers must be erected below to prevent person walking below such areas.
- III. If none of the above is practical, then some form of protection from falling tools must be implemented e.g. use of straps/ropes attached to the tools and some appropriate anchor

#### 4.3.4 Fall Protection Equipment

- I. Fall Protection Equipment must be inspected by the user & trained person daily.
- II. Double hook full body Safety harnesses that have been used in a fall arrest situation must be withdrawn from service and not reused/issued until after a full examination.
- III. Records of the results of thorough examinations must be kept on site
- IV. Lifelines fall arrestor used for the attachment of Double hook full body Safety harnesses must be:
  - a. Horizontal lifelines must be made of steel rope 12 mm diameter (min)
  - b. Installed at waist height or above
  - c. Tensioned by use of a turnbuckle or similar
  - d. Designed to support the maximum number of workers



- e. Securely anchored at both ends with triplicate wire rope clamps at points able to withstand the dynamic load generated by a fall
- V. All lanyards must be made of flame resistant materials. Inertia reels may be used to enable more safe movement around certain areas.
- VI. Safe access and egress must be provided to all places of work including access to lifelines, fall arrestor.

#### **4.3.5 Adverse Weather Conditions**

No one must be allowed to work on wet or work in exposed positions in the rain, scorching heat or strong winds. Also, plant and equipment such as cranes, mobile elevating work platforms, cradles etc must not be used in such conditions.

#### **4.4. Ladders, Scaffolds and Work Platforms**

##### **4.4.1 Special Cases**

Where the provision of a work platform is not reasonably practical and the work does not fit into the category referred to in the paragraph above, alternative safety measures must be agreed in advance with the BL's HSE Representative.

##### **4.4.2 Ladders**

- I. Ladders can be used for light tasks of low risk and short duration but not more than one person must be on the ladder and the ladder must be secured to prevent it from slipping outwards and sideways. The employee must inspect the ladder before use. The person on the ladder must wear a safety harness to prevent falling.
- II. Ladders must be inspected at least once a monthly, must be in good condition and must be painted. Ladders must be installed at an angle of 4-1, must extend approximately 1m above the working platform and must be secured so they cannot slip.
- III. Vertical ladders installed for construction purposes at a height where a person can fall more than 3 meters must have a cage/hoops or be fitted with a rappel line (vertical lifeline) as a continuous/sliding anchor point for a safety harness.
- IV. Vertical ladders over 9 meters long must have a platform every 9 meters and be offset at every platform.
- V. Self-made ladders are not allowed on site.

#### **4.5. Scaffolds and Work Platforms**

##### **4.5.1 Material Examination and Storage**

All material must be examined upon arrival at site or during unloading; any defective items must be removed from the site or put into a specially designated and marked storage area.

##### **4.5.2 Inspection**

- I. A register of all scaffolds erected and dismantled on site must be maintained
- II. A trained and competent scaffold inspector must inspect erected scaffolds before first use before use and at least once weekly thereafter. Additionally, Supervisors must inspect scaffolds daily.



- III. Inspections must also be carried out when a scaffold is substantially altered and after any event or incident likely to have affected the stability of the scaffold such as strong winds or being struck by a crane.
- IV. Inspection reports must be kept until the work is completed. All other records of inspection must be kept until the next inspection has been carried out.
- V. A notice with warnings such as “scaffold under construction/dismantle - do not use” or a scaf-tag showing that it has been inspected and passed “safe for use” or condemned as “unsafe do not use” must be affixed at all scaffold access points. Scaf-tags must include the name of the inspector and the date of inspection.

#### 4.5.3 Scaffold Erection

- A. Scaffolds of “special” or “non-typical” design and any scaffold greater than 10-metres in height must be designed by a suitably qualified engineer.
- B. Persons erecting scaffolds, steel erectors and any other person likely to work in an area or in circumstances where the provision of a work platform is not practical must use fall protection equipment.
- C. All work platforms must have a top guardrail fixed at a height of 1.1 m, an intermediate guardrail and toe boards to all sides from where a person or articles can fall.
- D. Work platforms made from loose planks or boards are forbidden.
- E. Gangways must have guardrails and toe boards on all sides from where a person or articles may fall.
- F. Scaffolds erected around a structure, which may have electrical services, and where electrical equipment is to be used for work must be earthed to protect persons from electric shock. The earth cable must be routed to avoid damage from work equipment.

#### 4.6. Roof Work

4.6.1 All persons required to undergo medical test & vertigo test.

4.6.2 All new persons required to safety training before start the job.

4.6.3 Every day before start the job required work permit checked & sign by safety person & to be serve toolbox talk.

4.6.4 Persons use permanent ladder / temporary ladder with use life line, fall arrestor & double hook full body harness for prevent fall arrest to climb up & get down.

4.6.5 Persons working on sloping roofs must use proper roof ladders designed to gain anchorage from the opposing slope or must be connected to a double hook full body harness with fall arrestor to lifeline positioned so that the person(s) cannot fall from the roof.

4.6.6 Persons working on fragile roofs must use crawling boards of sufficient length to span roof trusses. Buildings with fragile roofs must have a notice clearly displayed at all access points with the wording or similar “Danger Fragile Roof



#### 4.7 Pipe line erecting & dismantling

- I. All persons required to undergo medical test and vertigo test
- II. All new persons required to safety training before start the job.
- III. Gas & electrical shut down to be done for prevent fire hazards.
- IV. Every day before start the job required work permit checked and signed by safety person & to be serve toolbox talk for prevent accident
- V. Persons use temporary ladder with use life line, fall arrestor and double hook full body harness for prevent fall arrest to climb up and get down.
- VI. While working at height near column is required scaffolding
- VII. While working at height, move one place to another place required fall arrestor with horizontal life line for one lanyard & other lanyard use to other anchor point with life line or direct to anchor point or other mechanical means for preventing accident.

#### 4.8 Training

Training for working at height must include:

- i. General Safety Needs, PPEs requirements, HSE policy
- ii. Risk from performing work at height
- iii. Details of the procedure for working at elevated work places i.e. Work permit, vertigo test,
- iv. Safe use of safety equipment (fall arrestor, life line, double hook full body harness, safety net)
- v. Safe use of ladders
- vi. Scaffolding erection
- vii. Daily equipment checks including safety harness inspections
- viii. Rescue techniques to rescue someone suspended from a safety harness or having fallen into a safety net
- ix. Actions to be taken in case of emergency

#### 5.0 Records

- I. Work permit
- II. Competent persons list
- III. Training records
- IV. PPE inspection records.



## Procedure No.: 2.3

### Confined Space Work

#### 1.0 Purpose

To ensure the safety of all personnel required to work in confined spaces

#### 2.0 Scope

All business locations under Balmer Lawrie control where there are work areas that have been classified as confined spaces identified via the risk assessment process.

#### 3.0 Definitions

##### Term Definition

- a. Authorized Person: A person appointed to carry out specific duties
- b. Competent Person: Persons trained, experienced and authorized to carry out a particular function
- c. Confined Space: A space or structure that is, large enough that employees can bodily enter and perform work and is not designated for continuous occupancy and has limited openings for entry and exit and restricted natural ventilation, e.g. oil storage tanks, reaction vessels, inside furnace, inspection pits, etc
- d. LFL (Lower Flammable Limit): the concentration in air at or below which a flammable substance will not burn when exposed to a source of ignition.
- e. OEL (Occupational Exposure Limit): the maximum exposure a person can have to a chemical substance without suffering any known adverse affects.
- f. PTW: Permit to Work

#### 4.0 Responsibilities

##### 4.1 Site Manager

Ensure that arrangements are in place to enable compliance with the requirements of this procedure

##### 4.2 Site HSE Representative

- I. Ensure that that this Procedure is audited at appropriate intervals
- II. Ensure that a PTW System is in place
- III. Ensure that Confined space Resister is prepared and maintained

#### 5.0 Process

##### 5.1 Alternative Methods

The decision to enter a confined space must be a last resort after having considered work practices where entry would not be required i.e. could the confined space itself be modified so that entry is not necessary; could the work done from outside (e.g. inspection, sampling and cleaning operations can often be done from outside the space



using appropriate equipment and tools; remote cameras can be used for internal inspection of vessels)

## 5.2 Confined Space Register

A written inventory of all confined spaces must be established and maintained for the site. A register of all staff and contractors who are trained to perform work in confined spaces must also be established and maintained.

## 5.3 Training

- I. Everyone involved with preparation of confined spaces for entry; those required to enter a confined space, Watchers and those that may have to enter in the event of an emergency must be given appropriate training.
- II. The person responsible for the completion of a confined space entry permit and / or the Authorized Person must be suitably trained and competent within the permit system, confined space entry requirements and the hazards associated with the work
- III. Training must provide details of the risk assessment and will include as a minimum:
  - i. Confined space entry permits
  - ii. Use of barriers to prevent unauthorized entry
  - iii. Emergency entry and exit procedures
  - iv. Use of respiratory equipment.
  - v. Use of Safety Equipment
  - vi. Communication, including marking / identification of confined spaces
  - vii. Rescue drills
  - viii. Fire protection

## 5.4 Risk Assessment

If entry to a confined space is unavoidable a safe system of work and adequate emergency arrangements must be in place before the work starts. The first step will be to perform a suitable and sufficient Risk Assessment in order to identify any hazards, assess the risk and determine precautions.

The following must be taken into consideration:

- a. The task being performed
- b. The working environment
- c. Working material and tools
- d. The suitability of those carrying out the task
- e. Arrangements for emergency rescue

## 5.5 Hazards to be Considered

- 5.5.1 If the atmosphere in the confined space contains toxic, flammable/explosive substances, carbon monoxide gas, corrosive substances and/or low/ high oxygen levels, the confined space must be emptied and flushed or purged. Fresh air (normal air in sufficient quantity to make the atmosphere safe) must be provided. If this cannot be achieved, or if there is a risk that an inappropriate atmosphere could evolve during the work, self contained breathing apparatus or air hoods must be used along with other protective measures such as ensuring that ignition sources or materials that may



inadvertently cause ignition are not taken into the confined space or the vicinity of an opening to the confined space

**Note: respirators must not be used if there is a risk of oxygen deficiency.**

- 5.5.2 When providing fresh air, it must be ensured that the fresh air intake is not contaminated by smoke, exhaust fumes from generator sets, etc. and that the intake is protected from interference. Open vents must be prevented from being closed or obstructed and air blowers/extractors must be safeguarded against disconnection. Forced ventilation such as air blowers must be fitted with an alarm that will activate in the event of a breakdown of the equipment or alternatively the equipment doubled up or a person on standby close to the equipment. In the event of hearing the failure alarm or being alerted by the person on standby, the confined space must be immediately evacuated.
- 5.5.3 Under no circumstances must oxygen be used to provide breathable air or to sweeten the atmosphere. An oxygen-enriched atmosphere presents a serious risk of fire and explosion and can cause normally stable materials to become highly combustible e.g. grease can become liable to spontaneous combustion when oxygen-enriched.
- 5.5.4 If welding or burning must be conducted in the confined space consideration must be given to the fact that the process could seriously reduce the breathable air and introduce toxins.
- 5.5.5 Flammable substances and substances liable to give off gases, vapors or fumes including substances being used in the confined space e.g. paints, resinous compounds etc, must be continuously monitored to ensure that the OEL and LFL are not exceeded.
- 5.5.6 Gas/oxygen cylinders must not be taken into a confined space. If gas e.g. acetylene/oxygen is required for welding or burning, the gas must be conveyed by a hoses of continuous length with the cylinders on the outside of the confined space. When not in use the gas/oxygen supply must be turned off at the nozzle/torch and cylinders and the hoses disconnected from the cylinders or completely removed from the confined space after each shift.
- 5.5.7 Consideration must also be given to the tools, plant and equipment being taken into the confined space e.g., if a flammable atmosphere, all electrical equipment/appliances must be explosive proof or intrinsically safe, tools will need to be non-metallic and all other sources of ignition prohibited. **Smoking is prohibited in all confined spaces**
- 5.5.8 Consideration must also be given to noise that may be generated from the work inside the confined space and any work taking place on external surfaces of the confined space or adjoining plant/apparatus. Noise in a confined space tends to reverberate and intensify. Therefore noise that sounds to be at an acceptable level outside could be unacceptable inside. When considering what action to take with respect to protecting persons inside a confined space from a noise source, it must be appreciated that ear protection may make it difficult for them to communicate with persons on standby duty on the outside.





## 5.6 Confined Space Entry

5.6.1 Only Competent Persons will enter confined spaces. An Entry Log (or equivalent) must be used to identify the persons inside the confined space at any time

5.6.2 Entry into a confined space may only be carried out under a permit to work. Prior to a PTW being issued the following information must be taken into account:

- i. A suitable and sufficient risk assessment must have been undertaken. Any requirements for improvement must be carried out before the risk assessment and method statement are accepted.
- ii. The confined space must be isolated from the system. The physical opening of pipes and ducts, leaving an air gap between the supply of materials and the confined space is the preferred method but it is recognized that this is not always practical. Blanks may be fitted or suitable valve locked shut
- iii. Tests must be carried out to determine if the confined space is oxygen deficient and/or contains flammable substances, toxic agents, carbon monoxide and/or harmful physical agents. Any sludge or deposits that might be disturbed by personnel in the confined space must be stirred up before the tests are carried out. In the event that sources of possible supply could not be opened to the atmosphere, then continuous monitoring is necessary.

5.6.3 A suitably trained person (Watcher) must be on standby outside the confined space entry point to ensure that in the event of an accident inside the confined space, this person can raise the alarm. Communication with the persons working in the confined space must be established and monitored by the person on watch duty

5.6.4 The Watcher must:

- i. Be able to account for everyone in the confined space at any time
- ii. Not enter the confined space
- iii. Not be involved at any other work activity whilst on watch

5.6.5 Where appropriate, persons entering a confined space must wear approved fall protection equipment. A lifeline must be securely attached to the outside of the confined space. When considering the use of lifelines, the complexity of the confined space needs to be taken into account to ensure that the lifeline will be of assistance in an emergency and not present a hazard. If entanglement is an issue the line should still be lowered into the space complete with securing hook – ready for use

5.6.6 The watcher or rescue personnel with breathing apparatus must be available at all times.

5.6.7 If a hazard that was not taken into account in the original risk assessment emerges or if conditions within the confined space change, the person in charge of the work in the confined space must withdraw all personnel and report the matter to the BL Site Representative.



### 5.7 Closing a Confined Space

Prior to closing a confined space the person in charge of the work must ensure that all personnel, tools and equipment are removed from the confined space. All members of the confined space working party must be accounted for and a physical inspection carried out.



## Procedure No.: 2.4

### ELECTRICAL SAFETY

#### 1.0 Purpose

The purpose of this standard is to define a set of mandatory requirements to ensure safety of personnel who work on or work with electrical equipment.

#### 2.0 Scope

This standard applies to all Balmer Lawrie Sites.

Strict adherence to the requirements of this Standard is mandatory.

#### 3.0 Definitions

- a. **A competent person:** is a person who possesses sufficient technical knowledge, experience and skills, through qualification or training i.e. he is an electrical engineer (Degree or diploma holder) with valid supervisory competency certificate issued by the State Government under Indian Electricity (IE) Rules. The competent person must be experienced in working on a specific electrical system or equipment and must be approved by the unit head to supervise the electrical jobs. He may be a company employee or a supervisor of a licensed electrical contractor possessing the supervisory competency certificate. In the event of any State specifically not issuing such a certificate, a similar certification from alternate States may be obtained, as certification is considered necessary.
- b. **“Voltage”** means the difference of electric potential measured in volts, between any two conductors or between any part of either conductor and the earth as measured by a suitable voltmeter and is said to be:
  - i. **“Extra Low”:** A potential normally not exceeding 50 volts A.C., or 120 volts D.C. between conductors or between a conductor and earth.
  - ii. **“Low”** where the voltage does not exceed 250 volts under normal conditions subject, however, to the percentage variation allowed under IE rules.
  - iii. **“Medium”** where the voltage does not exceed 650 volts under normal conditions subject, however, to the percentage variation allowed under IE rules
  - iv. **“High”** where the voltage does not exceed 33,000 volts under normal conditions subject, however, to the percentage variation allowed IE rules.
  - v. **“Extra High”** where the voltage exceeds 33,000 volts under normal conditions subject, however, to the percentage variation allowed under IE rule.

#### 4.0 Regulatory compliance

Unit shall receive, maintain and review, whenever due for renewal, all statutory approvals like approval for connected load, electrical installation drawings and installation, NOC from State Electricity Board and electrical inspector for DG Sets as and when any change is made. Regular annual electrical inspection report by electrical inspectors if carried out must be available with the unit. All electrical equipment and appliances shall conform to applicable BIS standards / IE rules.



### 5.0 Electrical equipment - inventorisatio, checking and testing

The unit shall establish and maintain a department wise combined inventory and testing schedule for all fixed electrical installations and portable electrical equipment / tools. All requirements stipulated in the testing schedule shall be rigorously followed. A formal visual inspection prior to undertaking a job shall be carried out by all personnel working in electrical systems / equipment.

Units shall maintain an upto date single line diagram for all electrical distribution systems. Electronic Equipment/Instrumentation items are also required to be handled by qualified and trained personnel. These persons should be trained on safety aspects.

### 6.0 Training and competence

The electrical technicians shall be trained to carry out formal visual inspection of each type of electrical equipment by the competent person(s). All personnel working on / with electrical equipment shall be retrained once every year or whenever there is a major change introduced in the electrical systems / equipment at the unit, whichever is earlier. The unit will document these training interventions by way of a comprehensive and specific record.

## 7.0 EARTHING

7.1 Protection by providing earth conductors for all electrical apparatus and appliances is the **PRIMARY** requirement. This shall be provided for all existing and new installations as stipulated below:

- i. All three-phase, medium and high voltage (>250 volts) equipment, all low voltage (<250 volts) movable equipment, portable electrical tools & appliances (except portable hand lamps of 50 volts and below) including their frames and metallic parts, and all plug sockets (low and medium voltage) shall be earthed by two separate and distinct connections with earth (double earthing).
- ii. All two-phase (also referred to as "single phase"), low voltage (<250 volts) equipment and their frames, including equipment considered generally inaccessible, shall be earthed by using a minimum of one connection with earth through a conductor.
- iii. All plug sockets shall be three-pin type, and the third pin shall be permanently and efficiently earthed. All sockets which are not three-pin type must be phased out, and in the interim, shall be provided with a separate conductor connected to earth.
- iv. The effectiveness of earthing through exposed and extraneous conductive parts for all electrical systems must be verified by measuring their resistance to earth. Resistance of individual earth pit system must be measured and ensured to be < 2 ohms at all times, and records maintained. Resistance of earth grid system shall be maintained at or below 1 ohm.
- v. All earthing conductors shall be checked for connection upto the earth grid once in twelve months and findings recorded.
- vi. The earthing shall be carried out using properly sized conductors and shall be visible for inspection.
- vii. All earthing pits should have free access for maintenance.



- viii. Buildings and structures shall be protected against lightning as per IS 2309 –1989.
- ix. During lightning, everyone working in open areas must be advised to come under shades which are protected by lightning arrestors.

## 7.2 Secondary Protection through Residual Current Circuit Breakers (RCCBs) & Earth Leakage Circuit Breakers (ELCBs):

RCCBs / ELCBs of adequate current rating shall be provided for:

- i. All socket outlets in plants and office buildings including 3 phase socket outlets (e.g., welding socket outlet)
- ii. Movable/portable, electrical/electro-mechanical equipment e.g. welding machines, movable plant & equipment etc.
- iii. Air circulators and temporary construction power and lighting power distribution board.

## 7.3 Testing the RCCB: RCCB should be tested once in six month

Failed RCCBs shall be replaced promptly. In the event the RCCB cannot be replaced immediately, the said connection should be isolated immediately & made inoperative. Similarly, in the event of the RCCB's failing at the time of periodic audits, root cause would need to be ascertained as the period between failure & detection of failure of RCCB is a risky proposition & should clearly deal with any emergent environmental reasons for premature failures.

## 8.0 Working on or in the vicinity of live conductors

The risk associated with working on live conductors is extremely high. As a rule, no work shall be done on live conductors.

Only in extremely rare and unavoidable circumstances may 'live-working' be justified, these being limited to situations where the risk resulting from electrical isolation is greater than the risk from working on the live conductor (e.g. where the isolation would result in the shutdown of a critical safety system(s)). Such situations should be covered by PTW to be authorized by the Maintenance Head only. For trouble shooting on individual circuits, it may be necessary from time to time to work on control circuits which are "live".

PCC/MCC panels/equipment panels where control circuit is 240V to identify such locations & draw up a comprehensive program for phasing out such circuits in favour of 110V control circuits wherein the winding of the transformer is center tapped and earthed. Such control supplies shall be protected by an ELCB of 30 mA sensitivity.

The decision to work on or near any live conductor must not be made on the basis of business exigency or on economic grounds.

## 9.0 Modifications to Electrical Systems or Equipment:

- I. In general, electrical systems or equipment shall not be tampered with (including PCCs / MCCs / transformers etc.) and no unauthorised connections shall be permitted.



- II. No modifications shall be carried out on fixed electrical installations or portable electrical tools without a “modification note” prepared and authorised both by a competent person and the maintenance head.
- III. Modification note, when used, shall clearly identify the potential risks arising from the proposed modification and the actions to be implemented to mitigate all identified risks.
- IV. A separate modification note shall be prepared and authorised for each of the proposed modifications for equipment or a group of equipment.
- V. Before energisation of any new panel or after undertaking any major modifications to the electrical switchgear, it is being mandated that pre-commissioning checks be completed & formal records maintained.
- VI. It is recommended that for any major panel modification at site, the jobs should be done by the original manufacturer. Where it is logistically not possible for the panel to be modified by the original manufacturer, it should be carried out by approved agencies. In all such cases, the following procedure will apply:
- VII. Specific drawing approval by competent person (with specialist consultation, wherever necessary) before undertaking the modification
- VIII. Carry out formal inspection of the modified panel at the works of the agency undertaking the modifications, prior to dispatch of the panel to site.
- IX. A relay coordination study would need to be carried & records maintained by all units
- X. All electrical near misses / flashovers / burns to be reported.

## 10.0 SAFE SYSTEMS OF WORK

- I. A permit to work system, work method statement and a formal authorisation to start/undertake/finish work (e.g. Permit/Licence to Work) must be obtained from a “Competent Person” before any work is undertaken on the following types of electrical equipment:
  - a. Live Conductors excluding testing on equipment panel control circuit
  - b. Main incomer switches and/or switchboards
  - c. Equipment having two or more sources of supply
  - d. Cables and other equipment on the supply side of a main incomer switch
  - e. Generating sets started by manual initiation from a remote location, or automatically on receipt of a remote signal
  - f. High-capacity rated uninterruptible power supply system
- II. Description of work in PTW should be specific & clear. It is proposed to introduce PPE by way of protective suits for any work in panel / MCC rooms.
- III. Electrician and Electrical Officers shall use insulated hand gloves and insulated safety shoes.
- IV. Use safety harness for working at a height of 6 Feet or above.
- V. Insulated mats shall be placed in front and rear of main switchboard or any other control switchboard of medium voltage and above.
- VI. Standard first aid boxes containing materials as prescribed by St. John Ambulance or Indian Red Cross should be provided in easily accessible locations and shall be periodically inspected to ensure that they are ‘fit and ready for use’ at all times of need.



- VII. All temporary cables should be removed as soon as the work is over.
- VIII. All cables for project construction power should be laid only overhead with robust supports and not on the ground.
- IX. Rotary moving parts of all electrical equipment shall have guards to adequately cover all nip points.
- X. Use multimeters (or series test lamps with fuse and two different coloured wires) with short metallic lead for checking voltage and inspect the wires before every use.
- XI. All measuring / test equipment like multimeters, tong testers etc. should be checked periodically and log maintained. All worn out parts like test leads and clamps should be replaced by genuine spares only.
- XII. Ladders, when used, shall be insulated from earth.
- XIII. "Danger Boards" should be permanently displayed on feeders where work is in progress.
- XIV. Fuse pullers should be used while pulling out or replacing fuses, as it is very dangerous to use pliers for this purpose. Fuse pullers should be of the switchgear manufacturer's make e.g. Siemens etc. and are easily available.

### 12.0 Systems for Equipment Isolation

The unit shall define the method of electrical isolation for access to every potentially dangerous moving machinery and / or equipment for the purpose of its operation, servicing and/or maintenance. This shall include either one of the following two alternatives namely a) removal of fuses or b) 'lock out and tag out' system, for secure & effective energy isolation / de-energisation of the system (electrical pneumatic/ hydraulic) until such work has been completed and the normal safeguards e.g. guarding, can be fully restored. Test energisation shall be carried out only by the competent person after ensuring that there is no danger to him or other personnel in the vicinity of the equipment.

### 13.0 Electrical Maintenance:

Unit shall prepare and follow electrical maintenance schedule and carry out maintenance as per site specific maintenance checklist.

Transformer oil break down value shall be checked once in a year.

Protective relays shall be checked and calibrated once in a year.

### 14.0 Access to Electrical Substations, Transformers, Switch Rooms and Similar Areas

- I. Access to electrical substations, transformers, switch rooms and similar areas containing high and low voltage equipment (e.g. main intake and distribution switchgear, motor control centers and similar) must be restricted to a limited number of designated competent persons.
- II. Access to such areas must be physically secured to prevent unauthorised access e.g. doors/gates padlocked, and suitable prominent warning signs and information displayed.
- III. The key components of an electrical system (e.g. busbar systems, switchgear and control gear, transformers, distribution boards and conductors) must all be clearly, legibly and durably marked with information plates and site equipment reference labels.



- IV. The operational state of electrical switchgear and control gear must be clearly shown by indicators, except when the main contacts can clearly be viewed.

### **15.0 Records**

Earth Pit test records.

ELCB test records.

Transformer oil test records.

PTW.

LOTO register.

Relay test records





## Procedure No.: 2.5

### Safe Lifting Operations

#### 1.0 Purpose

This procedure is prepared to ensure effective management on Lifting Operation and Lifting Accessories to minimize risk due to the material handling operation.

#### 2.0 Scope

The procedure is applicable to Balmer Lawrie Facilities to fulfill the general and also the legislative requirement.

#### 3.0 Responsibilities

##### 3.1 Unit Head

- i. Ensures that the procedure is followed during Lifting Operation

##### 3.2 HSE Representative

- i. Ensures that only trained personnel are engaged.
- ii. Conducts awareness programme for the personnel engaged on such jobs
- iii. Monitor and audit implementation of this procedure

##### 3.3 Operational Managers / Maintenance Managers

- i. Responsible for proper deployment of trained personnel.
- ii. Ensure proper lifting accessories are present.

##### 3.4 Competent Person

- i. Responsible for periodic checking of lifting tools and accessories as per legal requirement.

##### 3.5 Employees

Employees' engaged in lifting operations must:

- i. Never put any part of their body under a suspended load
- ii. Never ride a load while it is being lifted
- iii. Be aware of suspended loads, signals of the operators and any lifting equipment supports
- iv. Use lifting equipment as instructed and report any defects

#### 4.0 Description

##### 4.1 Definitions

**Appointed Person:** A person with the training, practical and theoretical knowledge and experience required for the planning, organization and control of lifting operations

**Slinger and Signaler:** Person who fastens the slings with the job and directs the operation of a crane from the point near where loads are attached and detached



**Competent Person:** Person trained, experienced and authorized to carry out a particular function

**Lifting Accessories:** Equipment used to attach loads to machinery for lifting. Includes single items (such as a shackle) or an assembly of items (such as lifting beam and slings), which may be used to secure the load to the piece of lifting equipment. Other examples include: slings, swivel or eye bolts, hooks, clamps

**Lifting Equipment:** Equipment for lifting and lowering loads e.g. cranes, passenger and goods lifts, forklifts, scissor lifts, reach stackers. Also, includes attachments used to anchor, fix or support the equipment (e.g. the runway of an overhead crane)

**Rigging:** Installation of the slings (or other lifting accessories) and fixing the load to the crane

**SWL Safe Working Load:** Sometimes referred to as “Rated Load”

**Planning:** Major rigging operations must be planned and supervised by competent personnel to ensure that the best methods and most suitable equipment and tackle are employed.

**Supply and Care of Rigging:** Management must ensure that:

- i. Proper rigging equipment is available
- ii. Correct load ratings are available for the material and equipment used for rigging
- iii. Rigging material and equipment are maintained in proper working condition

**Rigging Operation:** The Supervisor of the rigging operation is responsible for:

- i. Proper rigging of the load
- ii. Supervision of the rigging crew
- iii. Ensuring correct assembly of rigging material or equipment as required during the operation, such as the correct installation of lifting bolts
- iv. Safety of the rigging crew and other personnel as they are affected by the rigging operation

## 4.2 Process

### 4.2.1 Control of Lifting Equipment

#### Golden Rules LIFTING OPERATIONS

Lifts utilizing cranes, hoists, or other mechanical lifting devices will not commence unless:

- i. an assessment of the lift has been completed and the lift method and equipment has been determined by a competent person;
- ii. operators of powered, lifting devices are trained and certified for that equipment;
- iii. rigging of the load is carried out by a competent person;
- iv. lifting devices and equipment has been certified for use within the last six (6)
- v. months (at a minimum);
- vi. load does not exceed dynamic and/or static capacities of the lifting equipment;
- vii. any safety devices installed on lifting equipment are operational;
- viii. all lifting devices and equipment have been visually examined before each lift by
- ix. a competent person.
- x. Ensure no one standing or working below suspended load.



#### 4.2.2 Identification and SWL

All lifting equipment must be clearly marked with a unique identifier and the safe working load (SWL), where this is not possible, a coding system should be used which allows the user to determine the SWL e.g. colour coding or attaching some form of label.

Where the safe working load depends upon the equipment's configuration, this must be clearly identified for each configuration. Alternatively this information must be retained with the equipment.

Lifting beams must be clearly marked with their weight and SWL and must only be used for the purpose for which they were designed.

The maximum SWL of most lifting equipment is determined from static loads and a safety factor applied to account for dynamic motions of the load and equipment. In order to ensure that the SWL is not exceeded during operation, allowances must be made for wind loading and dynamic forces set up by the normal operational movements of the machine and load.

#### 4.2.3 Register of Lifting Equipment

Each Site must keep a register of all items of lifting equipment, containing the following:

- i. Identification details
- ii. Date when equipment was purchased
- iii. Copy of the Test Certificate (only equipment with current test certificates may be used)
- iv. Date when equipment was first taken into use
- v. Date of each examination, who carried it out and the certificate number
- vi. Date of re-test
- vii. Particulars of each defect found and the steps taken to remedy such defects
- viii. Dates of any heat treatment or normalizing of chains or slings

#### 4.2.4 Custom-made Lifting Devices

Any custom-made lifting device must be:

- i. Designed by a qualified person
- ii. Designed with a safety factor of 5
- iii. Proof tested to 125% of rated capacity
- iv. Marked with the rated capacity
- v. Certified by a competent body
- vi. Inspected every 6 months

#### 4.2.5 Defective and Lost Lifting Equipment

Items of lifting equipment identified as not complying with legislative requirements, or by users having doubts on its safety, must be quarantined and clearly labeled as defective to prevent accidental usage

These items must then be either:

- a. Repaired and, once repaired, re-certified by a Competent Person before being placed back into service, or
- b. Items that are lost are to be recorded as such in the lifting equipment register



#### 4.2.6 Handling and Storage

- i. Wire ropes must never be allowed to lie on the ground for any length of time or on damp or wet surface, rusty steel or near corrosive substances. They must be stored in a clean dry place; wire rope slings must be cleaned after use, inspected and hung on pegs to prevent corrosion and kinking
- ii. Lifting accessories must be stored in conditions that do not lead to damage or deterioration.
- iii. Slings must be hung up to prevent damage
- iv. Chain blocks, turn buckles, chains and similar tackle should be hung up and lightly oiled
- v. All rope must be kept away from flame cutting and electric welding operations
- vi. Avoid contact between any sling and solvents and chemicals.
- vii. Suitable precautions should be taken to prevent any sharp edges of loads coming into contact with slings

#### 4.2.7 Thorough Examinations and Inspections

Any new equipment that has not been used before are accompanied by a test certificate/declaration of conformity, which confirms that the equipment has undergone a thorough examination (not more than 12 months previously) and specifying the SWL, prior to first use.

- i. A thorough examination is to be performed following the repair or replacement of a structural component
- ii. All other lifting Equipment must undergo a thorough examination at least every 12 months
- iii. For passenger lift in Administrative Building, it is ensured that the passenger lift is safe to use and that it receives periodic thorough examinations and inspections, in accordance with local regulations.
- iv. Lifting accessories / attachments must be visually inspected on each occasion before use.

#### 4.2.8 Planning and Control of Lifting Operations

##### **I. Categorization of Lifting Operations Lifting operations are categorized as under:**

- A. Routine – repetitive lifting operations, examples of lifting equipment generally provided for routine lifting operations include:
  - i. Regular shop floor material movement
  - ii. Fork-lift trucks in a warehouse
  - iii. Construction site hoist
  - iv. Mobile elevated work platform (MEWP) used for general maintenance
  - v. A vehicle tail lift



- B. Non-Routine – lifting operations which meet on or more of the following criteria:**
- i. Operation involving more than one item of lifting equipment
  - ii. The load being lifted exceeds 5000kg
  - iii. Load either exceeds 50% of the crane SWL or is =>75% rigging SWL
  - iv. A critical component is being lifted
  - v. Operation with load tilting
  - vi. Lifting people or where there is a potential hazard for people
  - vii. Lifting near to existing buildings or hazardous installations (flammable liquids storages, high-voltage line etc.)
  - viii. Non-routine operation carried out with mobile lifting equipment
  - ix. Operation carried out with temporary lifting equipment
  - x. Use of equipment not specifically designed for lifting (backhoe excavator)
  - xi. Lift of load without any defined hooking points
  - xii. Operation where operator cannot see the load
  - xiii. Operation needing assistants to guide the load during the load setting

## II. Risk Assessment and Lifting Plans

### A. Risk Assessments

- i. A risk assessment must be prepared for all lifting operations.
- ii. For routine lifting operations an initial risk assessment and lifting plan is required but need not be repeated i.e. generic risk assessments and lifting plans may be used. However, they must be subject to regular documented reviews (at least annually) to ensure that they are still valid.
- iii. For all non-routine lifting operations a task specific risk assessment and lifting plan / method statement must be prepared for every operation

### B. Lifting Plans

Every lifting operation is planned and controlled by the concerned supervisor who ensures that safe procedures are undertaken. Factors to be considered when planning lifting operation include the following:

- a. Identification of lifting operations to be performed and load characteristics – Determine the load characteristics e.g. weight, centre of gravity, stability, and physical size. Making ample allowances for unknown factors, and determine the available capacity of the equipment being used. In cases where the assessment of load weight is difficult, safe load indicators or weighing devices must be fitted. It is equally important to rig the load so that it is stable. Unless the centre of gravity of the load is below the hook, the load will shift.
  - i. While planning for lifting a load the path of the lift must be considered
  - ii. Lifting equipment must be positioned to ensure that it is installed to reduce as low as is reasonably practicable the risk of the equipment or load striking a person or from the load drifting or falling freely, or being released unintentionally, and that it is otherwise safe
  - iii. Determine the means of communication e.g. line of sight signaler to crane driver or whistles. Unless voice communication equipment (telephone,



- radio or equivalent) is utilized, signals must be discernible or audible at all times. No response must be made unless signals are clearly understood
- iv. Ensure that the signaler is readily identifiable by and visible to the crane operator
- b. Identification and positioning of equipment to be used
    - i. Determine lifting equipment position i.e. where it is to be sited to make the lift
    - ii. Determine suitability of ground to ensure equipment stability i.e. is the ground sufficiently competent to support the predicted ground loading imposed by the lifting equipment and the load
    - iii. Determine access and egress route and any restrictions i.e. the route to the site if necessary as well as the route from the site entrance gate to the identified lifting equipment operating position

#### 4.2.9 General Safety

##### I. Personnel Safety

The safety of personnel involved in lifting operations largely depends upon care and common sense. The following practices must be followed:

##### A. Never

- i. Exceed the SWL of the equipment being used
- ii. Allow any person to be part of the load by riding on equipment being lifted
- iii. Allow a load to be carried over the heads of any personnel
- iv. Work under a suspended load unless the load has been adequately supported from the floor and the supervisor in charge of the operation has approved all conditions
- v. Leave a load suspended in the air when the hoist or crane is unattended
- vi. Put any part of the body under a suspended load

##### B. Always

- i. Examine all hardware, equipment, tackle and slings before using it and destroy defective components
- ii. Determine the load weight before rigging it
- iii. Make sure that all personnel stand clear while loads are being lifted and lowered or while the slings are being drawn from beneath the load. The hooks may catch under the load and suddenly fly free
- iv. Be aware of suspended loads, signals of the operators and any lifting equipment supports

##### II. Lifting Equipment Operators

- i. Operators must not engage in any practice, which shall divert their attention during lifting operations
- ii. Operators must respond to signals from the signaler. When a signaler or a crane follower is not required as part of the crane operation, the operator



is then responsible for the lifts. However, the operator shall obey a stop signal at all times, no matter who gives it.

- iii. The operator must be familiar with the equipment and its proper care. If adjustments or repairs are necessary, the operator must promptly report this to the Appointed Person, and must also notify the next operator.
- iv. The operator prior to a new lift must test all controls. If any controls fail to operate properly, they will be adjusted or repaired before operations are begun.
- v. Where applicable, the manufacturer's balancing bar and lifting procedures must be followed. Any deviation from the manufacturer's procedure must be promptly reported to the Appointed Person

#### **4.2.10 Hire of Lifting Equipment and Services**

All mobile cranes and lifting equipment brought onto Site must have valid test certificates to demonstrate they have been inspected before being allowed to operate on site.

If lifting equipment or services are to be hired / purchased, responsibilities for supply of equipment, personnel and documentation must be agreed in the contract.

### **5.0 Records**

1. Records of testing of Lifting Tools and Accessories
2. Training Records.



## **Procedure No.: 2.6**

### **Excavation Work**

#### **1.0 Purpose & Scope**

To ensure that excavation work is controlled and managed safely.

#### **2.0 Definitions**

**Competent Person** A person trained, experienced and duly authorized to carry out a particular function.

Excavation in earth including trenches bore holes and cofferdams

#### **3.0 Responsibility**

##### **3.1 Site Manager/Manager**

Ensure that arrangements are in place necessary to ensure:

- i. Pre-Planning of excavation works
- ii. Obtaining records before the excavation work begins

##### **3.2 Supervisors/Engineer**

Before work commences, Supervisors must ensure that:

- i. Any necessary surveys have been performed
- ii. Risks assessments have been prepared
- iii. Authorization from a Competent Person is obtained
- iv. A Permit to Work has been obtained

#### **4.0 Process/Description**

##### **4.1 Preparations for Excavation Work**

Prior to commencement of any excavation works the following must be done:

###### **I. Survey**

A survey must be undertaken to find out if there are any underground services in the area. The survey will include checking existing drawings, if doubt remains, hand digging pilot holes.

###### **II. Risk Assessment**

A risk assessment must be conducted. The assessment must take into account the likelihood of underground services (electrical cables, gas/water pipes etc.), hazardous substances, depth of the excavation, the possibility of water ingress, existence or previous excavations/foundations etc.

###### **III. Permit to Work (Excavation)**

a. For excavation involving the following risks, a Permit to Work is required:

- i. Excavations within 5 meters of underground services
- ii. Excavations deeper than 3 meters
- iii. Excavations that may be deficient in oxygen or containing hazardous substances
- iv. Other excavations of high risk, as determined by the Site HSE Representative and defined by the specific risk assessment





- b. Permits to Work must include the following, as a minimum:
- i. Excavation location,
  - ii. Nature and the time of works
  - iii. The people involved
  - iv. The risk assessment
  - v. Required inspections (before, during or at the end of works)
  - vi. Emergency contacts

#### IV. Authorization

A Competent Person must review all risk assessments, method statements and associated documentation, prepared for entry either by BL or their contractors, ensuring that all the requirements of this document and any local requirements have been met, prior to authorizing commencement of work in excavations.

## 4.2 Work in and Around Excavations

### 4.2.1 Collapse Prevention

The sides of all excavations must be prevented from collapse by one of the methods listed below:

- i. Battering - sloping the sides to an angle not steeper than 1.5 to 1, i.e., for every 300mm of depth, the excavation must be tapered back 450mm.
- ii. Benching – excavating one or a series of horizontal levels or steps (depending on the depth of the excavation) in the sides and ends of the excavation
- iii. Shoring - supporting the sides and ends of the excavation using proprietary trench supports, shuttering or piling.
- iv. A Competent Engineer must prepare designs for all excavations deeper than 3 meters. The company undertaking the excavation must produce stability calculations indicating the safety factors to be taken i.e. slope angles, shoring etc. for review and acceptance by an BL Competent Person, before the work can commence.

### 4.2.2 Access and Egress (in and around the excavation)

- a. All excavations must be provided with safe access and egress located within 7 meters of all workers. Access and egress may be provided in the form of ladders, ramps or steps etc.

Note: Ladders must be secured and must extend at least 1 meter above the top of the excavation.

- b. Bridges / crossing points must be erected over excavations where persons need to cross and must have guardrails strong enough to withstand approximately 100 kg horizontally.

### 4.2.3 Barriers

All excavations more than 1.2 meters deep must have rigid barriers and toe-boards around the outside to prevent persons and material from falling into the excavation. Barriers must be strong enough to withstand approximately 100 kg horizontally.



Excavations less than 1.2 meters in depth need not have a rigid barrier as long as they are highlighted with warning tape at a distance of at least 1.5 meters from all edges of the excavation.

#### 4.2.4 Protection from Water Accumulation Hazards

Among the additional hazards stemming from water in an excavation are undermining the sides and making it more difficult to get out of the excavation. Employees are prohibited from working without adequate protection in excavations where water has accumulated or is accumulating. If water removal equipment is used to control or prevent water accumulation, a competent person shall monitor the equipment and its operation to ensure proper use. Diversion ditches, dikes, or other suitable means shall also be used to prevent surface water from entering an excavation and to provide adequate drainage of the adjacent area. A competent person shall inspect excavations subject to runoffs from heavy rains.

#### 4.2.5 Inspections

- I. Work must not be carried out in an excavation where any supports or battering and / or the excavation are more than 1.2 meters deep unless:
 

The excavation and any work equipment and materials which affect its safety, have been inspected by a Competent Person:

  - a. At the start of the shift in which the work is to be carried out
  - b. After any event likely to have affected the strength or stability of the excavation, and
  - c. After any material unintentionally falls or is dislodged; and
- II. Inspection reports must contain the following:
  - i. Organization and person on whose behalf the inspection was carried out
  - ii. Location of the place of work inspected.
  - iii. Description of the place of work or part of that place inspected (including any work equipment and materials)
  - iv. Date and time of the inspection
  - v. Details of any matter identified that could give rise to a risk to the health or safety of any person
  - vi. Details of any corrective action taken and any further action considered necessary.
  - vii. Name and position of the person making the report

#### 4.2.6 General Precautions around Excavations

- I. As a minimum requirement, material including spoil and backfill must not be stored within 1 meter of the edge of excavations. The actual distance necessary related to the particular excavation and must be calculated at site considering the depth of the excavation and the weight of the material.
- II. Vehicles and construction plant must not be allowed to come within 2 meters of an excavation unless working in connection with the excavation.
- III. Vehicle / plant working in connection with the excavation must have a person controlling the vehicles tipping material and their movement to prevent them from going so close to the edge that it shall cause damage to the excavation.



- IV. Persons are not allowed to work or stand under loads being loaded or unloaded.
- V. All persons in excavations must wear safety helmets, safety boots and any other personal protective equipment as defined by the risk assessment.
- VI. Persons entering bore holes or similar restricted excavations must do so in a safety cage, the end of which must be attached to a winch or similar hoisting appliance at the top of the borehole with a Watcher on emergency standby

### **4.3 Training**

All persons required to work in an excavation deeper than 1.2 meters must be given appropriate training. The level of training will depend on the complexity of the excavation but basic training must take account of the following:

- i. Induction training for new persons
- ii. Details of the risk assessment
- iii. The dangers of working in excavations
- iv. The safety arrangements
- v. Daily inspections
- vi. Who to contact in the event of emergency
- vii. Fire protection

### **5.0 Records**

- **Excavation Work Permit.**



## **Procedure No.: 2.7**

### **Personal Protective Equipment (PPE)**

#### **1.0 Purpose**

To ensure that personal protective equipment is controlled, issued and maintained in good condition to provide protection to personnel

#### **2.0 Scope**

This procedure is applicable to all Balmer Lawrie sites for use and control of PPE.

#### **3.0 Responsibility**

##### **3.1 Site Manager**

The Site Manager will ensure that:

- i. By personal example, PPE is correctly used at all times and when necessary, instigate disciplinary action for deliberate contravention or miss-use of such equipment
- ii. When a risk assessment has indicated that PPE is required, suitable PPE is provided and is always easily available to all employees that need to use it
- iii. Adequate information and training is provided to, and understood by, all employees who need to use, maintain or select PPE

##### **3.2 Site HSE Representative**

The Site HSE Representative will:

- i. Provide guidance on selection, use and maintenance of PPE
- ii. Provide training in use of PPE
- iii. Monitor implementation of this procedure and investigate any reasons why it is not
- iv. Records are kept of all training, including details of the names of the participants, the date of the training, and the subjects covered

##### **3.3 Employees**

Employees will:

- i. Only use PPE in accordance with the instructions provided and for the activities during which they are designed to provide protection
- ii. Attend training sessions and comply with the training, instruction and information provided
- iii. Check the condition of their PPE before each time that they use it
- iv. Clean, maintain and store their PPE in accordance with training and instructions
- v. Report any losses, defects or other problems with PPE to their Supervisor or another responsible person immediately.



## 4.0 Description

### 4.1 Definitions

**Contractors:** Any third party employee executing works on the BL premises or sites under BL supervision

**Personnel:** Any BL personnel of all levels of the hierarchy and any contractors under direct control of BL, and agents representing BL

**PPE:** Personal Protective Equipment. All equipment which is intended to be worn or held by a person at work and which protects them against one or more risks to their health or safety', e.g. safety helmets, gloves, eye protection, high visibility clothing, safety footwear and safety harnesses

**Lanyard:** A line for connecting a full body harness to an anchorage point with an inbuilt device that reduces the impact of a fall when used in fall arrest applications

### 4.2 Process

#### Assessing PPE requirement

Risk assessment is carried out to find out the requirement of PPEs and an effort is being made to prevent workers from coming in contact with the hazards by guarding suitably at source. When it becomes impractical to eliminate the cause of accident by engineering revision, dependence on PPE's is being chosen as the last resort.

Selection of PPE is based on,

- (a) Degree of protection which a particular PPE might afford,
- (b) The ease with which it may be used.

Basic requirement - The Company ensures that:

- i. PPE's are capable of providing adequate protection
- ii. Only EN/IS mark PPE's are procured
- iii. The equipment is light in weight and able to give the maximum comfort to the users
- iv. They do not restrict essential movement of the user
- v. They do not produce any ill effect to skin or parts of the body in contact
- vi. List of people requiring use of PPE is defined.



### Types of PPE to be used:

Protection for:	Hazards	Options
Body	Temperature extremes, adverse weather, chemical or metal splash, spray from pressure leaks or spray guns, impact or penetration, contaminated dust, excessive wear or entanglement of own clothing.	Conventional cotton fabric clothing for all workmen. Cotton clothing with high visibility tape for material handling and HSE personnel.
	Falls from height, where protection against falls cannot be provided by other means	Double hook full body safety harnesses
Breathing	Dust, vapour, gas, oxygen-deficient atmospheres.	Disposable filtering face piece or respirator, half- or full-face respirators, air-fed helmets,
Eyes	Chemical or metal splash, dust, projectiles, gas and vapour, radiation.	Safety spectacles, goggles, face shields, Welding shields
Feet and Legs	Wet, electrostatic build-up, slipping, cuts and punctures, falling objects, metal and chemical splash, abrasion.	Safety boots and shoes with protective toe caps and penetration-resistant. Leather leg guard
Hands and Arms	Abrasion, temperature extremes, cuts and punctures, impact, chemicals, electric shock, skin infection, disease or contamination.	Gloves, gauntlets, armlets.
Head	Impact from falling or flying objects,	A range of helmets. Colour of helmets can be decided appropriately by unit management.

## 4.3 Inspections

### 4.3.1 General Inspection of PPE

PPE users are responsible for inspecting issued PPE before each use and reporting any damage to their Supervisor, who must arrange to replace or repair replacement of PPE, as appropriate, if it is not functioning as required.

### 4.3.2 Inspection of Safety Harnesses and Lanyards

#### I. Inspection Regime

The following minimum inspection regime will be adopted for safety harnesses and lanyards:

- a. User Inspections - each time the equipment is used
- b. 6-monthly Inspection - by Safety Representative

#### II. Identification

All items of fall arrest equipment are indelibly and permanently marked with a unique identification number, so that they can be readily associated with the respective documentation. If marking is not evident, or obscured by dirt, the item of equipment must be withdrawn from service immediately and referred to the safety representative who is responsible for the six-monthly inspection.



### III. Examples of Defects and Damage

Items of fall arrest equipment which have been used to arrest a fall must never be re-used, they must be withdrawn from service immediately quarantined and destroyed after investigation.

The following defects and damage have the potential to result in the degradation and/or weakening of the lanyard:

- i. Cuts of 1 mm or more at the edges of webbing lanyards (e.g. where the lanyard may have been choke-hitched around steelwork)
- ii. Surface abrasion across the face of the webbing and at the webbing loops, particularly if localised
- iii. Abrasion at the edges, particularly if localised
- iv. Damage to stitching (e.g. cuts or abrasion)
- v. A knot in the lanyard, other than those intended by the manufacturer
- vi. Chemical attack which can result in local weakening and softening – often indicated by flaking of the surface. There may also be a change to the colour of the fibers
- vii. Heat or friction damage indicated by fibers with a glazed appearance which may feel harder than surrounding fibers
- viii. UV-degradation which is difficult to identify, particularly visually, but there may be some loss of colour (if dyed) and a powdery surface
- ix. Partially deployed energy absorber (e.g. short pull-out of tear webbing)
- x. Contamination (e.g. with dirt, grit, sand etc) which may result in internal or external abrasion damaged or deformed fittings (e.g. karabiners, screw link connectors, scaffold hooks)

## 4.4 Training

4.4.1 Anyone using PPE must be provided with adequate information and training in the use and care of their PPE.

They are communicated the following:

- i. Why it is needed, when it is to be used, repaired or replaced and its limitations
- ii. Trained and instructed in how to use it properly
- iii. PPE is the last resort after other methods of protection have been considered and so it is important that users wear it all the time they are exposed to the risk

4.4.2 Site induction training must include a section, which ensures that all persons are aware of the requirement to use appropriate PPE and the penalties for failure to use PPE when required.

4.4.3 Records of all training given in the use and maintenance of PPE must be maintained

## 5.0 Records

- **Register for issue and distribution of PPE**
- **Inspection of PPEs compliance**
- **Inspection of PPEs quality**



## Procedure No.: 2.8

### Energy Isolation (Lock out Tag out)

#### 1.0 Purpose

Energy Isolation procedures are followed in order to ensure the safety of employees at the workplace. These procedures mainly aim to prevent the mishaps taking place on account of accidental activation of equipments during installation or checking or maintenance.

#### 2.0 Scope

Scope of this Procedure is limited to Employees or contractors concerned with the operation & maintenance at Balmer Lawrie Facilities.

#### 3.0 Responsibility

Functional Head – Plant and Facility is responsible for maintenance and implementation of this procedure and HSE representative is responsible for compliance of this procedure.

#### 4.0 Description

**4.1.1 Lock Out & Tag Out (LOTO) or lock and tag** is a safety procedure which is used in industry to ensure that dangerous machines are properly shut off and not started up again prior to the completion of maintenance or servicing work. It requires that hazardous power sources be "isolated and rendered inoperative" before any repair procedure is started. "Lock and Tag" works in conjunction with a **lock** usually locking the device or the power source with the lock, and placing **tag** affixed to the locked device indicating that it should not be turned on.

This comes down to

1. Remove from operation an equipment, a machine , an installation (or a part of it)
2. Disconnect the equipment , the machine , the installation from its energy sources (Electrical, pressure, heat, etc)
3. Immobilize (Lock out) the disconnected parts and hang appropriate Tag [Different Tag for Electrical and other source of Energy.
4. Discharge all residual energy from the equipment, the machine or the installation. This is done by the grounding (release of all residual electrical charges), by blowing out pressurized lines, by releasing potential mechanical energy (height, springs etc) as is applicable.
5. Check for the absence of residual energy.





#### 4.1.2 Preparation for Lockout

Employees authorized to perform lockout shall be certain as to which switch, valve, or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, or others) may be involved. Before lockout commences, job authorization should be obtained

#### 4.1.3 Sequence of Lock Out & Tag Out (LOTO) Procedure

1. The Area is to be inspected before initiation of work.
2. Required permission to keep the machine out of operation from Operating Department.
3. Examination of any Dangerous Operation (Height work, Confined Space etc.) that would be required for LOTO.
4. If the equipment is operating, shut it down by the normal stopping procedure (such as: depress stop button, open toggle switch).
5. Operate the switch, valve, or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, and other) is disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating fly wheels, hydraulic systems, and air, gas, steam or water pressure, must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down.
6. Lockout energy isolating devices with an assigned individual lock.
7. After ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.

**CAUTION:** Return operating controls to neutral position after the test.

8. The equipment is now locked out. [Lock should be with one key under the custody of the person responsible for issue of Permit]
9. Appropriate Tag, duly filled in as mentioned earlier is to be hung with name, Permit No. & Key No.

#### 5.0 Restoring Equipment to Service

1. When the job is complete and equipment is ready for testing or normal service, check the equipment area to see that no one is exposed.
2. The Applicant on ensuring as above will apply for restoring the energy
3. When equipment is clear and duly signed Permit copy is returned, remove all locks. The energy isolating devices may be operated to restore energy to equipment.

#### 6.0 Record

The Details of Permits are to be entered in a Registrar with signature of authorized person [for electrical, permit will be issued by statutory qualified person] issuing Isolation Permit.



### 7.0 Training:

The Person authorized for carrying out LOTO must undergo requisite training to make him enable to carry out the job. Refresher Training for Authorised Person to be conducted at least once in every three years. General Awareness Training to be extended to the person performing work with LOTO. Record for the training to be maintained by the concerned agency in addition to H.R. Dept.

### Specimen for Lock out – Tag out





## Procedure No.: 2.9

### Permit to Work System

#### 1.0 Introduction

Permit-to-work (PTW) form an essential part of safe systems of work for various types tasks involving risk to people, property and environment and which are generally concerned with maintenance work, engineering work, project activities, equipment cleaning operations and other high risk non-routine tasks. This document defines the PTW procedure to be followed on identified items of equipment in a specified area and defines the ownership of the item of equipment at any time.

#### 2.0 Purpose

This procedure has been designed to ensure that a safe system of work has been defined for the task so that work may be accomplished in a legal, safe environmentally acceptable and efficient way.

#### 3.0 Scope

This standard applies to all Company sites of BL. It applies to all maintenance, construction, demolition as well as non-routine high risk process activities like vessels cleaning and any non-routine activity in a high risk areas like fuel storage area; corrosive chemical storage area.

The procedure is applicable to all such tasks apart from the following exceptions:

- a) Simple, low hazard, tasks carried out under the direct supervision of the person who has operating control of the asset. Such activities are specifically exempted in writing by the Unit Head after consultation with safety representative / concerned manager and carrying out a risk analysis study.
- b) Maintenance tasks carried out within maintenance workshops/contractor sheds.
- c) Minor adjustments done of packing lines by the operators themselves.
- d) Routine operations which have no specific hazards associated with them and have no effect on plant operations, e.g.
  - instrument chart changing
  - routine sampling
  - oiling and greasing activities
  - cleaning / housekeeping activities in offices and amenities.

However it is essential that the persons carrying out these tasks are adequately trained and fully aware of hazards in their operating area. Untrained persons should never be put on such tasks.



#### 4.0 Definitions

- Permit to Work (PTW):* A form, which sets out, agreed work to be done on identified equipment, or in an identified area, and the precautions to be taken. It is a clear record that all foreseeable hazards have been considered in advance and it provides a formal hand over mechanism of equipment/system between the owning group and another group responsible for executing this work.
- The formats specifying the minimum requirements are attached to this Standard and shall be used with immediate effect to replace and align with existing formats being used by the Units.**
- Issuing Department:* The group which has ownership and/or operating control of the asset to be worked on or area (plant block) to be worked in e.g. Production department for production halls.
- Issuer:* A trained person who is the designated in-charge of the issuing department in the concerned shift and has been authorised in writing to issue PTW e.g. in case of production area it could be the process officer.
- Permit Approval and Authorisation:* A permit is approved and authorised after ensuring that all possible hazards have been identified, safety precautions have been taken and these have been explained to the persons carrying out the job. In case the *issuer* is overall in-charge for getting the job done and will hand over the permit directly to the persons carrying out the job, then he approves and also authorises the permit. However for most engineering jobs (mechanical, civil, electrical, instrument maintenance activities) it may be possible that the *issuer* will not be direct in-charge for carrying out the job i.e. the job is actually carried out by a separate maintenance department and under overall supervision of *maintenance manager/officer*.
- Acceptor:* A person who is the representative of the group responsible for the execution of agreed work and who has been trained to be competent to control the work to be carried out, and authorised in writing. A signature of acceptor is required on the Permit only if 'contract' workmen are carrying out the job.



## 6.0 Procedure

### 6.1 Responsibilities

#### 6.1.1 Unit Head shall...

- i. *nominate managers* (department or functional heads) who have authority to appoint persons who may issue or accept PTW in their areas of responsibility
- ii. define the plant area boundaries within which their teams will issue PTW
- iii. issue a register of any specific tasks exempted from this procedure in their areas of responsibility, after consultation with the Safety representative and concerned managers
- iv. carry out random checks on PTW issued

#### 6.1.2 Nominated Managers (department / functional head) shall...

- i. ensure that persons are appropriately trained as *Issuers* and *Acceptors* of PTW prior to appointment, and maintain up to date lists of such appointed personnel
- ii. carry out random checks on PTW issued on a daily basis and ensure that the PTW system is operated effectively.

#### 6.1.3 The Safety Representative shall...

- i. be responsible for imparting the training on PTW system and upkeep of the training packages. The training packages must be based on this Standard.
- ii. conduct internal system audits on PTW at least once two months and report findings to the management team at site.

#### 6.1.4 Issuer of PTW shall ...

- i. be responsible for determining the nature and extent of the job to be carried out, possible hazards and the necessary precautionary measures to be taken prior to issuing the permit
- ii. ensure that necessary isolations are carried out
- iii. provide *acceptor* with necessary Method Statements / Risk Assessments (where applicable)
- iv. take assistance of *maintenance manager/officer* in carrying out above responsibilities in case of an engineering job
- v. ensure that necessary precautionary measures are taken prior to authorising the permit.
- vi. **For jobs directly under charge of the Issuer, the Issuer of PTW shall ...**
  - a) select competent people for the job
  - b) be responsible for explaining the safe Work Method to the persons carrying out the job provide them with proper tools / PPE
  - c) be overall responsible for the job.

#### 6.1.5 Competent person for certifying isolation shall...

- i. be responsible for checking and certifying isolations as relevant
- ii. be the electrician for electrical isolation
- iii. be the issuer or operator for process / services isolation.



### 6.1.6 *Acceptor (& The Contractor Supervisor) of the PTW shall ...*

- i. assist the *issuer / maintenance officer* in hazard identification and developing Method Statement (if required)
- ii. provide the *issuer / maintenance officer* the names of all persons carrying out the job
- iii. be responsible for explaining fully to his subordinates the nature of the hazards involved in carrying out the task and any precautions necessary to protect others who may be in the area
- iv. ensure that the nature and extent of the work does not differ from that described in the permit
- v. and that all persons under his control understand the precautions that they are required to take

## 6.2 General Rules

- I. Only persons who have been trained and authorised shall issue, authorise or accept PTW
- II. Only work, which is specified on the PTW, shall be undertaken.
- III. Where preparation for a job includes blanking of pipelines for physical isolation, separate PTW shall be issued for the isolations, main task and reinstatement of pipe work or equipment.
- IV. For jobs of long duration, as far as practicable, the PTW shall cover only a particular phase of the task at a time, that can be fully specified and to be completed within the duration mentioned in the Permit.
- V. If work requires isolation across plant boundaries, a separate isolation PTW shall be issued by one plant as evidence that the task can proceed on the interconnected system in the other plant.
- VI. The hand over from *Issuer / Engineering officer (or manager)* to *Acceptor* must include a visit to the job location.
- VII. The period of validity for a PTW in defined areas within a site shall be the estimated time for the completion of the job, but no more than 8 hours or the period during which the Issuer / Engg Officer is present at site. Work beyond this period shall be re-authorised by the respective Reliever(s) after re-assessment of the job location.
- VIII. An *Acceptor* needing to continue with the job into the next shift/period must be asked to contact the *Issuing Plant* in the next shift and ensure the validity is extended provided that no change has taken place in the conditions stipulated in the permit.
- IX. The permit issued on a particular day may be extended, if required, only for the shifts on that particular day. For work extending beyond the day and to continue on the next day(s) a fresh permit shall be issued.
- X. Acceptance of Permit to Work  
In accepting a PTW the *Acceptor* must
  - i) understand the scope of work to be carried out, read the permit and understand the isolations/preparations made
  - ii) visit the Site with *the issuer/engineering officer* if necessary
  - iii) sign the permit and retain the first COPY



- iv) *acceptor* has the responsibility to ensure that all the other people doing the work are familiar with the contents of the Permit to Work, that the specified precautions are observed and that a new Permit to Work is obtained if the nature of the work changes.
- v) *Work Completed*  
The *acceptor* (i.e. the contractor supervisor or own employees on the job) must detail on the Permit to Work and describe to the *issuer* the precise state of the equipment when the task is finished, and confirm the area has been left clean and tidy. He will confirm this by signing the permit.
- vi) *Energisation and Permit Closure*  
The *issuer* shall then arrange for the de-isolation and restoration of energy as required which will be recorded in the permit. Permit shall be closed (both original & the copy)

## 7.0 System Audit

- 7.1 The Site Safety representative shall conduct formal audit of PTW system covering all defined areas at site, at least once in a month, to confirm its appropriateness and full compliance to all provisions of this Standard.
- 7.2 The audit shall be carried out using a checklist developed based on this Standard
- 7.3 Formal audit reports shall be prepared and appropriate corrective actions identified
- 7.4 The Unit Head and Department Head shall personally carry out daily random checks of Work permits

## 8.0 Records

The following documentation / records shall be regularly updated and retained for the times indicated.

### **Records Retention Time Location**

Closed PTW - 3 month

System Audit Reports & Action Reports of last 2 years.





Sample PTW

<b>Balmer Lawrie &amp; Co. Ltd.</b>		
21, Netaji Subhas Road, Kolkata - 700 001		
Permit to work for all Non Routine Jobs, Work at Height, Confined Space, Excavation jobs, Hot work etc.		Permit No. : <b>0200</b>
<b>Validity</b>		Issuing Department :
Date :		Issued To :
Time Start :		Cross Reference :
Time End :		Job Location :
Job Description in Details :		
<b>Hazards Identified (Jointly by Permit Issuer &amp; Permit acceptor)</b>		
Corrosive Chemicals <input type="checkbox"/>	Moving Machine <input type="checkbox"/>	Suspended Load <input type="checkbox"/>
Flammables <input type="checkbox"/>	Open Rotating Parts <input type="checkbox"/>	Biological Hazards <input type="checkbox"/>
Explosives <input type="checkbox"/>	Traffic <input type="checkbox"/>	Fall from Height <input type="checkbox"/>
Hot Materials <input type="checkbox"/>	Confined Space <input type="checkbox"/>	Others <input type="checkbox"/>
Steam <input type="checkbox"/>	Use of ladder <input type="checkbox"/>	
Compressed Gas <input type="checkbox"/>	Use of scaffold <input type="checkbox"/>	
Fumes Dust <input type="checkbox"/>	Roof condition (slippery) <input type="checkbox"/>	
High/Low Pressure <input type="checkbox"/>	Floor Condition (Slip, Trip) <input type="checkbox"/>	
High/Low Temperature <input type="checkbox"/>	Hidden Cables <input type="checkbox"/>	
Live/Dead Electrical <input type="checkbox"/>	Leaky Pipe Lines <input type="checkbox"/>	
Overhead Danger <input type="checkbox"/>	Burried Pipe Lines <input type="checkbox"/>	
Radiation Source <input type="checkbox"/>		
<b>Personal Protective Equipments to be Used</b>		
Helmet <input type="checkbox"/>	Apron <input type="checkbox"/>	Any Other Pls specify <input type="checkbox"/>
Safety Shoe <input type="checkbox"/>	PVC Over All <input type="checkbox"/>	
Gum Boot <input type="checkbox"/>	Ear Plug/Muffs <input type="checkbox"/>	
Hand Gloves (PVC) <input type="checkbox"/>	Dust/Gas Musk <input type="checkbox"/>	
Hand Gloves (Electrical) <input type="checkbox"/>	Breathing Apparatus <input type="checkbox"/>	
Hand Gloves (Others) <input type="checkbox"/>	Full Body Safety Harness <input type="checkbox"/>	
Face Shields <input type="checkbox"/>	Safety Net <input type="checkbox"/>	
	Crawling Boards <input type="checkbox"/>	
Method Statement & Procedure to be attached for Jobs with specific Hazards & Controls :		
<b>Isolation Required : Yes / No</b>		
<b>A) Electrical Isolation : Drive, Panel &amp; Others Pls Specify</b>		
<b>How Isolated-</b>		
a) Fuse removed <input type="checkbox"/>	Any Other Pls Specify- <input type="checkbox"/>	
b) Isolated & Locked <input type="checkbox"/>		
c) Only Put Off & Locked <input type="checkbox"/>		
d) Tested Non Operative <input type="checkbox"/>		
<b>B) Service &amp; Process Isolation - Air, Water, Steam, Fuel, Gas &amp; Other Pls specify</b>		
<b>How Isolated-</b>		
a) Depresurised <input type="checkbox"/>	Any Other Pls Specify- <input type="checkbox"/>	
b) Valve closed & Tagged <input type="checkbox"/>		
c) Line Blaked <input type="checkbox"/>		
d) Line Disconnected <input type="checkbox"/>		
e) Material Drained <input type="checkbox"/>		
f) Flushed <input type="checkbox"/>		
<b>Certified by :</b>	<b>Signature :</b>	





## Balmer Lawrie & Co. Ltd.

21, Netaji Subhas Road, Kolkata - 700 001

### PRECAUTION CHECKLIST - TICK THE APPLIED ONES

Permit No. : **0200**

GENERAL	HOT WORK	HEIGHT WORK	CONFINED SPACE
Jobs Site Checked <input type="checkbox"/>	Combustibles Removed <input type="checkbox"/>	Ladder Checked <input type="checkbox"/>	Service/Process Isolated <input type="checkbox"/>
Area Cordoned Off <input type="checkbox"/>	Sparks Isolated <input type="checkbox"/>	Scaffold Checked <input type="checkbox"/>	Electrical Isolated <input type="checkbox"/>
Caution Board Displayed <input type="checkbox"/>	Explosion Test Done <input type="checkbox"/>	Safety Harness Provided <input type="checkbox"/>	Vessel Cleaned <input type="checkbox"/>
ELCB for Portable Tools <input type="checkbox"/>	Fire Fighting Equipments Provided <input type="checkbox"/>	Safety Net Installed <input type="checkbox"/>	Air Ventillation Adequate <input type="checkbox"/>
PPE Provided <input type="checkbox"/>	Welding Sets Earthed <input type="checkbox"/>	Life Line Installed <input type="checkbox"/>	Forced Draft Provided <input type="checkbox"/>
Lifting Tools Certified <input type="checkbox"/>	Welding Cables in Good Condition <input type="checkbox"/>	Access Route Cleared <input type="checkbox"/>	Oxygen Level % Checked <input type="checkbox"/>
Supervision Provided <input type="checkbox"/>	Adequate Ventillation for Fumes <input type="checkbox"/>	Barricad Below <input type="checkbox"/>	Air Checked with any Toxic Gas <input type="checkbox"/>
Other <input type="checkbox"/>	Others <input type="checkbox"/>	Medical Test for Workman <input type="checkbox"/>	Any Explosive Atmosphere <input type="checkbox"/>
		Supervision Provided <input type="checkbox"/>	24 V Hand Lamp Provided <input type="checkbox"/>
		Other <input type="checkbox"/>	Men inside with Safety Harness <input type="checkbox"/>
			Men inside with Life Line <input type="checkbox"/>
			Rescue Team Outside <input type="checkbox"/>
			Other <input type="checkbox"/>

Supervisor Name - For Contractor

Supervisor Name - For Balmer Lawrie

Name of Permit Issuer-

Permit Approver (Det. Head) -

Signature

Date & Time

Signature

Date & Time

Permit Acceptor : I have been explained the content of this & have provided necessary PPE. I am responsible for supervising the job.  
Persons whose names are recorded on the permit shall be working under me.

Name of Supervisor

Signature

Date & Time

Name of the Contractor

#### ELECTRICAL ENERGISATION

- a) Earthing Checked
- b) System put back in place

Electrical energisation approved by-

Signature

#### SERVICE / PROCESS ENERGISATION

- a) System put back in place & ready for energisation-

Service / Process energisation approved by-

Signature

Date & Time

#### PERMIT CLOSED

Permit Issuer

Signature

Date & Time

Permit Approver (Dept. Head) -

Signature

Date & Time

#### NAME OF THE EMPLOYEES ON THE JOB

1	7	13
2	8	14
3	9	15
4	10	16
5	11	17
6	12	18

#### PERMIT HANDOVER & EXTENSION

- a) Permit Valid up to Date (Date & Time) :      Name of the Issuer      Signature      Time & Date
- b) Permit Valid up to Date (Date & Time) :      Name of the Issuer      Signature      Time & Date



## **Procedure No.: 2.10**

### **Hot Works**

#### **1.0 Purpose**

To ensure adequate protection to people and plant during hot work operations

#### **2.0 Scope**

All business locations under BL control

#### **3.0 Definitions**

Hot Works Grinding, welding, flame cutting or other fire or spark-producing operation

#### **4.0 Responsibilities**

##### **4.1 Site Manager**

The Site Manager must:

- i. Ensure that this procedure is implemented and adequate controls are in place
- ii. Ensure that cutters, welders and their Supervisors are suitably trained in the safe operation of their equipment and the safe use of the process
- iii. Advise all Contractors about flammable materials and/or hazardous conditions of which they may not be aware

##### **4.2 Site HSE Representative**

The Site HSE Representative will monitor implementation of this procedure

##### **4.3 Supervisors**

Supervisors are responsible for:

- i. The safe handling of the cutting or welding equipment and the safe use of the hot work processes
- ii. Determining the combustible materials and hazardous areas present or likely to be present in the work location
- iii. Protecting combustibles from ignition by moving the work, moving or adequately protecting the combustibles, or seeing that cutting and welding are so scheduled that operations which might expose combustibles to ignition are not started during cutting or welding
- iv. Gaining approval for the cutting or welding operations from the designated management representative
- v. Ensuring that the cutter or welder obtains proper verification that conditions are safe before proceeding
- vi. Ensuring that fire protection and extinguishing equipment are properly located
- vii. Ensuring contractors are made aware of existing or potential flammables combustibles in the areas in which they work
- viii. Ensure that this procedure is implemented and adequate controls are carried out.





## 5.0 Process

### 5.1 Key Principles

All sites must implement fire prevention and protection methods specific to hot work operations as applicable such as:

- a) Eliminating/minimizing fire hazards in the vicinity of the hot work process
- b) Providing a fire watch when hazards cannot be adequately minimized
- c) Completing and approving work permits and associated requirements prior to beginning the cutting or welding process
- d) Prohibiting hot work in designated, high-hazards areas
- e) Cutting and welding equipment care and use
- f) Training affected personnel

### 5.2 General Requirements

- I. Hot work must only be performed in areas proven by risk assessment to have fire hazards adequately controlled.
- II. All combustibles must be relocated, where practicable, a minimum of 6m from the work site. Where relocation is impractical, combustibles must be protected with flame proof covers, guards or curtains.
- III. Ducts and conveyor systems that could carry sparks to distant combustibles must be suitably protected or shut down.
- IV. Where hot work is done near combustible walls, partitions, ceilings or roofs, fire resistant shields or guards must be provided to prevent ignition.
- V. If hot work is to be done on non-combustible walls, partitions, ceilings or roofs, precautions will be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work must be provided.
- VI. Hot work must not be attempted on a metal partition, wall, ceiling or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.
- VII. Cutting or welding on pipes or other metals in contact with combustible walls, partitions, ceilings or roofs must not be undertaken if the work is close enough to cause ignition by conduction.
- VIII. Floors must be swept clean of combustible materials for a radius of a minimum of 6m. Combustible floors must be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment will be protected from possible shock e.g. insulated blankets.

### 5.3 Welding

- I. No welding, cutting, or other hot work must be performed on used drums, barrels, tanks or other containers that were used for holding flammable/ combustible materials until they have been cleaned. Cleaning must remove all flammable materials present, as well as any substances such as grease, tar, acids, or other materials that might produce flammable or toxic vapours when subjected to heat.



- Any pipelines or connections to the drum or vessel must be disconnected or blanked.
- II. All hollow spaces, cavities or containers will be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.
  - III. Welding cables and oxy-acetylene lines must be clear of passageways, stairways, and ladders when practical.
  - IV. All hot work equipment must be inspected before each use.
  - V. Welding cables with nicks or small cuts in the insulation must be repaired. Cuts or breaks in the insulation jacket that penetrate to the conductor must be removed from service and repaired or replaced.
  - VI. Welding cables and splices within 3m of an electrode must not be used.
  - VII. Portable welding machines must be thoroughly inspected and documented annually.
  - VIII. Welding machine terminals must be effectively guarded by the use of a dead front plate or guard that will prevent inadvertent contact with energized terminals.
  - IX. When arc welding is suspended and equipment is left unattended, the equipment must be effectively shut down. Cutting torches will have the cylinder valves shut and lines bled of pressure. Torches must be removed from confined spaces if left unattended for any length of time such as over lunch or overnight.
  - X. Oxy-acetylene torches must be equipped with flashback arrestors

## 5.4 Handling and Use of Gas Cylinders

### 5.4.1 Care and Use of Oxygen Cylinders

- i. Keep oxygen fittings and lines away from oil or grease products
- ii. Oil or grease may ignite violently in the presence of oxygen under pressure
- iii. Only use equipment rated and marked for oxygen use only
- iv. Never connect an oxygen regulator to a cylinder containing combustible gas
- v. Use flashback arrestor of oxygen cylinder

### 5.4.2 Care and Use of Acetylene Cylinders

- i. When storing acetylene cylinders, remember it is a fuel gas
- ii. If the valve outlet becomes iced over, thaw in warm, not hot water if needed
- iii. Never use a leaking acetylene cylinder
- iv. Do not open an acetylene cylinder valve more than 1 1/2 turns. In general, acetylene valves only need be opened one quarter to one half turn
- v. Never use acetylene from a cylinder except through an acetylene regulator
- vi. Use acetylene only in an upright position.
- vii. Never use acetylene at pressures greater than 1 bar.
- viii. Use flashback arrestor of acetylene cylinder

## 5.5 Hot Work

### Hot Work Permit

- a. Before hot work may proceed, a work permit must be completed and signed.
- b. A designated, qualified person must approve hot work operations identified on the permit. This person will inspect the area prior to granting authorization for



such operations so that potential hazards and necessary precautions can be identified on the permit. All such precautions must be communicated, documented and implemented prior to work proceeding.



# Chapter – 3

# ENVIRONMENT



## **Procedure No.: 3.1**

### **Discharge of Water**

#### **1.0 Purpose**

To protect natural waters

#### **2.0 Scope**

All business locations under BL control, where there is a risk of ecological-harmful materials entering controlled waters.

#### **3.0 Definitions**

**Controlled Waters:** All surface, estuarial, coastal and ground waters subject to regulatory control

**Discharge Consent:** Discharge consents outline the terms and conditions under which industrial effluent may be discharged into controlled waters.

**Storm Water:** Water that originates during precipitation events i.e. rain, melting snow etc

**Unplanned Discharge:** Any release to controlled water or a discharge exceeding the limits of a consent condition or legal limit, either knowingly or accidentally.

**Waste water:** Any water that has been adversely affected in quality as a result of BL business activities

**Water Pollution:** Causing or knowingly permitting polluting matter (substances or energy) to enter controlled water or to cause harm to the “water environment”.

#### **4.0 Responsibilities**

##### **4.1 Site Manager**

The Site Manager must ensure that a detailed knowledge of the functioning of the site's storm water and wastewater drainage systems is gained. This is to ensure that foul and surface waters are discharged correctly to the right drainage system.

##### **4.2 Site HSE Representative**

- i. Monitor implementation of this procedure
- ii. Co-ordination of emergency response in the event of a spillage
- iii. Ensure that any environmental incidents are reported



## 5.0 Process

### 5.1 Site Drainage

5.1.1 The locations of any Site water discharge points must be identified before any work is undertaken. This will involve:

- i. Mapping of the wastewater and storm water networks on site, including the sources of all discharges and the discharge points
- ii. Identification of discharge points for these networks

5.1.2 Drains must be identified as to whether they are storm (surface) water drains or foul (wastewater) drains to aid identification of where a spill will leave the site.

### 5.2 Consented Discharges to Controlled Waters

5.2.1 For all water discharges to controlled waters, it must be ensured that:

- i. No water is discharged without consent.
- ii. Discharge is monitored and recorded, taking samples where necessary.
- iii. All conditions of the consent are met / none of the conditions are breached.
- iv. If conditions are breached, the breach must be reported firstly to the regulatory authority and secondly, internally using the Accident / Incident reporting procedure

5.2.2 Storm water that is essentially "clean" water can be allowed to enter controlled watercourses without the need for Consent.

### 5.3 Planning for Spill Emergencies

- I. An emergency plan must exist for the control of spills. This plan will be simulated at least annually to ensure its effectiveness.
- II. An adequate number of personnel will be trained in spill containment. This could be all site personnel but may be a dedicated emergency response team.
- III. Spill kits must be inspected weekly to ensure completeness of the inventory and to ensure that the location of the spill kit is appropriate to the site activities such as storage, offloading and use of materials.
- IV. Arrangements must also be in place to ensure that spill kits are replenished if items have been used in the event of a spillage
- V. Outfalls and interceptor pits will be inspected daily as part of the daily site as inspection system.

### 5.4 Unplanned Discharges and Spillages

#### 5.4.1 Identification of Substance

All unplanned discharges or spillages must be reported to the site HSE Representative, who will evaluate the spillage or release and determine the required response.





#### 5.4.2 Clean-up Protocol

##### I. Non-Harmful

Where the spillage/release is not a harmful substance and has no potential for causing harm to the environment, a general cleanup operation will be initiated with the source of the spillage/release being identified and stopped.

##### II. Harmful

A. Where the spillage/release is a harmful substance and/or has the potential for causing harm to the environment the following procedure is to be followed:

- i. Clear the area of all non-essential personnel.
- ii. Inform the BL Site HSE Representative who will organize assistance and determine whether the Regulatory Authorities should be informed and asked for assistance if needed.
- iii. Obtain and distribute suitable protective clothing (if required) to those dealing with the spillage (reference must be made to the appropriate Material Safety Data Sheet).
- iv. Take appropriate action to localize the spillage if possible and locate the source of the spillage/release and take appropriate action to stop or minimize the release.
- v. Surround the spillage with absorbent booms or convenient, inert material to prevent access to drains. Use an emergency portable pump to transfer the spillage to a sound storage receptacle.
- vi. Spillage/ releases, which can't be pumped, should be dealt with by using absorbents.
- vii. Where the spillage/release has entered a drain, the outfall of the drain must be identified and containment of the spillage/ release continued in accordance with this procedure
- viii. All spent absorbent materials are to be stored in a waste disposal area for recycling or disposal in accordance with procedure

B. All spillage's as identified above will be investigated and reported in line with procedure of Accident and Incident Reporting.

#### 6.0 Records :

Consent to operate

Layout of waste water & storm water.

Records of discharged water parameters.



## Procedure No.: 3.2

### Air Emissions Control

#### 1.0 Purpose

To ensure that air emissions are controlled to legal requirements.

#### 2.0 Scope

This document is the minimum requirement for all BL sites.

#### 3.0 Definitions

**Air Emission:** Any channeled air emission i.e. one that is discharged into the atmosphere through a duct, stack, vent, or other conduit.

#### 4.0 Responsibilities

##### 4.1 Unit Head

The Unit Head must ensure that arrangements are in place to enable compliance with the requirements of this procedure.

#### 5.0 Process

##### 5.1 Process Emissions Monitoring

- I. The basis for air monitoring may be set by Regulatory authorities in the form of "Permits or Consents"
  - i. When planning emissions monitoring, consideration must be given to the following, where applicable:
  - ii. The process or material to be monitored (dust, smells or hazardous compounds etc)
  - iii. The applicable consent, contract clause and/or legislation requirements.
  - iv. Emission point description and sampling points shared in the Map.
  - v. Frequency will be at least once a year.

\*Note: It is recommended that a list of activities that may generate regulated atmospheric emissions (dust particles, VOCs, etc.) is compiled and then each of the emission points (e.g. chimney stacks, vent holes in tanks, ventilation points for air recycling in buildings) identified on a site map

- II. Only suitably trained or experienced personnel will carry out sampling and surveys.
- III. Any equipment used for measuring / monitoring purposes must be calibrated to an approved standard or tested prior to use, as appropriate



## 5.2 Monitoring Techniques

### 5.2.1 Dust Emission Sampling

Where no limit has been specified, levels of dust exceeding 200mg/m<sup>3</sup> or those giving rise to a complaint will be cause for evaluation of dust suppression methods.

### 5.2.2 Odour and Process fume

Any odour noted which may cause community complaints, will be reported to the HSE Representative for action. The likelihood of process fume must be assessed during task preparation and minimized at source.

## 6.0 Records

Air emission test records

Map showing all locations of discharge.



### **Procedure No.: 3.3**

## **Waste Management**

### **1.0 Purpose**

To ensure effective management of waste, movement, storage and disposal of waste produced by BL & to minimize harm to human health and to ensure minimum impact on environment.

### **2.0 Scope**

The procedure is applicable to BL sites to fulfil the general and also the legislative requirement.

### **3.0 Responsibilities**

#### **3.1 Unit Head**

Ensures the waste management is controlled and implemented in accordance with this procedure

#### **3.2 HSE Representative**

- I. Obtaining and reviewing information for each waste stream relating to the relevant legislative requirements and confirming validity with the relevant authorities
- II. Ensuring that waste control documentation is completed and retained as per procedural/ legislative requirements.
- III. Planning, conducting and reporting of waste audits.

#### **3.3 Stores Officer**

- I. Control of the waste storage area
- II. Responsible for making appropriate arrangements and assessing the waste for classification
- III. Responsible for auctioning the wastes and preparation of comparative statement and disposal
- IV. Ensuring that waste carriers and disposal sites are suitably licensed for waste to be disposed.

#### **3.4 Operational Managers / Maintenance Managers**

Responsible for segregation of waste at source.



## 4.0 Description

### 4.1 Wastes have been categorized as:

1. Bio-degradable waste
2. Non-Biodegradable waste
3. Contaminated waste
4. Hazardous Waste
  - a. Industrial
  - b. Biomedical

### 4.2 Generation and collection

All types of wastes are to be put into designated bins after generation. Those are to be disposed to identified bins for further handling.

- I. Biodegradable waste like paper, cotton waste, wood will be kept in green bins which will be transferred to identified area in Scrap Yard for further disposal.
- II. Non-Biodegradable waste include plastic, polythene, rubber, concrete debris, fire bricks, glass and welding slugs are to be kept at blue bins and to be disposed to identified place at Scrap Yard for further disposal.
- III. Welding slugs are to be collected and used for land filling
- IV. Oil Contaminated wastes are to be collected in one red bin which will be transferred to identified area in Scrap Yard for further disposal.
- V. Industrial hazardous wastes in liquid form (used lubricant and used coolant oils) are to be collected in empty oil drums & to be kept under shed and lock and key and the floor must be made of concrete with non permeable membrane below ground. The content must be labeled.

Biomedical wastes are to be sent to Medical Centre for disposing by deep burial method.

### 4.3 Disposal

- I. Biodegradable waste includes paper waste, wood waste, cotton waste, and cardboard packets--- can be used for landfill or sold to vendor through auction.
- II. Non-Biodegradable wastes include plastic, polythene, rubber, concrete debris; glass cannot be used for landfill. Those are to be sold through auction for recycling.
- III. Contaminated waste include oil/ grease impregnated cotton waste - cannot be used for land filling and to be incinerated through authorized vendors.
- IV. Metallic Waste include off-cuts of steel tubes, plates and turning and borings of tubes and bars, and also nonferrous metallic scrap like aluminum, copper and bronze coming out of maintenance. These wastes are to be sold through auction.



- V. Old machinery list which is approved are disposed off through open auction.
- VI. Hazardous waste include empty paint containers, paint sludge, empty dye penetrant cans, used lubricants, used cutting oil, used transformer oil ,ETP sludge & asbestos waste , generated out of shop floor roof sheets and rain water pipes of roof sheds. These are to be disposed through approved recyclers or approved disposers of Central/ State Pollution Control Board. The vendors must be able to provide all legal documents prescribed in legal register.

**5.0 Records:**

Hazardous waste generation, storage & disposal authorisation.

Manifest (Form-13) of disposed hazardous waste.

Annual return (Form-iv) to SPCB by 30<sup>th</sup> June each year.



## Procedure No.: 3.4

### Conservation of Soil and Ground Water

#### 1.0 Purpose

To ensure the protection of soil and groundwater from spills of fuels, chemicals and ecologically toxic materials.

#### 2.0 Scope

The procedure is applicable to BL sites to fulfill the general requirement of HSE Management system and fulfill the legal requirement.

#### 3.0 Responsibilities

##### 3.1 Unit Head:

Ensure that this procedure is implemented and adequate controls are in place.

##### 3.2 HSE Manager

- i. Ensure that adequate controls are maintained and that rapid response is given to any spills
- ii. Audit the site against this procedure

#### 4.0 Description

##### 4.1. Above Ground Storage

4.1.1 All fuels, paints or other chemicals must be stored within a bunded area suitably positioned, or other steps taken, such as the provision of drum trays with integral bunds, so as to minimize any risk of damage by impact (so far as reasonably practicable) the walls and base of which must be impermeable to the substance stored and to water. The bund must be capable of providing containment for 110% of the volume of the largest tank or 25% of the total capacity of all the containers, whichever is the greater.

4.1.2 Bunded areas must be examined on a regular basis (at least weekly for oil storage facilities) for any leakage of liquid from the storage vessel, associated pump and pipelines and any spills or releases cleared up immediately. Bunds must be inspected during or after periods of heavy rainfall to ensure that they do not overflow. All internal areas will be maintained in a clean state, free from general litter and debris.

4.1.3 Oil Storage installations, the valves, filters, sight gauge, vent pipe or other equipment ancillary to the container must be within the bunded area.

##### 4.1.4 Bund Drainage

Under normal operating conditions all bund drain valves must be locked in the closed position. Valves may only be opened to allow drainage of rainwater when there is no



obvious sign of contamination - particular care must be taken when the stored substance is water-soluble. If contamination is suspected a sample must be taken for analysis and the results approved by a competent person before the bund is drained. On completion of drainage, the drain valves must be locked in the closed position. Any water found to be contaminated must be disposed of in accordance with procedure of Waste Management.

#### 4.1.5 Temporary Storage

When it is necessary to have temporary fuel or chemical storage facility the most appropriate method of containment must be applied

#### 4.1.6 Prepared Bund

A bund must be fabricated on a level (as far as practicable) base; using materials that will ensure that the walls and base are impermeable to the substances stored and to water. The height of the bund must be calculated to hold at least 110% of the volume of the largest container or 25% of the total capacity of all the containers, whichever is the greater. It is recommended that the minimum height of the walls be 150mm.

### 4.2 Underground Storage

4.2.1 The use of underground storage tanks and pipework is to be avoided wherever possible. Where such facilities do exist, an action plan must be drawn up for their elimination (unless the underground storage system incorporates technology capable of providing the same degree of control as that for above ground storage).

Until such time as they are removed the following precautions must be taken:

- i. The locations of the tanks and pipework must be recorded, as far as is practical, preferably on a map and by physical markings / signs above ground.
- ii. Records must also be kept as to the volume, method of construction (i.e. single or double skinned, in a pit, pipework in ducts) and the nature of the product contained (at present or in the past)
- iii. Measures taken to protect tanks and pipework from physical damage, such as that caused by excessive surface loading, ground movement or ground disturbance
- iv. Some form of monitoring of contents employed to ensure that leaks are readily detected
- v. Regulatory testing must be performed

4.2.2 To avoid the risk of pollution, underground tanks that will not be used again must be removed. All remaining product and residues removed, tanks and pipework must be disposed of in accordance with local regulatory requirements.

4.2.3 Once the tank has been removed, samples of soil and groundwater (if present) should be taken to check for subsurface contamination. The samples must be analyzed for the parameters appropriate to the type of product stored.





## **Procedure No.: 3.5**

### **Water Supply & Conservation**

#### **1.0 Purpose**

To ensure that water resources are conserved.

#### **2.0 Scope**

All BL operation site.

#### **3.0 Responsibilities**

##### **3.1 Site Manager**

Ensure that arrangements are in place for the management, monitoring and reporting of water consumption in accordance with this procedure

#### **4.0 Process**

##### **4.1 Identification of Water Supply**

Each Site must:

- i. Document the source or sources of its water supply (Corporation Water, pumping from the water table etc)
- ii. Document quantitative data of its water consumption for each of its means of supply and for each of the major uses of water in the processes
- iii. Minimizing water consumption to the lowest practical level

##### **4.2 Reduction of Water Consumption**

In the event that water consumption reduction is possible and practical, then this will become part of the environmental objectives and targets for the site and must be supported by appropriate action plans for continual improvement.

#### **5.0 Records**

Monthly water consumption data

# **HSE AUDIT PROTOCOL**

BL's HSE AUDIT PROTOCOL – Annexure A							
Sr No	Theme	Points to be audited	Scores				Remarks
			1	2	3	4	
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice	Final Score
<b>HSE MANAGEMENT</b>							
1	Leadership and management Commitment	An HSE co-ordinator has been appointed at each site, or the responsibility has been clearly assigned to a certain person and documented.					
2	Leadership and management Commitment	HSE roles and responsibilities of the Operational managers have been cascaded down through the organization and documented.					
3	Leadership and management Commitment	The site's management team has been given documented HSE training within the past 3 years.					
4	Leadership and management Commitment	A management review on HSE KPIs is held and documented at least once a year					
5	Leadership and management Commitment	Site, Unit or Project Management team members to do documented Safety Observation Visits					
6	Risks and Impacts Analysis	The site has identified all of its routine and non routine activities requiring risk assessment					
7	Risks and Impacts Analysis	For each activity, the site has identified environmental aspects/impacts generated during normal, abnormal and emergency conditions					
8	Risks and Impacts Analysis	Identified significant risks should be controlled through appropriate procedures and work-instructions.					
9	Regulation Monitoring	All applicable legal requirements are identified & documented					
10	Regulation Monitoring	A regular documented compliance analysis of all applicable regulations is done.					
11	Objectives and Targets	HSE Objectives to be framed for each year & targets have been defined for each of these objectives					
12	Cost Control	All investments associated with accident prevention must be identified and cost of treatment & compensation to be documented.					

BL's HSE AUDIT PROTOCOL – Annexure A							
Sr No	Theme	Points to be audited	Scores				Remarks
			1	2	3	4	
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice	Final Score
<b>HSE MANAGEMENT</b>							
13	Training	All the site personnel including contractors are made aware of the site's HSE policy, relevant health and safety hazards and risk Assessments, environmental aspects and associated impacts and applicable HSE objectives and targets set by the management,					
14	Training	A process has been established that ensures that all new employees and sub-contractors are identified and trained upon arrival at the site. All trainings to be documented.					
15	Communication	All HSE topics (policy, objectives, results, assessments, reviews, reports, etc.) shall be a subject of regular information. (such as team briefings or "tool box talks" for example).					
16	Communication	HSE posting is visible and understandable,					
17	Communication	HSE communication involves as a minimum: communication of HSE rules to visitors to the site, appropriate involvement of workers in hazard identification, appraising on MSDS of all chemicals used in premises, risk Assessments and determination of controls, appropriate involvement of workers in incident investigation, involvement of workers in the development and review of objectives, HSE roles and responsibilities are clearly defined and communicated accordingly					
18	Accident and Incident Reporting and Analysis	The analysis of all the incidents is conducted annually.					
19	Accident and Incident Reporting and Analysis	Each accident with & without Lost time injury are recorded , investigated & reported as per reporting protocol.					
20	Accident and Incident Reporting and Analysis	A process is in place to ensure that near misses are recorded & high potential near misses are investigated.					
21	Equipment and Installation Compliance	The site has identified equipment types and installations being subject to regulatory controls;					
22	Emergency Preparedness	Procedure for alarm and evacuation are trained and known by employees.					

BL's HSE AUDIT PROTOCOL – Annexure A							
Sr No	Theme	Points to be audited	Scores				Remarks
			1	2	3	4	
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice	Final Score
<b>HSE MANAGEMENT</b>							
23	Emergency Preparedness	Emergency equipment is tested and controlled periodically (at least once a year). Mock Drills are conducted at least 3 times a year.					
24	Emergency Preparedness	Site Emergency team members (first aid & fire fighters) & important contact numbers are displayed at strategic locations.					
25	Emergency Preparedness	Tie up with external hospitals, for immediate treatment in case of serious accidents.					
26	Emergency Preparedness	Adequate safety shower & eye wash stations are in place					
27	Emergency Preparedness	Adequate First aid box are available & contents are inspected frequently					
28	Housekeeping	The site has established a daily cleaning program and the work area is tidied after each shift;					
29	Housekeeping	All the walkways, driveways, workstation, lay-down areas, storage area, loading and unloading area are properly marked;					
30	Planned HSE Inspection	Site carry our daily safety inspection by a checklist & proactively address the HSE deviations.					
31	Planned HSE Inspection	Inspection carried out by executives of various departments including Unit heads & documented.					
32	Document and data control	Register of periodical regulatory monitoring and controls are maintained.( Pressure Vessels , Cranes , Slings etc)					
33	Document and data control	Safety Organisation & safety committee reports of each month to be documented.					
34	Document and data control	First aid & Near Miss reports are maintained.					
35	Document and data control	Analysis of all Emissions.( Air , water etc)					
36	Document and data control	Hazardous waste disposal agreements with authorised vendors					
37	Document and data control	• fire License					
38	Document and data control	• work accident reports,( Lost time accidents)					
39	Document and data control	• employer insurance certificates,					
40	Document and data control	• raw data (energy consumption, water, etc..), Management programs taken in HSE for continual improvements.					

BL's HSE AUDIT PROTOCOL – Annexure A							
Sr No	Theme	Points to be audited	Scores				Remarks
			1	2	3	4	
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice	Final Score
<b>HSE MANAGEMENT</b>							
41	Document and data control	• operating permits, ( Consent to operate, Hazardous waste authorisation, Factory License , approved drawing of the factory plan, License of explosives & petroleum products etc)					
42	Document and data control	Submission of form -5 & Form -4 within due dates to PCB as per Environment Protection rules 1986.					
43	Contractors and Building site management	Contractor HSE performance considered in selection of contractor.					
44	Contractors and Building site management	Scheduled regular inspections are done of contractors working on sit & documented					
45	Contractors and Building site management	Contract clearly specifies our HSE requirements .Reward & Penalty clause incorporated in contract Documents for all contracts.					
<b>FINAL SCORE ON HSE MANAGEMENT</b>							

## BL's HSE AUDIT PROTOCOL – Annexure A

Sr No	Theme	Points to be audited	Scores					Final Score	Remarks
			1	2	3	4			
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice			
<b>HEALTH &amp; SAFETY</b>									
1	Industrial Hygiene	The site has identified workshops and processes required to carry out regulatory exposure monitoring and/or which are considered to have potential for high risk exposures according to risk assessment.							
2	Industrial Hygiene	· the immediate control measures of the personnel have been implemented in case of exposures greater than these standards;							
3	Medical Surveillance	· Medical check-ups as legally required for all relevant employees have been: 1. planned, and/or 2. Completed.							
4	Medical Surveillance	Pre employment medical records of the contract staff are also in place.							
5	Confined Spaces	Training on confined space hazards have been conducted to supervisors & people exposed to confined spaces.							
6	Confined Spaces	All confined spaces in the site are identified & confined space PTW (Permit to work) are issued for all work in confined spaces.							
7	Confined Spaces	Oxygen level & LEL (lower explosive limits) are continuously monitored & maintained when someone enters inside confined space. Oxygen level should never be less than 19.5%.							
8	Electrical Safety	A suitable resource of trained and competent individuals have been appointed (in some cases sub-contracted) to carry out electrical activities.							
9	Electrical Safety	· All electrical staff are appropriately trained, have a formal statement of their competencies and knowledge of the extent of their personal authority to carry out the required electrical tasks, at their competency level. Those carrying out operations, maintenance, testing and commissioning works on the systems, equipment, must be competent and have knowledge of general electrical hazards.							
10	Electrical Safety	All critical electrical equipments like Relays, Circuit breakers, tripping devices are tested & certified by an competent authority at least once a year.							
11	Electrical Safety	Entire earthing system to be checked & earth pits are tested once a year & documented.							
12	Lockout Tagout	Trained and formally authorized person approves the isolation prior to work starting through Permit to Work system							

BL's HSE AUDIT PROTOCOL – Annexure A								
Sr No	Theme	Points to be audited	Scores				Final Score	Remarks
			1	2	3	4		
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice		
<b>HEALTH &amp; SAFETY</b>								
13	Portable Equipment	All site's portable equipments have been identified, recorded in a register.						
14	Portable Equipment	All portable tools to have fiber body & double insulation . No temporary joints are allowed in the connected cable.						
15	Control of Site Vehicles	The risks associated to vehicles on site are included in the risks analysis;						
16	Control of Site Vehicles	All vehicles operating on or entering the site are registered or logged into the site & visually examined by security.						
17	Control of Site Vehicles	pedestrian routes are segregated from vehicle routes;						
18	Control of Site Vehicles	loading and equipment manoeuvre areas are identified;						
19	Control of Site Vehicles	emergency routes are maintained for emergency vehicles and evacuation;						
20	General Well Being	Sufficient sanitary facilities such as toilets, showers & washing facilities, safe drinking water etc. are available on site.						
21	Permit to Work System	Permits are issued for all non routine activities.						
22	Permit to Work System	Permit to work procedure is complied.						
23	Permit to Work System	All permit issuers are trained on the PTW system & hazard identification.						
24	Fall prevention	Permit to work system is followed for all work above 6 feet high.						
25	Fall prevention	People working at height are trained on the associated hazards of working at height.						
26	Fall prevention	Helmets & Full body safety harnesses with double lanyard are used at all point of time.						
27	Fall prevention	Ms tubular scaffoldings are used for accessing heights.						
28	Fall prevention	Wherever possible safety net needs to be installed while people are exposed to heights.						
29	Fall prevention	All Ladders to have hand rails are only used for accessing heights & temporary work.						
30	Fall prevention	All work at heights are supervised continuously						
31	Excavation	Any excavation below 1.5 meter deep should undergo permit to work						



BL's HSE AUDIT PROTOCOL – Annexure A								
Sr No	Theme	Points to be audited	Scores				Final Score	Remarks
			1	2	3	4		
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice		
<b>HEALTH &amp; SAFETY</b>								
32	Excavation	People involved in excavation & trained in the associated hazards & documented.						
33	Lifting Operations	All lifting accessories & equipments are tested as per the legal requirements.						
34	Lifting Operations	All crane operators & riggers have undergone training on safe lifting operations.						
35	Lifting Operations	Working below suspended load is strictly prohibited						
36	Lifting Operations	Reverse alarm in all the lifting equipments are operational.						
37	Machine guarding	All dangerous machinery parts & rotating parts are guarded						
38	Machine guarding	If rotating parts are protected with wire-mesh guards the wire mesh openings are not larger than ½ inch						
39	Machine guarding	System in place to regularly check the guards and interlocks.						
40	Personal Protective equipments	PPE matrix of the site is in place						
41	Personal Protective equipments	People are provided with the PPE required by them						
42	Personal Protective equipments	PPE compliance tracking system is in place.						
43	Gas Cylinders & air receivers	All cylinders are kept in standing condition & chained						
44	Gas Cylinders & air receivers	Empty & filled cylinders are segregated.						
45	Gas Cylinders & air receivers	Flash back arrestors are installed in cylinders						
46	Gas Cylinders & air receivers	Air receivers are tested & labeled on the body as per statutoru requirements						
47	Gas Cylinders & air receivers	valid certificates of the safety valves are kept at site						
<b>FINAL SCORE ON HEALTH &amp; SAFETY</b>								

BL's HSE AUDIT PROTOCOL – Annexure A								
Sr No	Theme	Points to be audited	Scores				Final Score	Remarks
			1	2	3	4		
			Lack of awareness/ no initiative	Maintained below BL std	Maintained at per BL std	Excellent & Best Practice		
<b>ENVIRONEMENT</b>								
1	Waste	All the types and the nature of wastes generated at the site have been identified & documented in Form- 3.						
2	Waste	Waste transfer& disposal documentations are maintained as per Form -13.						
3	Waste	· regulatory compliance for the disposal of the waste can be proven;						
4	Soil and Groundwater	· the storage areas of Chemicals & Petroleum products are subject to planned inspections in order to ensure their good management sound secondary containment.						
5	Water Supply	· The site has knowledge of the source or sources of the water that it uses (local city supply system, pumping from the water table etc.);						
6	Water Supply	· the site has quantitative data of its water consumption for each of its means of supply;						
7	Energy Consumption	· the site has quantitative data on various types of energy consumption and for each of its means of supply;						
8	Energy Consumption	· an annual report on its consumption has been drawn up.						
9	Energy Consumption	· the site has defined a program for the reduction of energy consumption (objectives and targets);						
10	Greenhouse Effect Gas	· the site identifies all the activities that generate greenhouse gases;						
11	Greenhouse Effect Gas	· the site identifies the sources of the emissions of these gases;						
12	Underground Storage Tank & Piping	The site has located (on a map if possible) all of its underground storage tanks, reservoirs and piping present on the site;						
13	Underground Storage Tank & Piping	· for each of the tanks, reservoirs and piping subject to regulatory testing, the test results file is up-to-date.						
<b>FINAL SCORE ON ENVIRONMENT</b>								