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# EXCEL TECHNICAL SERVICES PVT. LTD

## HEALTH SAFETY & ENVIRONMENT MANUAL / PLAN

### ELECTRICAL CONSTRUCTION & PROJECTS

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## EXCEL TECHNICAL SERVICES PVT. LTD.

### *Health, Safety & Environment Policy*

It is the endeavor of Excel Technical Services Pvt. Ltd. to maintain the highest Standard safety for all our operation at various sites. Safety is considered of prime importance an gets riding priority over all other activities.

It is endeavor to comply with all legal and other statutory Requirements and shall prevent pollution and safeguard Environment.

It is our endeavor to take care of health of all our employees Involved in various operations.

We believe in Zero accident and Maximum Productivity and enforce it by educating, constant monitoring and giving of all Back up to our managerial and down the line Engineers, Technicians and others involved in the operation

**Ramoliya K C**  
**(Managing Director)**  
**2015**

# MANAGEMENT COMMITMENT

WE SHALL FOLLOW OISD-192 & 207  
ALONG WITH CLIENT SPEC ATTACHED TO BID  
AND ALL I.S SPECIFICATIONS OVER SAFETY

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## 1.0 PURPOSE:

This Health Environment and Safety Plan have been prepared to provide a framework for Excel Technical Services Pvt. Ltd. Personnel to plan and develop a program to achieve the objective contained in the Maintenance Health Safety and Environment Policy. The Health, Safety and Environment Plan are intended to be a living document and shall continue to evolve through the various stages of the project Excel Technical Services Pvt. Ltd. Recognizes the importance of planning for the Health, Safety and Environment at the earliest possible stage to prevent pollution ill health injuries and other losses.

Copies of Excel Technical Services Pvt. Ltd. Health and Safety Policy shall be prominently displayed on site and brought to the attention of personnel during induction training.

## 2.0 SCOPE:

The Health Safety and Environmental Plan reflect the high priority that Excel Technical Services Pvt. Ltd., senior management place upon the Health Safety and Environment at work. It also demonstrates their commitment to ensure that all reasonably practicable measures are taken to:

- ☑ Protect the Health & Safety of all persons engaged at work site.
- ☑ Comply at all times with the relevant statutory and contractual Health and Safety requirements.
- ☑ Ensure the Health and Safety of all persons is not affected by the work.
- ☑ Provide trained, experienced and competent personnel and supervision.
- ☑ Provide and maintain plant, places and systems of work that are safe and without risk to health and the environment.
- ☑ Provide all personnel with adequate information instruction, training and supervision.
- ☑ Effective control co-ordinate and monitor the activities of all personnel on the Project. Including contractors in respects of Health Safety Environment and Security.
- ☑ Establish effective communication on Health and Safety matters with all relevant parties involved in the Project works.
- ☑ Ensure that all construction Planning takes into account the Health and Safety of all persons that may be affected by the work.

Inform all relevant persons with the detail of all Method statements and Risk assessments that may affect their Health and Safety.

## 3.0 REFERENCES:

1. HSE Manual Excel Technical Services Pvt. Ltd.

## 4.0 POLICIES (EXPLANATION IN DETAILS):

Our company's policies are described hereunder: - In General :-

### 4.1 HEALTH AND SAFETY POLICY:

At Excel Technical Services Pvt. Ltd. We are dedicated to the health and safety of our manpower and equipment. We are committed, therefore to implementation of the highest safety standards through awareness training and motivating our personnel towards healthy work practices.

#### 4.2 ENVIRONMENTAL POLICY:

We are engineering construction company-serving customers in Hydrocarbon and Infrastructure sectors in chosen global markets, delivering projects and services in pipelines, storage terminals and civil construction.

The company strives to minimize environmental pollution during construction activities.

We are committed to comply with all applicable environmental legislation.

#### 4.3 ALCOHOL AND DRUG POLICY:

At Excel Technical Services Pvt. Ltd. we are committed to excellence in all aspects of personal and professional life. We believe that Alcohol and Drug abuse is a significant obstruction to attaining this goal. Therefore, Excel Technical Services Pvt. Ltd. as policy does not permit the consumption of Alcohol of illegal drugs at the workplace.

Those violating this policy are subjected to disciplinary action. Drugs for medicinal purposes, however, can be administered by a medicinal practitioner.

#### 4.4 COMMUNITY AFFAIRS POLICY:

At Excel Technical Services Pvt. Ltd. We are committed to serving our clients at all locations where the Company operates. To this end we believe in developing and maintaining an excellent relationship with the inhabitants of the area we operate in. The company encourages all employees to build and nurture such a relationship at work and socially.

Towards accomplishing this we observe acceptable social responsibilities, respect local customs, laws and traditions, as also religious secularity and political neutrality as a Company.

#### 5.0 TERMS AND DEFINITIONS:

##### 5.1 DEFINITIONS:

##### 5.1.1 ACCIDENT:

An Unforeseen desired event or condition that results in harm to people or damage to plant / equipment due to unsafe condition or practices.

##### 5.1.2 INCIDENT:

A by chance event or condition that results or could have resulted in harm to people damage to property or the environment loss.

##### 5.1.3 NEAR MISS:

An unexpected, unwanted event not causing loss, injury or illness but which under slightly altered conditions can lead to an accident.

##### 5.1.4 FATAL:

Death resulting from an accident.

5.1.5 **MAN-HOUR WORKED:**

The total no. of employee-hours worked by all employees working in the premises. It includes managerial, supervisory, professional, technical, clerical and other workers including contractor, labors. Man-hours worked shall be calculated from the payroll or time clock recorded including overtime. When this is not feasible, the same shall be estimated by multiplying the total man-days worked for the period covered by the number of hours worked per day. The total no. of work day for a period is the sum of the no. of men at work on each day of period. If the daily hours vary from department to department separate estimate shall be made for each department and the result added together.

5.1.6 **FIRST AID CASES:**

First and cases come under non-reportable cases, where the injured person is given medical treatment and discharged immediately for reporting on duty, without counting any lost time.

5.1.7 **LOST TIME INIURY:**

An injury causing disablement extending beyond the day of shift on which the accident occurred.

5.1.8 **MEDICAL CASES:**

Medical cases come under non-reportable cases, where owing to illness or other reason the employee was absent from work and seeks Medical treatment.

5.1.9 **RESTRICTED DUTY CASES:**

Days of restricted work activity are those workdays on which, because of occupational injury or illness, the employee was assigned to another job, on a temporary basis, worked at a permanent job at less than full time or worked as permanently assigned job

could not perform all duties normally connected with it. The number of lost work days should not include the day of injury or onset of illness or any day on which the employee would not have worked even though able to work. This is a record able case of incident / accident where lost time is not completed.

5.1.10 **TYPE OF INCIDENT / ACCIDENT & THEIR REPORTING:**

The three categories of reportable and non-reportable cases of Incident / accident are as follows:

**Non-Reportable Cases:**

An accident, where the injured person is given medical helps and discharge for work without counting any lost time.

**Reportable Cases:**

In this case the injured person is disable for 48 hours or more and is not able to perform his duty.



**Injury Cases:**

These are covered under the heading of non-reportable cases. In this cases the accident caused injury to the person, but he still continues his duty.

5.1.11 **LOST MAN-DAYS CASES:**

Man-Days lost means the changes in days of disablement of a person. The day on which the injury occurred or the day on which the injured person returned to work, are not to be included as a man-days lost, but all intervening calendar days (including Sunday days off or days of plant shut down) are to be included.

If after resumption or work, the person injured is again disabled for any period ailing out of the injury, which caused his earlier disablement, the period of such subsequent disablement is also to be included in the man-days lost.

5.1.12 **FREQUENCY RATE:**

Frequency rate is the no. of days lost for injuries per million employees-hours worked. Mathematically, the formula reads.

$$FR = \frac{\text{NUMBER OF LOST TIME INJURY}}{\text{TOTAL NUMBER OF MAN-HOUR WORK}} \times 10,00,000$$

5.1.13 **SEVERITY RATE:**

Severity rate is the no. of days lost for injuries per million employees- hours worked. Mathematically, the formula reads.

$$SR = \frac{\text{NUMBER OF LOST WORK DAYS}}{\text{NUMBER OF EMPLOYEE - HOURS WORKD}} \times 10,00,000$$

5.1.14 **SAFETY AUDIT:**

A systematic and Independent examination of the Health and Safety management systems and their outcome to determine the effectiveness of the Health & Safety management system. Safety audit of contractor's site will be carried out on quarterly basis and report will be submitted to HSE DEPARTMENT.

5.1.16 **EMERGENCY CONTROLLER:**

Following Person will taking charge of an emergency situation.

<b>NAME</b>	<b>CONTACT NO.</b>
Mr. ....	.....

5.1.17 **EMERGENCY COORDINATOR:**

Safety Officer of Excel Technical Services Pvt. Ltd. is responsible for coordinating site emergency procedures.

5.1.18 **HEALTH & SAFETY PLANNED INSPECTION:**

Physical condition inspection of the work place undertaken by local managers accompanied by Health & Safety advisors as appropriate.

5.1.19 **HEALTH & SAFETY REVIEW:**

A formal recorded management evaluation of the effectiveness of the Construction Health & Safety management systems and identification of actions for continuous improvement. Six monthly inspection of all the full body Harness to be carried out and record to be maintained.

5.1.20 **HEALTH AND SAFETY TOUR:**

A highly visible Health & Safety site visit / walkabout by senior management, to gain feedback from the workforce and demonstrate commitment to Health & Safety.

5.1.21 **POSITIVE HEALTH AND SAFETY CULTURE:**

The organization's attitude, values and beliefs with respect to the Health, Safety and Environment is a vital part of the process to achieve the aim of Zero Accident Performance. The creation of a positive culture towards the Health & Safety and

Environment requires involvement and participation at all levels Effective communications and the promotion of competence enable all employees to have a responsible and informed contribution to sustain this positive Environment Health & Safety culture Senior Management's visible positive safety culture. Actions speak louder than words.

5.1.22 **RISK SCHEDULER:**

Individual appointed by Excel Technical Services Pvt. Ltd. Maintenance Manager is responsible for identifying hazards and carrying out risk assessments in the work area.

5.1.23 **ZERO ACCIDENT PERFORMANCE:**

Job is executed without having any accident during the entire duration of job.

5.1.24 **SUB STANDARD PRACTICE OR CONDITIONS:**

Deviation from an excepted best practice or conditions.

5.2 **VARIOUS TERMS USED:**

Contractor. Ltd.	:	Excel Technical Services Pvt.
HSE Committee.	:	Means a committee of Management Supervisors and employees, which aims to promote zero accident performance.
Sub-Contractor.	:	Means Sub-Contractor to Contractor.
NCR.	:	Means Non Conformance Report – This addresses an act of violation carried out by an individual/a group of people against any clause of a written procedure.
PPE.	:	Means Personal Protective Equipment.
Shall.	:	Means the Activity is Mandatory.
Site.	:	Means the location where the work is to be Carried out.
Third Party Certification.	:	Means Organizations other than the Company/Contractor who are authorized for Certification / Audit / Inspection for Equipment and processes.

6.0 **ORGANISATION AND RESPONSIBILITIES:**

The ultimate responsibility for the implementation of Safety policies and objectives and the achievement of Safety targets, as described in this document, rests with the Project Manager / Construction Manager. For the successful implementation of this Safety plan

all level of employee render pro-active involvement commitment and co-operation to enhance the safety profile of the Company Planned program of training meetings (at various levels) toolbox meetings and experienced supervision should be the approach of management to enhance safety standards at site. The Project Safety Officer reports directly to the Project Manager and Head of HSE (HO). In addition managerial key personnel and supervisory staff as well as individual worker have been delegated with specific Safety responsibilities which they must fulfill in the course of executing their roles and duties.

This part of the safety plan describes the Company's organization all structure for Health & Safety on the Project and defines the responsibilities of a number of key personnel who have significant contributions to make in the successful implementation of this Plan.

6.1 **RESPONSIBILITIES:**

6.1.1 **PROJECT MANAGER: / RM/ SITE INCHARGE**

- ☒ Shall report to Project Director.
- ☒ Shall initiate continuous improvement of Health and Safety and Environment Performance to achieve zero accident performance at site.
- ☒ Shall implement detail requirements of the Company Client Health and Safety Policies at project to improve Health, Safety and Environment.
- ☒ Shall ensure that all operations are adequately assessed, planned, supervised, monitored and reviewed so as to allow them to be executed safely and without risks to health.

- ☒ Shall ensure that all personnel on the project have attended induction training and are adequately informed about foreseeable hazards, preventive or precautionary measures and instructed on the safe system of work to be employed.
- ☒ Shall conduct Health and Safety survey consultant lance as he go as about his day to day work and take immediate action to correct any unsafe practices or defects observed or reported to him.
- ☒ Shall ensure that the attendance at Health and Safety meetings is comprehensive and appropriate. He will also ensure that the minutes of such meetings assign actions and timings to named individuals and are promptly distributed to all relevant personnel.

6.1.2 **SAFETY OFFICER/HEAD-SUPERVISOR:**

- ☒ Shall report to Project Manager.
- ☒ Shall ensure that all Health, Safety measures described in this plan are complied with throughout the duration of the contract.
- ☒ Shall compile and maintain accurate, accident statistics, incident reports and safety training records.
- 🕒 Shall review and ensure that the procedures contained in this plan area revised as required.
- 🕒 shall ensure that safety training needs have been identified, suitable and effective training is imparted to satisfy those identified for the training.
- ☒ Shall ensure that all persons, other than infrequent visitors, receive induction training, prior to the issue of their access control passes, monitoring the Project Management systems to ensure that the arrangements establishment adequately address. Health Safety and Environment.

6.1.3 **HSE SUPERVISOR:**

- ☒ Shall report administratively to Site-In-charges and functionally to Safety Officer/Head-Supervisor.
- ☒ Act. As a focal point of contact with owner's representative local authorities and sub- contractors on safety matters.
- ☒ Specifies and maintains the security and emergency services and ensure that the equipment's are in proper condition and operated by trained and experienced persons.
- ☒ Participates in sub-contractors monthly safety meeting.
- ☒ Conducts initial safety induction for all workers.
- ☒ Carries out daily tour of construction sites and with supervisors to coordinate and maintain a constant good state of housekeeping and Safety practices.
- ☒ Trains and occasionally assists supervisors to conduct tool box meeting.
- ☒ Checks to ensure that specified precaution in work permits are complied with.
- ☒ Conduct safety meeting on site with attendance by relevant supervisors and work leaders.
- ☒ Maintaining the tool box talk record for verification.

6.1.4 **SITE ENGINEER:-**

- ☒ Shall report to Project Manager. / RM/ Site In charge
- ☒ Shall demonstrate the personal commitment of his engineer workers towards implementation of HSE targets.
- ☒ Shall implement the requirements of the client and company safety policy and the project HSE and Environment Plan.

- ☒ Shall manage supervisory structure within their respective sections to ensure that the detailed requirements of the Client and Company. Health Safety and Environment Policy is understood and implemented by all personnel engaged in their respective area of operation.
- ☒ Shall ensure that the persons working under him shall be capable enough to maintain the Safety Standards at their site.
- ☒ Shall continuously review Health and Safety performance within his sections to ensure that performance targets are being achieved.
- ☒ Shall ensure that Tool Box talks conducted at his site regularly.
- 🕒 Shall ensure that specific Risk Assessments conducted by trained and competent personnel at the appropriate time and that the resultant control measures are communicated to the persons responsible for supervising and executing the work.
- 🕒 Shall ensure that all Management and supervisory personnel engaged within his section conduct routine health and safety survey consultant lance as they go about day to day
- ☒ Shall liaise with Project Safety Officers and other similar Competent persons to take advise on safety matter.

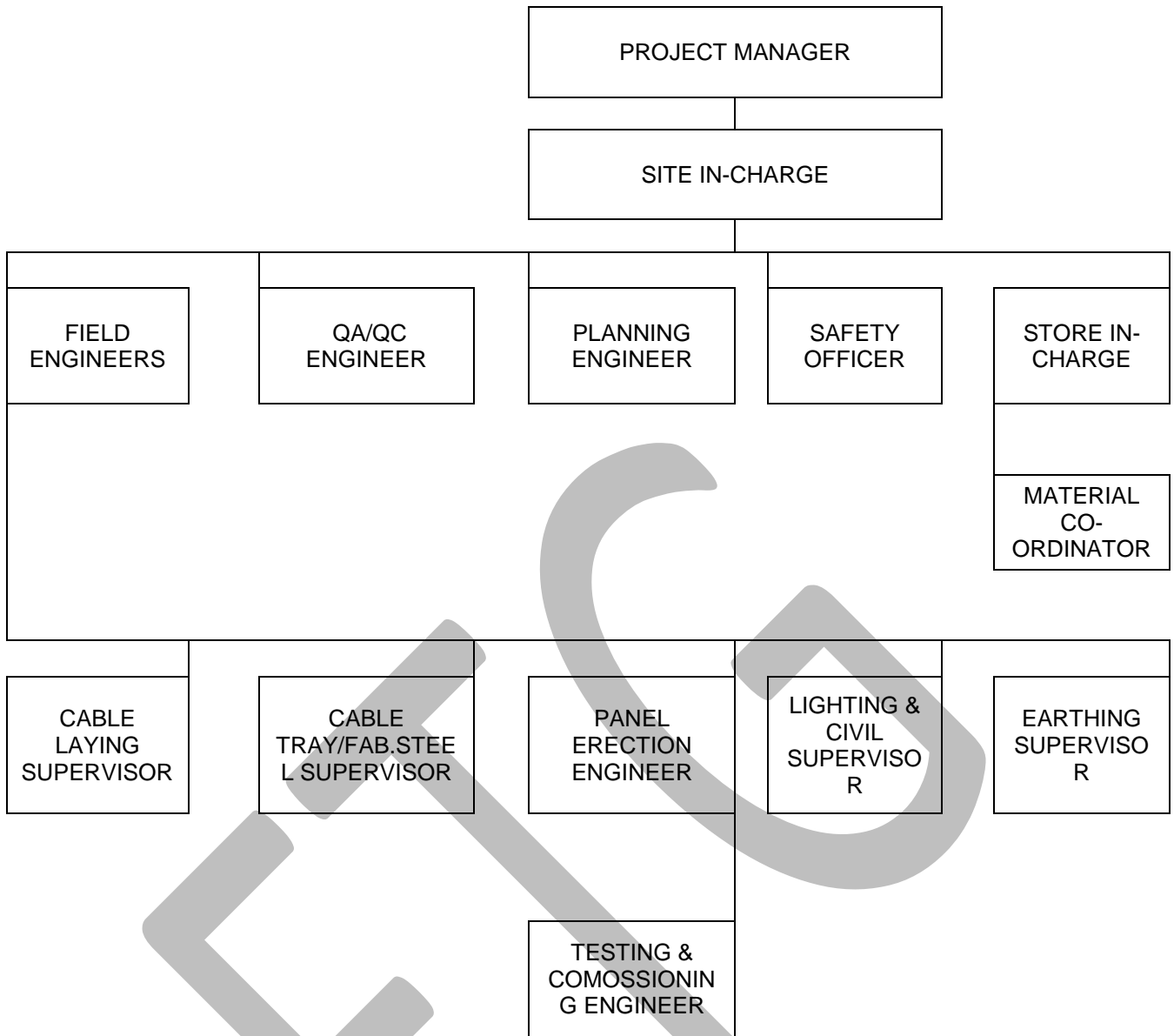
- ☒ Shall liaise with Project Safety Officers and other similar Competent persons to take advise on safety matter.
- ☒ Shall liaise with Project Safety Officers and other similar Competent persons to take advise on safety matter.

6.1.5 **FOREMAN/ SITE SUPERVISOR:**

- ☒ Shall report to their section in-charge.
- ☒ Conducts daily work supervision with Safety requirements as a priority.
- ☒ carries out toolbox meeting to ensure his work crew is made aware of hazards that are to be encountered on the job and adhere to hazard management controls.
- ☒ Make sure all work crews are issued with the required safety wear & gear and have attended the initial Safety Induction.
- ☒ Monitors and observes that the work crews are practicing safe work standards and raises their safety awareness.
- ☒ carries all daily checks to ensure that hand tools and equipment are in good working condition and log of such checks is maintained.
- ☒ maintains the work site housekeeping in an orderly manner.

6.2 **ORGANIZATION CHART:**

**ANNEXURE-I**



6.3 **LEGAL AND CONTRACTUAL OBLIGATIONS:**

Excel Technical Services Pvt. Ltd. and its sub-contractors shall observe all legal duties imposed by the Client. Additionally, each sub-contractor is responsible for ensuring that all personnel under their control observe the legal requirements of the Client.

Excel Technical Services Pvt. Ltd. and its employees retain the right to stop any operation, activity etc. if it is considered that there is a risk to the safety or health of any person. The company shall not accept responsibilities for any increased cost or delay arising out of such action. The Sub-contractor and all personnel under his control shall obey any written or verbal instruction given by an authorized Client representative or Safety Manager, Safety Engineer or Safety Officer in respect of Health and Safety. The Sub-Contractor shall comply with each requirement or prohibition contained within health and safety documentation supplied by Client to the Sub-contractor in connection with his contract or Sub-contract. Contractors shall ensure that their safety manuals, statutory notices, registers, guidance notes, safety procedures and all other safety documents are provided, made accessible to, and understood by their personnel. Omissions in this safety plan shall not absolve the contractors of their legislative and contractual responsibilities. Individuals who fail to comply with safety practices shall be subject to counseling, coaching and /or disciplinary action. At least once in any 12-months during the construction period, the Project Manager and the HSE Manager, shall review the Environmental, Health and Safety Plan and where necessary shall revise and reissue the plan.

7.0 **HSE PLAN FOR CONSTRUCTION ACTIVITIES:**

7.1 **SAFETY AUDIT, MONITORING AND PERFORMANCE MEASUREMENT:**

All management and supervisory personnel of the Company shall be required to carry out continual Health & Safety survey consultant lance as they go about their day-to-day business. Where problems are identified these shall be entered on the appropriate HAZARD/Inspection Report and action shall be taken to rectify the problem in accordance with the hazard / priority classification system.

Class A	Major Hazard	Fix Now (Immediate action)
Class B	Serious Hazard	Fix Today (Within 24 hours)
Class C	Minor Hazard	Fix within 48 hours

In addition to these general duties a number of key personnel shall be assigned specific Health & Safety duties in respect of the project. Formal site Safety inspections designed to identify defects, unsafe conditions and practices and breaches of statutory or site safety plan requirements shall be carried out at frequencies identified in the contract documents.

Excel Technical Services Pvt. Ltd. shall audit the Safety Management system frequently against the Excel Technical Services Pvt. Ltd. Health and Safety Plan. Sub-Contractors shall be required to establish and undertake a Programmed of formal audits on their own procedures, operations and establishment

**RELEVANT IS-CODES FOR PERSONAL PROTECTION**

IS: 2925 – 1984	Industrial Safety Helmets.
IS: 4770 – 1968	Rubber gloves for electrical purposes.
IS: 6994 – 1973 (Part-I) – 1986 (Part-I-II)	Industrial Safety Gloves (Leather & Cotton Gloves). IS: 1989
IS: 3738 – 1975	Rubber knee boots.
IS: 5557 – 1969	Industrial and Safety rubber knee boots.
IS: 6519 – 1971	Code of practice for selection, care and repair of Safety footwear.
IS: 11226 – 1985	Leather Safety footwear having direct moulding sole. IS:
5983 – 1978	Eye protectors.
IS: 9167 – 1979	Ear protectors.
IS: 3521 – 1983	Industrial Safety belts and harness.



## 7.2 **INDUCTION & TRAINING:**

### 7.2.1 **INDUCTION & BRIEFING:**

Contractor's in-house induction briefing subjects shall include but not limited to:

- Safety objectives and targets.
- Site Safety rules.
- Individual responsibilities.
- Site traffic regulation.
- Toolbox meeting.
- First aid facility.
- Accident reporting.
- High-Risk activities.
- Fire prevention and emergency response.
- For the pipeline construction crew in particular, hazards on and adherence to Safety precautions during construction through civil work, jungle and crossing of rivers shall be emphasized.
- Proper safety wear & gear must be issued to all the workers being registered for the induction. (I.e. Shoe/Helmets/Goggles/Leg guard / Apron etc.)
- They must arrive fully dressed in safety wear & gear to attend the induction.
- Any one failing to conform to this safety wears & gear requirement shall not qualify to attend.
- On completing attending Contractor's in-house Safety induction, each employee shall sign an attendance from to declare that he had understood the content and shall abide to follow and comply with good safe work practices. They may only then be qualified to be issued with a personal I.D. card, for access to the work site.

### 7.2.2 **VISITORS INDUCTION:**

All visitors to the project shall be required to attend a Visitors Induction Course where the following information shall be provided. This is valid for 1 visit only.

- Scope and layout of the project.
- Safety Objectives.
- Appropriate site rules.
- Protective Clothing and Equipment.
- Location of First Aid and welfare facilities.
- Emergency procedures.
- General Safety and Foreseeable Hazards.

A member of the Construction Safety Team shall provide induction training and no personnel shall be allowed on site without attending safety induction.

### 7.2.4 **REFRESHER INDUCTION COURSE:**

All personnel shall be required to attend a refresher induction course at not more than 6 monthly intervals.

7.2.5 **SAFETY TRAINING DURING PROJECT EXECUTION:**

- Nomination for managerial or supervisory staff to attend relevant occupational Safety Courses organized by owner shall be considered whenever such courses are being organized.
- Any new staff joining the project after construction has started shall be considered to attend training.
- A matrix shall be maintained to keep an up-to-date record of attendance of training sessions carried

out. 7.2.6 **SAFETY TRAINING.**

- All Supervisors or workers have been imparted suitable safety training before they are deployed for work at construction site.
- Record of training progress along with list of participants must be kept.
- Evaluation of Safety awareness must be done after every safety program to judge effectiveness of safety programs & record must be kept.

**A. Engineers / Supervisors Training**

Engineers / Supervisors must be given minimum four hour safety training pertaining to construction site. Topic covered should include.

- HSE Policy
- General Loss Control Rules at Site.
- Duties of Engineer / Supervisor in promoting Safety.
- General Safety precautions.
- Accident-Causes, Reporting & Investigation.
- Work Permit System.
- Fire Prevention.
- Personal Protective Equipment.
- Safety during construction.
- Electrical Safety.
- Action in case Emergency-Fire/Accident.
- Procedure for Evacuation.
- Related Chemical Hazards.
- Evaluation by quiz, questionnaires.

Training Should be Conducted by: Safety Officer / Engineer.

**B). Workers Training**

Workers should be given minimum 1 hrs. initial safety training before deployment on job. Topics covered should include.

- HSE Policy
- General Loss Control rules at site.
- General Safety precautions.
- Accident – Causes.
- Fire Prevention.
- Personal Protective Equipment.
- Safety During Construction.
- Action in case Emergency – Fire / Accident.
- Procedure for Evacuation.
- Evaluation by quiz, questionnaires.

Training should Conducted by : Site Engineer / Safety Officer/Engineer. C). Refresher

**Training.**

- Once in Six Months for every worker, Supervisor & Engineer.

7.3 **PREMOBILISATION MACHINERY/EQUIPMENT/TOOLS ACCEPTANCE INSPECTION:**

- As a measure to ensure that machinery, equipment and tools being mobilized to the construction site are fit for purpose and are maintained in safe operating condition and complies with legislative and Owner requirement, and Acceptance inspection shall be carried out.
- An equipment passport system (the system certificate to be valid for only three months) shall then be adopted and implemented for each piece of accepted mobile machinery or equipment.
- The machinery and equipment to be embraced by this passport system includes but not limited to the following:
  - ☐ Mobile cranes.
  - ☐ Side Booms.
  - ☐ Forklifts.
  - ☐ Air compressors.
  - ☐ Welding Machine.
  - ☐ Generator Sets.
  - ☐ Dump Trucks.
  - ☐ Excavators.
  - ☐ Dozers.
  - ☐ Grit Blasting Equipment etc.
  - ☐ Grinding Machine.
  - ☐ Drilling Machine.
- The equipment owner shall have to implement this equipment passport system inspection to be carried out by the equipment owner's nominated competent person who must maintain a log as proof that such inspections were carried out.
- For equipment, which requires annual or third party re-certification inspection, this passport system should be construed in a way to supersede such statutory requirement.

7.4 **DAILY SITE SAFETY INSPECTION:**

Both the Work Site and Safety Supervisors are to conduct daily site Safety inspection around work activities and premises to ensure that work methods and the sites are maintained to an acceptable standard. The following are to form the common subjects of a daily Safety inspection:

- A Daily Safety Check Sheet if any Client shall also be filled in by Site Engg. & Counter Signed by Safety Officer. ( As per format SME/HSE/F - 27 )
- Personal Safety wears & gear compliance.
- Complying with sit safety rules and permit-to-work (PTW).
- Positions and postures of workers.
- Use of tools and equipment etc. by the workers.
- The inspection should be carried out just when work starts beginning of the day, during peak activities period of the day and just before the day's work ends.

7.4.1 **HOUSEKEEPING:**

A high degree of housekeeping is to be maintained and the following are to be taken care of:

- All surplus earth and debris are removed/disposed off from the working areas to identified locations.
- Unused/Surplus cables, steel items and steel scrap lying scattered at different places within the working areas are removed to identified locations.
- All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from workplace to identified locations.
- Camp area shall be kept clear and materials like pipes, steel, sand, concrete, chips and bricks, etc. shall not be allowed in the camp to obstruct free movement of men and machinery's.
- Fabricated steel structures, pipes & piping materials shall be stacked properly.
- No parking of trucks/trolleys, cranes and trailers etc. shall be allowed in the camp, which may obstruct the traffic movement. As well as below LT/HT Power line.
- Utmost care shall be taken to ensure over all cleanliness and proper upkeep of the working areas.

7.4.2 **WEEKLY OWNER / CONTRACTOR / SUB-CONTRACTOR JOINT SAFETY INSPECTION / MEETING:**

Regular OWNER/Contractor's Safety Inspection and meeting shall be an officially coordinated activity. Inspection findings and subsequent meeting M.O.M. shall be produced with copies extended to Owner if directed. The agenda to be discussed in the meeting should cover but not limited to the following:

- Good safety practices observed.
- Deficiencies, concerns found during all previous inspections and emphasize on what need and how to improve.
- Incidents/accidents or near misses that occurred.
- The inspection and meeting should be participated and attended by relevant supervisors nominated by Construction Manager on a rotation basis.

7.4.3 **TOOLBOX MEETING:**

7.4.3.1 **REGULAR TOOLBOX MEETING:**

- Any day-to-day information and or general instructions related to work that need to be disseminated to the workers are best done on the site. The best person to conduct such meeting standing on an available toolbox, hence meeting of such nature is called toolbox meeting.
- Subjects to be covered during a toolbox meeting should include deficiencies or shortcomings noted during the daily site Safety inspections.
- Regular toolbox meeting should be conducted minimum once a day.
- Review of project Safety objectives and performance Vs targets. Safety personnel shall participate and give Safety talks at toolbox meetings.
- Other work leaders or workers may be encouraged to relate their real life experience of any past accidents and highlight the learning points.

7.4.3.2 **JOB SPECIFIC TOOLBOX MEETING:**

- As with a job specific toolbox meeting, the subject matters must pertain specifically to a job being intended for immediate execution.
- The relevant Job Safety Analysis (JSA) should be drawn for a job specific toolbox meeting.
- The work supervisor shall be responsible to draw the relevant JSA or HIP for the meeting.

7.5 **CONFORMANCE MONITORING AND CORRECTIVE ACTION PROCEDURE:**

All site supervisors are to continuously monitor the work crew to ensure that they are conforming to safe work practices. Key Supervisors who had attended the initial in- house Safety training are encouraged to apply the new knowledge learned. Recognition of good safe work practices compiled by workers and work leaders should be given more attention than unsafe practices; as a mean to encourage complying with the safe and the right way. Any unsafe practices and non-conformance cases spotted should be intervened and counseled tactfully. Such one-to-one corrective measures should focus on the objective of raising the defaulting individual's awareness to assess what is the safe and right way; the choice remains his or her responsibility. The tendency to apportion blame is to be avoided.

7.6 **ROLE OF SAFETY PERSONNEL DURING WORK ACTIVITIES:**

Safety personnel are to monitor Safety matters at work activities and work sites. If there should be any unsafe conditions, unsafe and malpractice found the necessary Safety instructions should be raised for the attention of the supervisor in-charge to rectify the conditions.

Basic occupational health training shall be provided to all personnel during the induction-training program. Job specific occupational health training shall be provided to personnel where a risk assessment identifies health hazards that exist specifically to a task or operation. No person shall be permitted to work unless they have been informed of the possible Health hazards associated with their work and given instruction on how to control such Health risks effectively.

7.7 **PLANNING WORK: HAZARD/RISK ASSESSMENT. METHOD STATEMENTS AND SAFE SYSTEMS OF WORK:**

7.7.1 **HAZARD:**

Risk assessment is the systematic identification of the hazards associated with construction work and the evaluation of the risks associated with those hazards. A hazard-risk assessment shall take account of all the work activities and consideration shall also be given to anyone else who could be affected by the work activities.( Please Refer Sheet 21 to 24 )

7.7.2 **RISK ASSESSMENT:**

Risk assessment analysis process shall identify certain activities for which detailed written method statement or safe systems of work are required to ensure that the activities are properly controlled and executed safely, without risk to health and the environment. All such written safe systems of work shall clearly identify the objective, the sequence of operations, foreseeable hazards, and precautionary and protective measures required and shall be easily understood by the personnel who are to supervise and carry out the work.

7.7.3 **METHOD STATEMENT:**

A construction method statement shall be produced in construction with the specific hazard – risk assessment for individual activities. The method statement shall describe the control measures identified in the hazard-risk assessment and all relevant personnel shall be made aware and instructed on the control measures to be implemented. Method statements shall be prepared and submitted to the Client prior to the schedule start date. Method statements are required for sensitive and hazardous operations which shall include but not be limited to.

- Heavy lifts.
- Dual Crane Lifts.
- Extended Radius Lifts.
- Lifts over Sensitive Area.
- Excavations.
- Work in confined spaces.
- Temporary Works.
- Radiography.
- Chemical Cleaning.
- Work on Energized Electrical Equipment.

Where Sub-contractors are employers on the project. The contractor shall ensure that such companies provide adequate Environmental and Safety information and training to their employees. This shall include induction information contained in hazard-risk assessments/method statements and any specific training identified in such assessments/method statements. Contractors shall provide similar assessments covering their respective operations and all hazard/risk assessment shall be reviewed and revised as circumstance change.

A suitable and adequate hazard-risk assessment shall be carried out for all work and these assessments shall be regularly reviewed. Records shall be kept and be available when requested.

7.7.3 **AVOID RUSH WORK:**

- Though the construction schedule is tough, the tendency of rush work and little co- ordination with safety measures may take place.
- To avoid this following measures to be taken.
- Management shall conduct training program on safety in regular intervals.
- Conduct daily toolbox meeting to the workers.
- Training to the staff on teamwork and ride controls at regular intervals.

7.7.8 **ENVIRONMENTAL HEALTH AND SAFETY OBJECTIVES:**

To encourage line management to take ownership of Environmental Health and Safety matters, personal objectives shall be set for all within line management responsibilities. These objectives shall be set by the individual manager and shall be specific, measurable, achievable, realistic and time-bound.

To assist in the setting of objectives and measuring of performance a management plan listing all line management health and Safety objectives shall be developed. Regular monitoring of the setting of Health and Safety objectives shall be undertaken to establish the effectiveness of the system reviews shall be carried out as and when required.

The setting of Environmental, Health and Safety objectives and the achieving of these objectives shall form part of the Project Environmental, Health and Safety Performance Measurement.

**OBJECTIVES:**

- I) Provide a safe working environment.
- II) Ensure the safety of all personnel within our areas of work. III) Protect the public from injury.
- IV) Prevent loss or damage to property resulting from our activities.
- V) Comply legislative and Company Safety rules in our areas of work.

**SAFETY TARGETS:**

Fatalities and lost time	: Nil
Injurious/(LTD accidents)	: Nil
Fire	: Nil
Explosion	: Nil
Environmental incident	: Nil
Vehicle / transport incident	: Nil
Safety Audits	: 2 Minimum (Quarterly per year project whichever is high)

**SAFETY INSPECTION:**

By Project Manager	- 1 Per month
By work Supervisor	- Daily
Plant and equipment Manager	- 2 Per month
Plant and equipment Supervisor	- 4 Per month
By Safety Officer	- 1 Per day.

#### 7.9 **TRAINING AND COMPETENCE:**

Each Manager shall be responsible for identifying the Safety training needs of persons under his/her direct control. Safety training needs may be identified through risk assessment or as new activities arise in all cases the individual concerned shall be consulted. All plant operators shall be in possession of a valid training certificate. Alternatively a competent person employed by the Excel Technical Services Pvt. Ltd. shall list criteria applicable to the operation of such plant. Thereafter the operator's knowledge shall be tested and if his knowledge and skill proves his competency then an in-house written approval shall be processed.

All plant operators must be competent to operate the plant concerned and shall be in possession of a Certificate of Appointment for this purpose. Under no circumstances, unauthorized personnel shall be allowed to operate plant. Each plant operator shall have the categories of plant they are authorized to operate listed on a Certificate of Appointment. The Excel Technical Services Pvt. Ltd. shall ensure the provision of adequate Health & safety information, instruction and training for all levels of personnel on the site. A variety of techniques shall be adopted such as poster campaigns, safety videos and newsletters. The Company shall also ensure the display of relevant warning signs, notices and placards where appropriate.

In addition to attendance at the general induction courses, all personnel required to work on the following activities shall attend supplementary courses as required:

- **Working over or near water**
  - Safe working practices.
  - Water borne diseases.
  - Rescue/emergency procedures
- **Demolition**
  - Safe working procedures.
  - Control of access / egress.
- **Hazardous Materials**
  - Work Involving Explosives.
  - Safe work procedures.
  - Control of access / egress.

Training registers shall be produced for all training courses delivered and attendance shall be verified by the delegate's signature. Training records shall be maintained for all individuals on site.

#### 7.10 **SAFETY COMMUNICATION:**

Excel Technical Services Pvt. Ltd. shall hold an internal **Safety meeting every fortnight**. The aim of this meeting is to promote Zero accident performance, monitor the efficiency of the site Safety Plan, review the site accident record and identify any trends and to provide a forum to plan accident prevention initiatives.

The meetings shall be held to a formal agenda with minutes taken identifying action required. Minutes shall be distributed to all present.

To demonstrate the high level of importance given to safety, the first agenda item at all Management Meetings shall be Health and Safety.

Senior Management shall have personal health and safety objectives to undertake Health and Safety Tours at regular frequencies. The purpose of these tours is to demonstrate senior management's commitment to health and safety in a highly visible way and also for senior management to communicate with the workforce at all levels.

Toolbox talks shall be used as a means of communicating safe systems of work to the workforce on a weekly basis. A program of regular weekly toolbox talks conducted by the



Pro-work briefing shall be provided before a new work activity (e.g. excavating or blasting, boring ground). Such pre-work briefing shall be based upon risk assessments for new work activities in which hazards and corresponding controls have been recorded. After receiving toolbox talks and or Pro-work briefings operatives shall be encouraged to give feedback to the training provided on Health and Safety matters relating to the work. All attendees shall be required to sign a confirmation of training record sheet. Safety notice boards shall be erected and maintained. The name and contract details of the safety representatives shall be prominently posted on the notice board along with other items of safety interest. It is recognized that during the execution of this project there shall inevitably be a degree of interface with the activities of other parties, such as the Client's operational department contractors execution other works, and the general public. To eliminate or adequately control the risks to all persons affected by interfaces it shall be essential to effectively coordinate the works. Liaison meetings shall be held at which a senior member of their Management team shall represent each respective party.

These meetings shall take place at intervals appropriate to the work in hand to discuss foreseeable hazards arising from interfaces and agreed programs and schedules of work designed to eliminate risks.

The Company shall ensure that such forums are set up to enable this to take place, in particular this shall include:

- Workforce representation at appropriate Health and Safety meetings.
- Allowing and recording any suggestions from the workforce after toolbox talks are given.
- Encouraging the workforce to take an active role in safety with the trained observer taking suggestions and comments from them.
- Operating an open approach to health and safety management where the workforce is encouraged to make suggestions to improve the levels of Safety on site.

7.11 **WORK PERMIT SYSTEM:**

Work Permit system as per Client System Policy and Client work permit system to be followed. Permit to be maintained for 90 days and hot job permit copy should be submitted to HSE department daily. Permit audit to be carried out on weekly basis.

7.11.A **Work Permit Requirement Circumstances:**

Work permit system are the most formal method of ensuring safe systems of working Their use shall be reserved for work where there are potential hazards and that the precautions necessary for that work need positive enforcement. Once work (radiography, pressure testing, confined spaces etc.) has been identified and designated as requiring a permit to work the use of permits to work shall be mandatory.

7.11.B **Definitions: Issuing**

**Authority:**

Is the person who signs a Work Permit and authorizes the work to start provided that all the prescribed special conditions have been or shall be complied with. He shall ensure that all supporting documentation has been obtained and is properly completed before the Work Permit is signed.

**Performing Authority:**

Is the person who 'receives' a Work Permit Normally a supervisor of the operatives carrying out the work. He shall ensure that he, and all the operatives involved, understand the conditions, limitations, and precautions necessary as stipulated in the Work Permit, and that these are complied with.

7.11.C **Description and Limitations of Permits:**

a) **Description:**

(As per Client Work Permit System only 2 Permits to be used and for rest of the jobs checklist to be used. For Permit co-ordinate and Safety Officer / Supervisor one day Permit Training is must.)

- The Cold Work Permit.
- The Hot Work Permit.
- The Work permit for entry to and work in confined spaces.
- The Excavation Permit.
- The Electrical isolation work permit.

b) **Supporting and Associated Documentation:**

- And Application Form to Raise a Work Permit
- An Atmospheric Test Certificate needed for Hot/Cold work and Confined Space Entry.

c) **Limitations – Category of Work:**

Cold Work (Wherever required, permit/to be issued by client)

All work, which does not fall into the category of any other type of permit, must be authorized by a Cold Work Permit. Exceptions being that work which is done by certain Construction personnel in the course of their duties, all racking out or racking in or re-setting of equipment in electrical sub-stations by competent Electrical personnel only.

Hot-Work (Wherever required, permit/to be issued by client).

All work in the restricted area, which involves the use of any flame or electric arc or the use of any equipment likely to create a source of ignition must be authorized by a Hot Work Permit.

Included in this category are: -

Welding and burning equipment; electrical; tools: equipment with naked flames: soldering irons: sand or grit blasting equipment: pneumatic drills electrical and battery operated devices which have not been certified as safe for use in a flammable atmosphere: vehicles and other engine power mobile equipment.

Before the issue of a Hot Work Permit, the Issuing Authority must be in possession of an Atmospheric Test Certificate relating to the equipment or area on, or in which, the hot work is to take place.

Confined Space / Entry (Wherever required, permit/to be issued by client).

A Confined Space Work Permit must authorize entry by personnel into a confined space or enclosed space. The only exception being the entry of suitably qualified personnel, properly protected, for the purpose of atmospheric testing in preparation for the Permit.

Before the issue of a Confined Space Permit the Issuing Authority must be in possession of an Atmospheric Test, Certificate relating to the vessel or confined space.

Excavation Permit. Wherever required permit to be issued by client.

All work which involves digging or extraction of any surface / ground medium such as soil paved roads and concrete or the driving of stakes into the ground must be authorized by the issue of and Excavation Permit.

The purpose of the Excavation Permit is primarily to protect buried services e.g. electric cables gas-water mains process lines etc. The Issuing Authority for an Excavation Permit shall have full knowledge of buried services etc. in the specific area.

Electrical Isolation/Work Permit (Wherever required permit/to be issued by Client). Before any work is carried out on any electrical apparatus, it must be isolated and Locked, and an Electrical Isolation/Work Permit issued. In the case of an Electrical Isolation/Work Permit, the Permit must be countersigned by a competent Electrical Engineer. The Electrical Isolation/Work Permit is for work on 440V or below apparatus and associated equipment. For work involving higher voltages, special arrangements shall have to be made with the Local Electrical Distribution Authority and these arrangements shall be outside this permit system. For work on associated equipment e.g. a motor driven pump, agitator, cooling fan etc., a motor isolation tag must be issued and posted at the driver. Personal padlocks must be issued to all directly involved operatives working on the associated equipment for them to insert in the locking device on the electrical isolator.

Procedures for Work Permit Issue a)

**Requirement:**

Work Permits are required for all work carried out within the Restricted Area as designated by the issue of standard form.

b) **Application:**

An application for a Work Permit shall be given to the Issuing Authority, or the Permit to Work Administrator, on the day before the Permit is required.

The Application Form shall be made by the Supervisor responsible for the work giving full details of the work to be carried out; the precise location of the work; the equipment to be used and the manpower involved in the work.

c) **Preparation and Issue:**

Work Permits shall be prepared by the Issuing Authority. They must be written legibly in black ballpoint pen.

All sections of the Work Permit Form must be completed. Those prepared sections additional requirements considered necessary to the pre-printed list.

Where necessary the issuing Authority or his delegate shall arrange for a gas test of the Vessel of Area concerned for the issue of an Atmospheric Test Certificate. The number of the Atmospheric Test Certificate shall be entered on the Work Permit and the original Atmospheric Test Certificate given to the Permit applicant.

When the Issuing Authority is satisfied that all conditions and precautions have been or shall be complied with he may sign and issue the permit original to the applicant. The Recipient shall sign the Acknowledgement Section of the Permit.

d) **Acknowledgement:**

All Work Permit categories require a formal acknowledgment from the Recipient where he is required to sign the Permit Form acknowledge that he understands all the conditions precautions and restraints imposed by the Issuing Authority and that these conditions etc., have been fully explained to the operatives who shall carry out the work. The 'Acknowledgement section shall be signed at the time of issue.

e) **Posting, Suspension, Completion and Cancellation:**

While the work is in progress the Permit together with any supporting documentation- 'Atmospheric Test Certificates' etc.- must be displayed or kept at the work location. All Permits are automatically suspended upon emergency alarms sounding. Before work re-commences after and alarm stoppage, permission must be obtained from the Issuing Authority.

When all work is finished, the person in charge of the work normally the recipient of the Work Permit shall sign the 'Work Completed' section of the Form and return it along with any supporting documentation, to the Issuing Authority. When the Issuing Authority has received the completed Permit it shall automatically be cancelled.

f) **Validity:**

A Work Permit is only valid until the time/date shown. Normally a Work Permit shall be issued for a period not exceeding 12 hours. Each Permit may be extended on a 12-hour basis. The permits shall be presented for re-validation each day before work commences. A Work Permit ceases to be valid upon the sounding of an emergency alarm.

g) **Blanket Work Permit:**

It will not be issued in any Operational Area in any case.

7.11D

**Responsibilities:**

a) **Issuing Authority:**

The issuing Authority is responsible for ensuring that before a Work permit is issued.

- The work area a safe.
- Access to the work area is safe.

- The equipment involved has been made safe e.g. electrically isolated and locked; isolated from all process and utility systems; gas tested for hydrocarbons, toxic gas and oxygen content, etc.
- Any additional form, e.g. 'Atmospheric Test Certificate' has been completed and attached to the Work Permit as required.
- The necessary counter signatures are on the Work Permit and associated forms. b)

**Performing Authority:**

The 'Performing Authority' is normally the Supervisor who is responsible for the work to be carried out and who made the application. He shall ensure that:

- He thoroughly understands the conditions and limitations of the Work Permit as issued and of the precautions necessary while carrying out the work.
- All personnel in carrying out the work are made fully aware of the conditions, limitations and precautions necessary as stipulated by the Work Permit.
- That the Work Permit and associated documentation are displayed or kept at the work's location.
- That the Work Permit and associated documentation are returned to the Issuing Authority at the expiry time or before then, if work is completed.
- That the Work Permit is renewed if work is required to continue beyond the time limit shown on the Permit.

Project Manager – Appointment & Register of authorized Persons:

The Project Manager shall be responsible for the appointment of Issuing and other Authorities required by the Permit-to-Work System. He shall maintain a Register of persons authorized to sign and issue Work Permits and associated documentation, indicating which category of Work Permit or associated documentation the individual is authorized to sign, countersign and issue.

7.12 **PLANNED INSPECTIONS:**

Regular planned inspections shall be undertaken. Supervisors shall continuously monitor Safety on the site as an integral part of their line responsibility. To encourage and enhance awareness and safe working practices, the safety inspection system shall involve members of the workforce. All substandard practices and conditions noted during the inspection shall be recorded on the appropriate inspection report.

The Principle Contractor recognizes that hazards (substandard practice and conditions) can lead to accidents. All personnel on the project shall be actively encouraged to report hazards on the appropriate report form. During the site induction training, all personnel shall be made aware of the reporting procedure and give typical examples of substandard practices and conditions that required reporting. Following the receipt of a hazard report form, the Project Director or in his absence the Project Manager shall ensure that the report is investigated and particular attention is given to:

- Establishing underlying causes.
- Actions taken to prevent further recurrences or reason why no further action was taken.

As part of the project's environmental, health and safety culture planned environmental, health and safety tours shall be undertaken by senior management on a weekly basis. These Health and Safety Tours are designed to be a highly visible walkabout by senior management with the aim of demonstrating management commitment to its environmental, health and safety policy. During these tours, senior management shall encourage feedback from the workforce and identify the actions necessary to improve the project's health and safety performance. Any substandard practices and conditions noted during the tour shall be reported on the "Weekly Safety Inspection Report".

7.13 **ACCIDENT AND INCIDENT NOTIFICATION:**

All injury accidents shall be recorded in the Accident / Incident Report form.

The relevant employer shall report all legally reportable injuries, diseases and dangerous occurrences to the appropriate enforcing authority.

The Safety Manager shall be immediately informed of any accident or incident by telephone/radio/fax in person This shall be confirmed in writing by providing the relevant notification report form Excel Technical Services Pvt. Ltd. shall notify client, immediately of all potential or

Actual lost workday injuries Accident investigation reports for actual or potential lost workday injury including fatality shall be presented to client Within 18 hours of their occurrence Client shall arrange distribution of accident/Incident investigation reports to relevant parties.

Other injury damage and incident investigation reports shall be forwarded to Client within 48 hours of their occurrence. The following classifications shall be used in reporting accidents / incident.

- First aid.
- Lost workday (includes fatality)
- Vehicle accidents.
- Other damage.
- Environmental incidents.
- Near miss incidents.

7.14 **ACCIDENT AND INCIDENT INVESTIGATION:**

Excel Technical Services Pvt. Ltd. shall undertake detailed investigations into all accidents and incidents including near misses to establish cause and prevent recurrence. A member of the site Health and Safety Management team shall carry out such investigations that shall identify the immediate and underlying causes. An investigation report shall be prepared detailing remedial actions with close outdate. The report shall be distributed to the Client. ACE shall ensure that health and safety information and statistics are communicated to client.

7.15 **ACCIDENT/ INCIDENT STATISTICS:**

The Company shall ensure that up to date accident statistics are maintained for the Project. This shall include gathering the total number of tours worked on the Project and the total number of man-days worked to enable accident statistics to be produced.

This includes gathering the total no. of hours worked on the project and the total no. of man-days worked to enable accident statistics to be provided ensuring that the up to date data of the accident/incident have been filled in currently after detailed investigation.

7.16 **HAZARDOUS SUBSTANCES:**

It shall be ensured that a procedure for the Control of Substances, hazardous to health is fully implemented, to control risks arising from handling, storage, use and disposal of substances hazardous to health. To this end the Project Manager shall appoint a member of the site management team as the Hazardous substances controller to supervise and monitor the implementation of the controls which includes, but may not be limited to: -

- Establishing an inventory of all hazardous substances on the site.

- Maintaining a file of relevant Suppliers Hazard Data Sheets.
- Ensuring that an assessment of the proposed handling storage use and disposal of hazardous substances is carried out.
- Ensuring that personnel exposed to the hazardous substances are provided with the results of the assessments and written Health & Safety instructions, together with the provision of suitable and adequate personal protective equipment training where appropriate and observe precautions therein.

7.17 **PERSONAL PROTECTIVE / SAFETY EQUIPMENT:**

As a minimum dress code all Personnel shall be required to wear hardhat safety footwear, long trousers, short sleeved shirts (or overalls) on construction sites. This shall be emphasized during the site induction training.

Personnel not in possession of the appropriate work shall not be allowed to work on site. Hard hats shall display details of the individual (Name / Occupation) and the company employing him and shall be available before an individual's induction training. Where a sub-contractor does not have a corporate logo then the logo of the main sub-contractor Excel Technical Services Pvt. Ltd. shall be used. In certain work activities, if may be a mandatory requirement for overalls (coveralls) to be worn. Where there is need for additional personal protective equipment, safety spectacles, hearing protection etc. this shall be identified in hazard-risk assessments.

PPE to be issued to the individual workers.

7.18 **TEMPORARY WORKS:**

All temporary works designs shall be coordinated and reviewed through the Temporary Works Coordinator.

7.19 **ENVIRONMENTAL CONTROL:**

Environment and Rehabilitation issues have been highlighted in Excel Technical Services Pvt. Ltd.'s Environment Management Plan, Pollution, contamination and environmental damage is a major concern of the principal contractor and every effort shall be made, to have effective control measures in, place to avoid pollution of Air, Water and Land and associated life. Chlorofluorocarbons such as carbon tetrachloride and trichlorethylene shall not be used. Waste disposal shall in accordance with the guidelines laid down in the project specification.

Any chemical including solvents and paints, required for construction shall be stored in designated bonded areas around the site and contents shall be registered at the offices in accordance with the Hazardous substances procedure.

In the event of any spillage, the principle is to recover as much material as possible before it enters drainage system and to take all possible action to prevent spilled materials from running off the site Excel Technical Services Pvt. Ltd. shall use appropriate clean-up techniques

A contingency plan listing clean up techniques for hazardous substances to be used by a contractor shall be provided and must be used for the disposal of letter All contractors shall be responsible for the cleanliness of the areas.

Excel Technical Services Pvt. Ltd. shall ensure that noise levels generated by plant or machinery are as low as reasonably practicable. Where the contractor anticipates the generation of excessive noise levels from his operations the contractor shall advise the Company site Manager accordingly so that reasonable practicable precautions can be taken to protect other persons who may be affected.

7.19.1 **WASTE MANAGEMENT:**

**BINS AT WORK PLACE:**

- ☐ Sufficient rubbish bins shall be provided close to workplaces.
- ☐ Bins should be painted yellow and numbered.
- ☐ Sufficient nos. of drip trays shall be provided to collect oil and grease.
- ☐ Sufficient qty. of broomsticks with handle shall be provided.
- ☐ Adequate strength of employees should be deployed to ensure daily monitoring and service for waste management.

**STORAGE AND COLLECTION:**

- ☐ Different types of rubbish/waste should be collected and stored separately.
- ☐ Paper, oily rags, smoking material, flammable, metal pieces should be collected in separate bins with close fitting lids.
- ☐ Rubbish should not be left or allow it to accumulate on construction and other work places.
- ☐ Do not burn construction rubbish near working site.

**SEGREGATION:**

- ☐ Earmark the scrap area for different type of waste.
- ☐ Store wastes away from building.
- ☐ Provide firebreak line; fire resisting wall and fire doors near storage of waste.
- ☐ Oil spill absorbed by non-combustible absorbent and should be kept in separate bin.
- ☐ Clinical and first aid waste stored and incinerated separately.

**DISPOSAL:**

- ☐ Sufficient containers and soap disposal area should be allocated.
- ☐ All scrap bin and containers should be conveniently located.
- ☐ Provide self-closing containers for flammable/spontaneously combustible material.
- ☐ Keep drainage channels free from choking.
- ☐ Make schedule for collection and disposal of waste.

**WARNING AND SIGNS:**

- ☐ Industrial waste conforms to lay down statutory discharge standards.
- ☐ No toxic, corrosive or flammable substance discarded into public sewage system.
- ☐ Waste disposal shall be in accordance with best practice.
- ☐ Comply all the provision of Pollution Control Board (PCB) for storage and disposal of hazardous waste.

7.19.2 **TRAFFIC CONTROL:**

**ACCESS TO VEHICLES IN WORK PLACE:**

- ☐ Provide means of entrance to workplace.
- ☐ Provide means of egress.
- ☐ Vehicular traffic routes for internal traffic and deliveries.



### **SAFE WORKPLACE TRANSPORT SYSTEM:**

- ☐ Traffic routes in a work place shall be suitable for the persons or vehicles using them. This shall be sufficient in number and of sufficient size. This shall reflect the suitability of traffic routes for vehicle and pedestrians.
- ☐ Where vehicles and pedestrians use the same traffic routes there shall be sufficient space between them. Where necessary all traffic routes must be suitably indicated. Pedestrians or vehicles must be able to use traffic routes without endangering those at work. There must be sufficient separation of traffic routes from doors, gates and pedestrian traffic routes.
- ☐ For internal traffic, lines marked on roads / access routes and between buildings shall clearly indicate where vehicles are to pass.
- ☐ Temporary obstacles shall be brought to the attention of drivers by warning signs or hazard cones.
- ☐ Speed limits shall be clearly displayed. Speed ramps preceded by a warning signs or marker are necessary.
- ☐ The traffic route should be wide enough to allow vehicles to pass and re-pass oncoming or parked traffic and it may be advisable to introduce on-way system or parking restrictions.
- ☐ Safest route shall be provided between places where vehicles have to call or deliver.
- ☐ Avoid vulnerable areas/items such as fuel or chemicals tanks or pipes, open or unprotected edges and structures likely to collapse.
- ☐ Safe areas shall be provided for loading and unloading.
- ☐ Avoid sharp or bind bends. If this is not possible hazards should be indicated e.g. blind corner.
- ☐ Ensure road crossings are minimum and clearly signed.
- ☐ Entrance and gateways shall be wide enough to accommodate a second vehicle without causing obstruction.
- ☐ Set sensible speed limits which are clearly sign posted.
- ☐ Where necessary ramps should be used to retard speed. This shall be preceded by a warning sign or mark on the road.
- ☐ Forklift trucks shall not pass over road hump unless of a type capable of doing so.
- ☐ Overhead electric cable, pipes containing flammable hazardous chemical shall be shielded by using goal posts height gauge posts or barriers.
- ☐ Ensure that routes on open maneuvering areas/yards are marked and sign posted and banks men are employed to supervise the safe movement of vehicles.
- ☐ Ensure that peoples at risk from exhaust fumes or material falling from vehicles is protected.
- ☐ Restrict vehicle access where high-risk substances are stored.
- ☐ Road traffic signs shall be provided on prominent locations for prevention of accidents and hazards and for quick guidance and warning to employees and public. Safety signs shall be displayed as per the project working requirement and guideline of the state in which project is done. A sample for road sign is appended for implementation.
- ☐ Vehicles hired or used shall not be parked within the 15m radius of any working area. Any vehicle, that is required to be at the immediate/near the vicinity, shall be approved by the person in-charge of the site.

**TRAFFIC ROUTE FOR PEDESTRAINS:**

- ☐ Where traffic routes are used by both pedestrians and vehicles road shall be wide enough to allow vehicles and pedestrians safely.
- ☐ Separate routes shall be provided for pedestrians to keep them away from vehicles. Provide suitable barriers/guard at entrances/exit and the corners of buildings.
- ☐ Where pedestrian and vehicle routes cross, appropriate crossing shall be provided.
- ☐ Where crowd likely to use roadway e.g. at the end of shift, stop vehicles from using than at such times.
- ☐ Provide high visibility clothing for people permitted in delivery area.

**WORK VEHICLES:**

Work vehicle shall be as safe stable efficient and roadworthy as private vehicles on public roads. Site management shall ensure that drivers are suitably trained. All vehicle e.g. heavy motor vehicle forklift trucks dump trucks mobile cranes shall ensure that the work equipment conforms to the following:

- a) A high level of stability.
- b) A safe means of access/egress.
- c) Suitable and effective service and parking brakes.
- d) Windscreens with wipers and external mirrors giving optimum all round visibility. e) Provision of horn, vehicle lights, reflectors, reversing lights, reversing alarms.
- f) Provision of seat belts.
- g) Guards on dangerous parts.
- h) Driver protection - to prevent injury from overturning and from falling objects/materials.
- i) Driver protection from adverse weather.
- j) No vehicle shall be parked below HT/LT power lines.

**MAINTENANCE:**

All Vehicles used for transportation of man and material shall undergo scheduled inspections on frequent intervals to secure safe operation. Such inspections shall be conducted in particular for steering, brakes, lights, horn, doors etc. Driver shall enter in a logbook kept in vehicle and record defect or malfunction appearing in the vehicle during transportation. Site management shall ensure that work equipment is maintained in an efficient, working order and in good repair. Inspections and services carried out at regular intervals of time and or mileage. No maintenance shall be carried below HT/LT power lines.

An equipment passport system (the system certificate to be valid for only three months) shall then be adopted and implemented for each piece of accepted mobile machinery or equipment. The plant and equipment department shall have to implement this equipment passport system inspection. The entries of the inspection carried shall be maintained in a logbook as proof that such inspections are carried out for equipment, which requires annual or third party certification inspection, this passport system should not be treated to supersede such statutory requirement.

**DAILY CHECK BY DRIVER:**

There should also be daily safety checks containing below mentioned points by the driver before the vehicle is used.

- Brakes.
- Tires.
- Steering.
- Mirrors.
- Windscreen waters.
- Wipers.
- Warning signals.
- Specific safety system i.e. control interlocks.

Management should ensure drivers carry out these checks.

7.20 **SITE UTILITIES:**

All utilities whether existing, temporary, or pertaining to the permanent works shall be clearly defined by detailed sketches, plans or drawings. The control of all utilities shall be controlled through the Utilities Coordinator.

7.21 **EMERGENCY PLANNING AND PREPAREDNESS:**

Procedures to clearly define the action to be taken in the event of an emergency or potential emergency shall be drawn up. The emergency procedures shall be regularly reviewed and updated. All visitors arriving on site shall be instructed on the emergency arrangements prior to being allowed on site. Practice drills for identified emergency situations, including rescue operations shall be undertaken.

Foreseeable emergencies would include, but not necessarily be limited to:

- Fire.
- Poisons injured.
- Security alerts.

In order to ensure an adequate response to emergency situations it shall be ensured that an adequate number of suitably trained personnel are appointed who are competent in the use of firefighting equipment and provision of First Aid. Each site office shall produce and implement suitable fire safety plans which shall detail the actions to be taken on discovering fire, as well as the duties of Fire Wardens, evacuation procedures and roll calls. Brief shall be available with site supervisor inform of card wherever display is not feasible. The matter of card will be approved by CLIENT.

Emergency planning and preparedness procedure of Client.

Emergency no. to be display at site.

7.22 **SITE TRAFFIC:**

So far as is reasonably practicable, traffic routes shall be arranged so that pedestrians may move safely and without risks to health. These routes shall be both sufficient in number and size such that pedestrians are aware of approaching vehicles and visa versa. Suitable and sufficient sign and adequate physical barriers shall be erected to warn both drivers and pedestrians of unavoidable interfaces.

- ☐ All drivers shall hold a valid driving license for the class of vehicle to be driven and be registered as an authorized driver with the Administration Department.
- ☐ Drivers and passengers must wear seat belts.
- ☐ Securing of the load shall be by established and approved methods, i.e. chains with patented tightening equipment for steel/heavy loads. Sharp corners on loads shall be avoided when employing ropes for securing.
- ☐ All overhangs shall be made clearly visible and restricted to acceptable limits.
- ☐ Load shall be checked before moving off and after traveling a suitable distance.
- ☐ On no account is the R.O.W./site to be blocked by parked vehicles Driver of vehicles shall only stop or park in the area designated by the stringing foreman.
- ☐ All vehicles used by Excel Technical Services Pvt. Ltd. shall be in worthy condition and in conformance to the Land Transport requirement.
- ☐ All vehicles shall have reflectors and speed controllers in good working condition.
- ☐ A supervisor shall be designated by Excel Technical Services Pvt. Ltd. so as to ensure that site traffic proceeds within acceptable speed limits and through predefined path without disturbing surroundings.
- ☐ No vehicle shall be parked below HT/LT power lines.
- ☐ Vehicle speed shall be 25 km/hrs. during site work / operation.

7.23 **TRANSPORTATION OF PERSONNEL AND MATERIALS BY VEHICLES:**

- ☐ All drivers shall hold a valid driving License for the class of vehicle to be driven and be registered as an authorized Excel Technical Services Pvt. Ltd. driver with the Administration Department.
- ☐ Securing of the load shall be by established and approved methods, i.e. chains with patented tightening equipment for steel/heavy loads. Sharp corners on loads shall be avoided when employing ropes for securing.
- ☐ All overhangs shall be made clearly visible and restricted to acceptable limits.
- ☐ Load shall be checked before moving off and after traveling a suitable distance.
- ☐ On no account is construction site to be blocked by parked vehicles Drivers of vehicles shall only stop or park in the areas designate by the stringing foreman.
- ☐ Warning signs shall be displayed during transportation of material.
- ☐ All vehicles used by Excel Technical Services Pvt. Ltd. shall be in worthy condition and in conformance to the Land Transport requirement.

7.24 **TRANSPORTATION OF THE PERSONNEL:**

Transportation of personnel shall be done in buses/Trucks in accordance with following Conditions:

- ☐ No vehicle shall operate above 40 km of speed during transportation of personnel.
- ☐ Vehicle for personnel transportation shall be safe in every respect.
- ☐ Personnel shall not be carried in standing position.
- ☐ In the case of transportation by open vehicle the sides shall be secured or attached.
- ☐ If there is no panel or flap to close the rear end of the bed or platform a strong strap shall be fitted across to prevent falls.
- ☐ Vehicle used for transportation of personnel shall undergo scheduled inspections on frequent intervals to secure safe operation. Such inspections shall be conducted in particular for steering, brakes, lights horn, doors etc.
- ☐ Driver shall enter in a logbook kept in vehicle and record defect or malfunction appearing in the vehicle during transportation.
- ☐ It shall be ensured that in passenger space there is not standing, no sitting on sides, and no gating on or off until vehicle comes to a halt.
- ☐ Prior to start the vehicle the driver shall check passenger is sitting on the proper position.
- ☐ One Emergency vehicle shall be kept at site till the construction activity continues.

7.25 **SITE SECURITY:**

Security is critical to the safety of all persons on site. Therefore the Site shall be kept secure at all times and only authorized persons shall be permitted on to site. All visitors on site shall be registered by site security and only then issued with a Visitors Pass. All visitors onto any site shall be accompanied at all times by a suitable experienced member of staff.

Site visitors shall be accompanied at all times by an authorized person and contractors shall conform to this rule. In addition all unattended vehicles and items of mobile plant shall be effectively locked / immobilized so that they cannot be moved or operated without authority.

7.26 **SITE FIRST AID:**

Site engineers/job supervisors and safety supervisor will be given first aid facilities each workplace. Every injury shall be reported and treated first aid training encourages positive safety performance mid the principal contractor shall discuss and set a project objective to be achieved by its sub-contractor. .

We don't have any trained person from above said institute. We have already send the name of our authorized person for training to you, so you are requested to trained them from St. John Ambulance and arrange for the certificate.

7.27 **FIRE PREVENTION AND PROTECTION:**

It shall be ensured that adequate preventative and protective measures are taken to control fire hazards. These arrangements shall include.

- Emergency Procedures.
- Fire Protection.
- Portable Fire Extinguishers at all required places.
- Temporary Buildings.
- Site Storage of Flammable Materials.
- Electricity and Gas Suppliers.
- Waste Materials.
- Fire Waster / Sand Buckets.
- Flash Back arrestor on gas cylinder during use.

Unauthorized fires are not permitted on the construction site. Burning shall only be done in designate areas. Fire Wardens shall be in attendance during and for one hour after during any hot work operation chart of suitable for various types of fires given in closed format No SME/HSE/017.

7.28 **EMERGENCY EVACUATION:**

Respective area emergency coordinator and deputy coordinator shall be appointed to control the emergency situation. Should an emergency required for evacuation, the emergency coordinator or his deputy shall take control of people to observe the following procedure:

- In case of an emergency, area supervisor shall notify all employees by using radio on emergency channel or over telephone.
- Area emergency coordinator or his deputy coordinator shall decide whether an evacuation is necessary and shall direct the activation of alarm signal accordingly. At the same time emergency controller or his deputy shall be informed about the situation.
- Team leader or area in-charge shall direct all employees to assemble in the nearest and designated "Assembly Point" in an orderly manner without making noise.
- All plant and equipment shall be switched "OFF" Lighting shall be remained ON but capable of being switched off shall also be switched "OFF".
- Where a work group does not have a dedicated assembly point then team leader shall decide the place where to assemble during time of emergency.
- Roll call of the employees shall be taken and status to be reported to the emergency controller.
- The area emergency coordinator shall give siren signals for end of emergency period.

Where necessary, in the interests of the health and safety of any person on a construction site, suitable arrangements shall be prepared for dealing with any foreseeable emergency. This shall include procedures for any necessary evacuation of the site or any part of it. Steps shall be taken to ensure that every person on site knows those procedures and that emergency drills are tested periodically.

A means of detecting and warning of fire must be provided on all sites. Hand bells, whistles, klaxons, manually or electrically operated sounders may be suitable so long as they are clearly audible above background noise in all areas and can be readily identified as being a fire alarm.

Written emergency procedures giving details of nearest hospital/dispensary fire Station police station shall be displayed in prominent locations and a copy given to all employees on site. List displaying important has given is enclosed format No. SME/HSE/014.

- Instructions for raising the alarm.
- Instruction to report to the nearest assembly point.
- Information about the assembly point.
- An indication of the locations of fire escape routes.
- Positions of fire extinguishers.
- Instructions about using fire extinguishers.

In case of serious injury special arrangements shall be made available based upon site conditions. For any severe injury Project Manager shall be authorized to take necessary arrangement for lifting/transporting the injured to the correct to take necessary arrangements for lifting/transporting the injured to the correct location.

7.29 **COMPRESSED AIR AND AIR POWERED TOOLS:**

Compressed air whilst being a valuable industrial aid is also capable of being a serious hazard. The improper use of compressed air has resulted in internal injuries, perforated eardrums and even death; it has also led to severe damage to machinery.

- Never clean clothes and the work area with compressed air - use brush or vacuum equipment.
- If an airline or coupling comes apart, it can whip about dangerously. Always fit a safety chain to couplings.
- Do not drive vehicles over air-hoses. Provide two planks either side of the airline where they cross roads/walkways.
- Always shut off air pressure before disconnecting air-powered tools.
- Air powered tools such as jackhammers, drilling machines, grinders, and hoists riveting guns subjected to scheduled Maintenance inspections by competent person.
- Eye protection worn by operator and if noise is a hazard then hearing protection, worn.

7.30 **HOISTS:**

This covers goods and passenger hoists, mobile hoists and inclined hoists.

- The installation and use of any hoist will be subjected to a detailed risk assessment.
- All hoists and hoist-ways will be installed/erected by competent persons in accordance with statutory requirements and manufacturer's recommendations. The installers/erectors shall take into account all factors likely to affect stability e.g. ground conditions workloads ties to the structure weather etc.
- Hoists shall only be operated in accordance with manufacturer recommendations.
- All hoist operators will be over 18 years of age properly trained and competent.
- All hoists will be clearly marked with their safe working load whether or not passengers may be carried and if so the maximum number passenger that may be carried.

- All hoists will be tested and thoroughly examined by a competent person before first use on site after substantial alteration, modification or repair (including each time the height of the hoist-way is altered) and at least every six months for a passenger hoist and 12 months for good hoists.
- All hoists shall be inspected by competent person and a written report of the Finding produced and defects corrected where necessary.
- Detailed records of tests, through examination and inspections shall be maintained on site.
- Protection shall be made from HT/LT power line while operating.

7.31 **ABRASIVE WHEELS:**

Abrasive wheels are potentially dangerous and it is essential that the correct wheel is selected and fitted by a competent person.

- Only persons who have been trained to do so and are in possession of an appropriate certificate may mount abrasive wheels and diamond tip blades.
- Use of abrasive wheel / diamond tip blade tools and equipment will be limited to persons having received the training noted above.
- The names of every person on site trained and appointed to mount abrasive wheels and diamond tip blades will be entered into a register / training record maintained on site.
- All persons required to use this equipment will be provided with adequate personal protective equipment.
- Correct wheel should be used in accordance with the speed of grinding machine. Valid date must be endorsed on wheel. Only valid discs should be used.

7.32 **OXYGEN CUTTING:**

In oxygen cutting, the metal is heated by burning fuel gases and then severed or removed by the chemical reaction of metal and oxygen. The handling and storage of gas cylinders needs particular attention.

- Reference should be made to the relevant material safety data sheets.
- Protect cylinders from cuts or abrasions.
- Do not lift compressed gas cylinders with an electromagnet or slings. Where cylinders must be handled by a crane, carry them in cradle or suitable platform.
- Do not tamper safety devices in valves on cylinders.
- Load cylinders to be transported, allowing less movement between cylinders. Secure them to prevent violent contact or upsetting.
- Cylinders should be stored in a safe dry well-ventilated place prepared and reserved for that purpose.
- Cylinders should not be stored near elevators, gangways, stairwells, or other places where they can be knocked down or damaged.
- Cylinders of oxygen stored indoors should not be within 6 meters of cylinders containing flammable gasses or highly combustible materials.



- Defective pressure gauges shall not be permitted on regulators.
- The oxygen regulator should be equipped with a safety relief valve or be so designed that, should the diaphragm rupture, then broken parts will not fly.
- Never allow oxygen and oil to mix as it may cause an explosion.
- Long hoses should not be used, as they are difficult to purge. Leaking hoses must be repaired immediately.
- Protect hoses from sparks, slag, grease, oil and hot objects.
- (Flashback arrestors) should be installed at the torch end of each hose to prevent back-flow of gases.
- Before changing torches, shut off the gas at the pressure reducing regulators and not by crimping the hose.
- Never put down a torch until the gases have been completely shut off.
- Do not hang torches from a regulator or other equipment that allows them to come in contact with the sides of gas cylinders.
- Never keep gas cylinders inside a confined space.

7.33 **WELDING:**

7.33.1 **ARC WELDING:**

In arc welding, metals are joined by heating with application of pressure or use of filler metal. The process includes shielded welding which uses gas or a solid flux to blanket the weld. Welding cables may be subjected to severe abuse if they are dragged over work under construction and across sharp corners, or run over by vehicles. Special attention needs to be given to prevent electric shock.

- Replace or repair defective cable immediately.
- In confined areas, cover or arrange cables to prevent contact with falling sparks.
- Never charge electrodes with bare hands wet gloves or when standing on wet floors.
- Earth or ground the frames of both portable and stationary welding units.
- Keep welding cables dry and free of grease and oil to prevent breakdown of insulation.
- Take special care to keep welding cables away from power supply cables or high-tension wires.
- If a cable (either a work lead or electrode lead) exposes bare conductors, then cover the exposed portion with rubber, plastic or friction tape equivalent in insulation to the cable covering. Cables shall not be taped within a meter of the electrode – they should be shortened or replaced.
- If cables have to run some considerable distance from the welding unit then consider placing them onto overhead supports.
- Protect cables that must be laid on the floor or ground so they will not interfere with safe passage or become damaged or entangled.
- If it is necessary to weld or cut near combustible materials the combustible materials should be moved to a safe distance away or protected by non-combustible curtains or sheet metal. Floors of wood or other combustible materials should be swept clean and, if possible, protected with a flame resistant covering.

- A fire watch and a fire extinguisher should be maintained throughout the welding or cutting operation and continued for at least 30 minutes after job completion.
- Gases (the oxides of nitrogen, carbon monoxide, ozone) and metallic dusts and fumes may pose respiratory hazards during welding work. If gases, dusts, and fumes cannot be kept below the Threshold Limit Values, welders should wear suitable respirator. Should oxygen be deficient, self-contained breathing apparatus or nose masks with blowers are necessary.
- Use local exhaust ventilation or general ventilation systems in confined areas, such as tanks and pressure vessels. This precaution should maintain toxic gases, fumes, or dusts below the maximum allowable concentrations.
- Local exhaust removal or general ventilation should be used when welding involves coatings or fluxes containing base metals that contain zinc, fluorine, beryllium, lead, or cadmium, and their compounds, so that the concentration of any toxic fume generated is below the TLV.
- Local exhaust or general ventilation should be used to maintain the concentrations of oxides of nitrogen within safe limits.
- When ultraviolet radiation passes through the air, ozone can be formed in the welding area. General ventilation will usually control ozone levels in the welding area.
- Inert gas-shielded arc welding requires that precautions be taken to provide proper respiratory protection, positive ventilation, local exhaust removal, or approved respiratory equipment, or a combination of them.

7.33.2 **PROPANE (LPG) BLOW TORCHES AND FURNACES:**

Propane (LPG) fed blowtorches and plumber's furnaces present a hazard of fire and explosion and should not be used in the presence of flammable substances or explosive dusts or vapors storage and handling of liquefied petroleum gas is inherently hazardous on its own. As propane is heavier than air it may displace oxygen in confined spaces. It should be kept away from open flames and other sources of ignition.

- If propane is used to do work in a confined space such as a tank or vessel it shall only be present for the duration of the work.
- When the propane cylinder is not in use it shall be kept outside of all confined spaces.
- Propane storage areas should be secure, kept out of any confined space and allow good ventilation so that any gas may be dispersed.
- Flashback arrestors shall be used.

7.34 **GRID BLASTING CLEANING:**

- Grit blasting shall only be done under the supervision of an experienced and competent person.
- Personnel doing sandblasting work must be competent and experienced in this work.
- Breathable quality air, free from oil mist, moisture and toxic gas shall be supplied to the operator's hood. This is enabled by passing the compressed air through a regulator and suitable pre-filter. The pre-filter shall be inspected daily. Additionally, if there is any danger of inhalation of dusts an appropriate dusk respirator before starting such work.
- The supervisor in charge shall ensure that grit-blasting personnel are properly instructed before starting such work.
- The supervisor in charge shall ensure that equipment is maintained in safe and good working order.
- The workplace shall be a restricted area and a rope barricade shall enclose it. Warning signs indicating "DANGER-GRIT BLASTING" should be posted on the barricade.

- Provide suitable materials to act as curtain (tarpaulin plastic sheeting etc.) to enclose the work area so as to retain dust with the area and protect personnel outside the area.
- Provide suitable and secure covers to protect instruments gauges air line valves and similar items which are not to be cleared.
- Protect electric cables and airlines, which energize blasting equipment so that they are not likely to be damaged both within and outside the workplace.
- Establish a good housekeeping system to ensure that explosive debris and spent grit is removed as early as possible and in any case at the end of the day's work.
- Grit blasting of steel surface close to flammable or explosive mixtures is hazardous, principally due to static electricity, which may be generated.
- No grit blasting shall take place in the immediate vicinity of operating electric motors or air intakes to operating internal combustion engines. Such items of equipment must be stopped and protected from grit blasting particles.
- Grit blasting procedure available and communicated to painting personnel.

7.35 **PAINTING:**

Painting includes the application of a protective coating material by the use of a compressed air spray painting system, the hydraulic atomization (airless) method: the use of brushes, rollers, sponges or similar equipment. Hazards associated with painting include dust, noise, fire, and explosion and the inhalation/ ingestion / absorption of toxic solvents.

- Painting should only be done under the supervision of a competent person. Those personnel doing the painting must also be competent to do the work.
- The supervisor in charge shall ensure that equipment is maintained in safe and good working order.
- Breathable quality air, free from oil mist, moisture and toxic gas shall be supplied to paint personnel if required. This is enabled by passing the compressed air through a suitable paint filter respirator or regulator and suitable pre-filter. The pre-filter shall be inspected daily.
- The workplace shall be a restricted area and a rope barricade shall enclose it. Warning signs indicating "DANGER-PAINTING AREA" should be posted on the barricade.
- Provide suitable materials to act as curtains (tarpaulins, plastic sheeting etc.) to enclose the work area and protect the newly painted surface until it is dry.
- If paint components are flammable, then no painting will be done in the vicinity of electrical lighting and open electrical circuits unless such equipment is explosion/vapor proof or switched off and locked out.
- Symbolic signs for "NO SMOKING" and "NO NAKED FLAMES" posted in areas when paint / flammable liquids are in use.
- Provide suitable and secure covers to protect instruments gauges airline valves and other equipment which is to be painted.
- Establish a good house keeping system to ensure that excessive debris and paint containers and masking tape is removed as early as possible and in any case at the end of the day's work.

- Painting within confined spaces or vessels shall always be controlled by the work permit.
- Material safety data sheets for each product held and observed. A product data sheet is inadequate. Copies to be kept by painting supervisor.
- Unwanted flammable materials including paint thinners, rags and cotton waste impregnate with flammable spirits or paint, are to be kept in metal drums with close fitting lids and disposed of in a safe manner away from spray-painting areas.
- Painting procedure available and communicated to painting personnel.
- Suitable respirator used by crew to protect them from hazard solvent/paint vapors.

7.36 **SAFETY PRECAUTIONS DURING BLASTING OPERATIONS:**

Blasting will be permitted only under supervision of competent and licensed persons and by trained workmen.

- Company shall insure all supervisors and workmen in-charge, engaged in make-up, handling, storage and blasting work.
- The storage shall be under the charge of a authorized person and if necessary police enquires being made.
- The magazine shall not be opened during the approach of a thunderstorm and no person shall remain in the vicinity of the storage area during such period.
- Shoes without nails shall be kept in the magazine.
- Do not allow any dirt or girt to fall on the clear floor.
- No matches or inflammable material shall be allowed in the magazine. Light shall be obtained from an electric storage battery lamp having explosion and fireproof fittings.
- No tools other than copper, brass shall be allowed inside the magazine, oily cotton rags, waste and articles liable to spontaneous ignition shall not be allowed inside the magazine.
- Boxes of explosives shall not be throw down or dragged along the floor and shall be stacked on wooden trestles. Open boxes of explosives shall never be exposed to the direct rays of the sun. Empty boxes or loose packing materials shall not be kept inside the magazine.
- The magazine shall have a lighting conductor, which should be periodically tested.
- All detonated explosives shall be dispose off in an approved manner as per explosive rules.  
All the records of such disposal shall be maintained.
- While charging, open lamps/flames shall be kept away.
- Only wooden tamping rods without any kind of metal on them shall be used.
- After drilling only one cartridge shall be gently inserted with the tamping rod.  
Blasting shall be carried out during fixed hours of the day. The hours once fixed shall not be changed without the prior information.
- The site of blasting operations shall be prominently demarcated by red danger flags. The order of the fire shall be given only by the supervisor in-charge of the work and this order shall be given only after giving the warning signal three times, so as to make all the labour watchmen to reach safe shelter and ensure that nobody is within the danger zone.
  - A whistle with a distinctive note shall be used to give the warning signal. The whistle shall not be used for nay otter purpose.

- All the roads and footpaths leading to blasting area shall be kept under strict vigilance by providing a person and or guard.
- In case blast has failed to fire or is delayed, sufficient time shall be allowed to lapse before entering the danger zone. Only licensed person alone shall go to inspect the misfire.
- Drilling near the hole that has misfired shall not be permitted until the supervisor has carried out the following operations. The supervisor (Licensed person) shall very carefully extract the tamping with a wooden scraper or use jet of water/compressed air and withdraw the fuse attached.
- If it is not possible another hole may then be drilled at least 9 inch away and parallel to it. This hole should then be charged and fired.
- If a misfire has been found due to defective detonator or explosive, the whole quantity must be returned to the authority for inspection.
- Re-drilling of hole that has misfired either wholly or partly shall not be permitted.
- Blasting will be carried out by licensed sub-contractor, which shall be approved by CONSULTANT/Chief Inspector of Explosives.

7.37 **GENERAL SAFETY MEASURES-INDUSTRIAL RADIOGRAPHY:**

- Radiography cameras must be operated only by certified Radiographers under the supervision of Site-in-charges who are permitted to operate the cameras.
- Field radiography may be permitted on a restricted scale when the occupancy around is minimum.
- An appropriate area around the radiation source must be cordoned off during field radiography so that the radiation levels outside the area do not exceed the reference radiation levels for members of the public. The radiation shall be measured by radiation survey meter.
- Radiation warning symbols must be conspicuously posted along the cordon. Placards displaying the appropriate legend in Hindi, English and local language must be posted at the cordon. Warning sign with a biped sound shall be issued during night.
- The concerned radiographer must be available at the site very near the cordoned area throughout the exposure.
- The radiography equipment should always be operated by positioning oneself behind the camera/X-ray machine making use of the shielding provided by the body of the equipment.
- All operations should be planned in advance and executed in minimum possible time.
- The radiography work must be carried out only under the supervision and guidance of the site-in-charge.
- Prior to on-site transport of the camera with the source from one place to another in a road vehicle it must be ensured that the source pencil is locked in camera so as to avoid any accidental opening of the shutter and falling of source pencil from the camera.
- The radiography cameras when not in use must always be stored in a pit in separate storage room or in a pit under lock and key.
- The proper storage of source inside the camera must be verified after every operation with a radiation survey meter both at the time of keeping them inside the storage room and while taking them out of the storage room for use at site.

- Only qualified person shall handle the camera.
- No person shall sit on the box carrying the camera with radiography source.
- Camera shall be handled properly with care.
- No person shall stand near the source unnecessarily.
- Radiography sources shall be kept securely and safely to avoid any theft or misplacement.
- Functions of radiography cameras shall be checked routinely.
- Proper handling tools and accessories shall be used for safe handling of sources.
- Radiography source shall be handled with proper tool and accessories. Cameras having radiation sources shall not be stored along with the Unexposed films, explosives and dangerous goods.

7.38 **EXCAVATION AND TRENCHING:**

7.37 All trenches 1.5 meter or more in depth shall at all time are supplied with at least one for each 20 meters in length or fraction thereof. Ladder shall be extended from the bottom of the trench to at-least 1-meter above the surface of The ground. The sides of a trench, which is 1.5 meter or more in depth, shall be stepped back to provide a suitable slope or be securely held by timber bracing so as to avoid the danger of side collapse. Excavated material shall not be placed within 1.5 meters of the edge of any trench or half the depth of the trench whichever is more. Excavation shall be made from the top to the bottom. Under no circumstances shall undermining or undercutting be done. Warning sign. Board shall be placed at various points along the excavated trench.

7.38 **SAFETY RELATED TO OPERATION OF MIXERS:**

- Mixers should be put out of service for maintenance, cleaning and repair work in the mixer drum as well as out of mixer drum.
- Any unauthorized person should not start mixer.
- It should not be operated at more than its specified capacity.
- It should not be started in loaded condition, if concrete is set.
- Mixer should not be started without water.
- Mixer / should not be operated if oil tank shows less than minimum oil level.
- Mixer should not be reversed suddenly to opposite direction.

7.39 **GENERAL SAFETY REQUIREMENTS:**

- Where work activities may conflict with or impact upon other work activities take steps to discuss the matter with relevant parties and establish a consensus. Ensure that both parties and their teams are fully aware of potential hazards together with appropriate precautions.
- All plant and equipment shall be inspected before work commences and at periodic intervals thereafter. All plant and equipment shall be safe before and during use.
- Only competent personnel are permitted to operate plant and equipment and such persons shall be tested by a competent person and issued with an Appointment Certificate authorizing them to operate specified plant and equipment.
- Only qualified and appointed personnel (such as riggers and scaffolders) shall do skilled work. Such skilled workers shall always be identified by relevant band around hardhats (red band riggers and brown band for scaffolds).

- Method statements / risk assessments shall always examine the people, equipment materials and the environmental aspects of the proposed work. Such method statements risk assessments shall always be referred to sub- contractor / contractor safety department for review and comment.
- Ensure that an emergency / rescue plan to cater for any mishap (injury, fire etc.) is available, known to all people and capable of immediate activation.
- Maintain good housekeeping at all times. Provide and maintain adequate hygiene and welfare facilities such as toilets, hand washing measures drinking Water and canteen shelter, food waste bins and defined smoking area.
- A specific task related risk assessment shall be completed for this work activity and appended to the method statement. The risk assessment shall be compiled on the approved format.
- Hazardous area should be barricaded with the attachment of appropriate warning symbols.
- Work area should be always kept clean. Unwanted scrap or tools should not be left unattended that may be hazardous to others.
- Personal protective equipment's should be used wherever required.
- All warning symbols should be well obeyed and regarded.
- It should be ensured that all-electrical cord: hoses and leads are well protected or elevated such that there are no obstruction to stairways and walkways.
- All project emergency procedures should be thoroughly understood and obeyed.
- Only proper ladders, ramps, stairway should be used and barricaded area should never be crossed.
- Work materials should be properly constructed. Boxes, keys, barrels and similar unstable objects should not be used for this purpose.
- Scrap materials should be disposed off immediately as these create fire and accident hazards.

7.40 **ELECTRICAL SERVICES:**

Only authorized and competent personnel shall install all site electrical supply systems. All electrical equipment shall be inspected and certified as safe for use prior to commissioning. Electrical supply systems shall be maintained in safe condition. All portable electrical equipment shall be 220 volt or tower. For requirement of high voltage Client shall be contracted for permission. All overhead supplies shall be protected with suitable goal posts and prominent placed precautionary signs. Regular checks and inspections shall be carried out on all electrical equipment's and recorded with the notice on the piece of equipment confirming it is safe. The earth leakage circuit breaker shall be used for safety.

7.41 **DRINKING WATER:**

Cold Drinking water shall be provided and maintained at suitable places during summer time.

7.42 **WASHING FACILITIES:**

In every workplace adequate and suitable facilities for washing shall be provided and maintained Separate and adequate cleaning facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition and dully illuminated for night use.

7.43 **LATRINES AND URINALS:**

Latrines shall be provided in every work place. They shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times, by appointing designated person. Separate facilities shall be provided for the use of male and female worker if any.

7.44 **PROVISION OF SHELTER DURING REST:**

The proper Shed & Shelter shall be provided for rest during break :

8.0 **SECURITY PLAN:**

8.1 **PHYSICAL BARRIERS:**

Premises such as the office / lay down area shall be enclosed with a physical barrier such as a fence or wall. Entrances shall be provided through which vehicles and personnel shall be controlled.

8.2 **IDENTIFICATION: PERSONNEL, VISITORS AND VEHICLES:**

Daily roll call shall be conducted by the work supervisor before leaving the base camp and after the days work. Records of such shall be maintained. Employees and authorized visitors of client and Excel Technical Services Pvt. Ltd. and their Sub-Contractor shall be required to complete and application form for registration purpose. In the case of vehicles, a separate registration form shall initiate the issue of a gate pass for personnel and vehicles through Excel Technical Services Pvt. Ltd. and Client. Security personnel shall examine gate and vehicle passes at the controlled access gate. If they are in order then access shall be permitted. All visitors site shall be registered by site security and only then issued with a visitor pass. All visitors onto any site shall be accompanied at all times by a suitably experienced member staff and all sub-contractors shall conform to this rule.

8.3 **REPORTING OF OCCURANCES:**

All security related occurrences shall be recorded in the occurrence book kept at each security postal.

- Main Camp Access gate.
- Client Camp office.
- Excel Technical Services Pvt. Ltd. Labour colony.
- Excel Technical Services Pvt. Ltd. colony.
- Office / Lay down area.

Whenever an important and reportable incident occurs a brief entry shall be made in the occurrence book. In addition a report shall be made by completing the relevant notification of accident/incident form. The Client shall be immediately informed of any accident or incident by telephone/fax/in person. This shall be confirmed in writing by providing the relevant notification report form.

Accident/Incident investigation reports shall be completed for the security related incident, and handed to the Client as early as possible and within 48 hours of their occurrence. Security is critical to the safety of all persons on site, therefore the site shall be kept secure at all times and only authorized persons shall be permitted on to site.

In addition, all unattended vehicles and items of mobile plant shall be effectively locked/immobilized so that they cannot be removed or operated without authority.



8.4 **CONTROLLING MOVEMENT OF MATERIALS:**

The main purpose of security is protecting the assets of any organization from the risks of fire, theft, sabotage and vandalism. This therefore follows that close attention shall be given to the movement of materials both in and out of the premises. Entry of vehicles (Particularly delivery trucks) shall be directed to the authorized recipient and where necessary and escort shall be provided.

Any materials to be removed from the area shall be the subjects of a material movement gate pass containing the following information:

- Date / Reference Number.
- Name of Organization.
- Name of person permitted to remove materials and address.
- Describe item to be removed including quantity.
- Any special remarks.
- Signed by authorized person.
- Countersigned by approving authority.

9.0 **COMMUNICATIONS:**

Either telephone or radio communication shall be available with each security guard / post. Arrangements shall be in place to monitor security personnel at regular intervals to ensure their welfare and safety. This is particularly important when a guard is on his own.

Periodic checks of each security post shall be made during the day and at night by supervision. All entry shall be made in the occurrence book whenever each post is checked.

Increase of critical activities such as rail/highway and river crossing, mobile sets shall be made available to section head for proper communication with base office etc.

Emergency Number to be displayed at Site.

10.0 **TREATMENT SNAKE BITE PROCEDURE:**

1. Make the patient lie down immediately and allow him free air circulation around.
2. Use tourniquets and tie up the area with grip above the bitten site, to prevent the flow of poison from bitten site traveling toward the heart.
3. Wash the wounds with potassium permanganate (KMNO<sub>4</sub>) solution add a few crystals of potassium permanganate to approximate 100ml of distilled water.

- ☒ Broken fangs if found should be removed from the affected area.
- ☒ Patients should be given saline or salt water to drink (100 gms. Or iodize salt + 500 ml water)
- ☒ With the help of absorbent cotton and bandage cloth, make a tie on the wound (Dressing).

NOTE : All the above treatment should be given within 3-4 minutes.

**FURTHER TREATMENT:**

Reassure the patient and take him to the first aid room at site camp immediately for the lyophilized, freeze-dried polyvalent anti-snake serum injection intravenously.



## FORMATS

**We will use All format related (HSE) issue  
by Client-HSE department.**



**IMPORTANT PHONE NOS.**

IN CASE OF EMERGENCY :-

EXCEL TECHNICAL SERVICES PVT. LTD. EMERGENCY NO:- 09979868300 / 09979868306

CLIENT FIRE STATION -

CLIENT MEDICAL -

SECURITY CONTROL ROOM -



CONTENTS OF FIRST AID BOX		
SL.NO.	DESCRIPTION	QUANTITY
01.	Small size Roller Bandages, 1 Inch wide (Finger dressing small)	06 Pcs.
02.	Medium size Roller Bandages, 2 Inch wide (Hand & Foot dressing)	06 Pcs.
03.	Large size Roller Bandages, 4 Inch. Wide (Body dressing Large)	06 Pcs.
04.	Large size Burn Dressing (Burn dressing large)	04 pkts.
05.	Cotton Wool (20 gms packing	04 pkts.
06.	Antiseptic solution Dettol (100 ml.) or Savlon	03 Bottle
07.	Eye pads in Separate Sealed pkt.	04 Pieces
08.	Ointment for burns (Brunel 20 gms.)	01 Bottle
09	Polythene wash cupn for washing eyes	01 No.
10.	Triangular Bandages	02 Nos.
11.	Baind Aid dressing	05 Pcs.
12	Vita din gel	02 Pcs.
13	Vicks (22 gms.)	03 No.
14	Volinigel spree	03 No.
15	Vita din liquid	02Bottel.
16	Lock	01 Piece
Note:	Type of Box : Size :	Aluminum/ G.I. 14"x12"x34"

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