PROJECT SAFETY MANUAL

REFERENCES ABOUT THE PROJECT

PROJECT

CLIENT

SCOPE OF WORKS

LISTS OF MAJOR MACHINERY & EQUIPMENT:

- Hand tools - Screw driver, pliers, hammer, wrench etc.
- Power tools - Hand Drill m/c, cutting off m/c, grinding m/c, chipping m/c, etc.
- Welding Machine
- Scaffolding, ladders etc.
- Lifting Tools & Tackles, crane etc.
- Excavators
- Chain pulley block and mechanical Wincher

COMMITMENTS FOR OCCUPATIONAL SAFETY & HEALTH:

UNITED CONTRACTING WORKS PVT. LTD. recognizes that the People are our most important asset. So we are committed to identify & mitigate potential Health & Safety hazards in all our activities in site which may pose a risk to our employees, liability to the CLIENT or having potential for disruption of site Operations.

OCCUPATIONAL SAFETY & HEALTH POLICY & OBJECTIVES

PURPOSE:

To provide a system for formulating the Safety Policy for the organization and showing the intension of the Management with respect to Safety.

POLICY FORMULATION:

The Safety Policy of the organization has been formulated addressing: -

- The nature and scale of safety risks of the organization.
- Top Management's commitment to the continual improvement, compliance to relevant Safety legislations and regulations.
- Compliance of the available Safety Guidelines related to the work we perform

The Safety Policy has been issued by the Top Management of the Company. The policy stands good and we are committed for its implementation at the project. The same reads as follows: -

The Policy will be made known to all employees and others involved with the Project's construction activities through display at conspicuous locations at site and through discussions within the departments.

We will make the policy available to the public on request.

SAFETY OBJECTIVES

In order to meet the requirements of the Organization's Safety Policy the following objectives have been set.

1. Minimize risk to our employees and other interested parties who may be exposed to Safety risks associated with our activities.
2. Continual improvement of the Safety Management System.
3. Reducing the frequency of all accidents and incidents and minimize the days lost.
4. Train and retrain the Site Personnel for enhancing their competence and expertise.
5. Develop use of Personal Protective Equipment (PPE) and improve safety culture.
6. Integrate Safety with other project execution processes.

1. RESPONSIBILITY FOR SAFETY: -

Individual responsibility of the:

DESIGNATION	SAFETY RESPONSIBILTY
Project Manager	Understand Company Safety Policy and appreciate the responsibility allocated to each grade

	Determine at the planning stage • The most appropriate order and method of working • Allocation of responsibility with subcontractors and others • Hazards which might arise from overhead or underground power lines and other situations which might lead to unnecessary improvisations on site.
	Facility for welfare and sanitation.
	Provide instruction to establish working method, to explain the sequence of operations, to outline potential hazard, at each stage and indicate precautions to be adopted.
	Check over working methods and precautions with the site team before work starts.
	Ensure that work, once started is carried out as planned and the Construction regulations and other relevant legislation are observed at site.
	Make certain that section heads; engineers supervisors and foremen understand & follow the safety rules during their work.
	Take appropriate disciplinary action against the repeated violator of the stated safety rules.
	Arrange resource for implementation of safe operational practice at site

Safety Officer / Supervisor At Site	Carry out safety inspection of work area, work method, men, machine & materials and other tools and tackles
	Conduct training & awareness programs at site including Tool box
	Liaison with client's safety representative with regard to safe job execution at site.
	Representing the organization in contractor's safety meeting.
	Conduct investigation of all incidents/dangerous occurrences and recommended appropriate safety measures.
	Plan procurement of Personnel Protective equipment's and safety devices and inspect before use as per laid down norms
	Design & campaign, safety programs to promote safety in the work place
	Conduct fire drill and facilitate Emergency preparedness.
	Advice and Co-ordinate for implementation of work permit system.
	Facilitate inclusion of safety elements into work method statements.
Project / Site Engineer	Ensure that all machineries, equipment's, plants deployed at site are safe and fully efficient; is guarded and equipped with safety devices and is tested in accordance with the Construction Regulations.
	Make sure that all operators are employed only on equipment for which they have been thoroughly trained.
	Attend promptly to all plant defects notified or call the attention of Site Management to the need for dangerous plant, machinery and equipment to be put out of service until it can be properly repaired.
	Ensure that, where necessary, required Personnel Protective

	equipment's are provided and worn.
	Check that hired equipment and vehicles are safe and those, where appropriate copies of current test certificates are available.
	Check that periodic tests, inspections and maintenance are carried out.
	Proactively carryout the hazardous situation related to the job under their control and to adopt the necessary precaution after consulting the safety engineer.
Site Supervisor	Organize sites so that work is carried out to the required standard with the minimum risk to men, machinery & materials.
	Make sure that suitable protective clothing is available, where appropriate and that is used.
	Give all workmen / technicians precise instructions on their responsibilities for correct working method; see that they do not require taking unnecessary risk.
Workmen / Technicians	Follow the safe work method to execute the assigned job
	Use the PPEs provide to them all time during their job.
	Don't indulge in horse play
	Follow the site safety rules without failure
Sub-Contractors	Be familiar with the Construction Regulations and other legislation applicable to the work on which their gangs are engaged and insist that those Regulations are observed.
	Restrain men from taking unnecessary risk.

	Report defects in plants & equipment's.
	Ensure that new employees particularly unskilled workmen learn to take safety precautions.
	Discourage horseplay and reprimand those who consistently fail to consider their own wellbeing and that of others around them.
	Set a personal example.
	Incorporate safety instructions in routine orders and see that they are obeyed.
	Attend the trainings conducted

2. Award & Recognition program

- UNITED CONTRACTING WORKS PVT. LTD. do recognize the importance of award & recognition as a part of safety management system. All our employees including sub-contractors employees will be monitored and recognized for their effort toward achieving the safety targets of the project.
- During safety week campaign (In the month of March each year) they should be awarded as per organization policy for the same. The same to be communicated to all the workers at site during the site induction program.

2.1 Safety awareness

- Adequate number of safety banners and posters shall be arranged and displayed at prominent location of the site as per site requirement
- Safety week shall be observed at site for generating enthusiasm among site personnel. During this occasion numerous competitions, trainings & other motivational programme shall be carried out as a part of organization safety campaign

4. SAFETY ORGANISATION

Reporting relationship of the safety function in the form of flow chart

PROPRIET
OR/DIREC
TOR

GM (HEAD)
SAFETY

SAFETY SUPERVISOR / ENGINEERS
AT SITES

5. COMMITTEE REQUIREMENTS AT SITES

Safety officer will form a SHE committee, including project manager as chairman and engineers, safety supervisors/officers, contractor representatives and client safety representative will be part of site SHE committee. Safety committee will conduct meeting once in a month to discuss the site safety issues and find the solution for the same.

6. WHILE COMMENCING OF SITE

Risk assessment/JSEA requirement during site mobilization

At the time of commencing any construction work and anticipated project hazard & risks control measures analysis shall be performed. The project hazard & risks control measures analysis shall identify the following:

1. The anticipated activities including temporary activities of the project.
2. The types of hazards likely to be associated with each anticipated activities.
3. The control measures necessary to protect site workers from the identified hazards.
4. Critical activities and the related protective measures must be designed, supervised, approved, or inspected by a competent person.
5. Adequate means of personal protection for the people working at site.
6. Any site specific safety rules and regulations.
7. Any other specific Safety requirements from the client.

Induction of workmen

During commencement of work by an individual he will undergo site specific induction training and record of the same shall be maintained and he will be issued an ID card without this he will not allowed to work at site.

Work Permits

- Work permits will be required prior to beginning work.
- People will not be allowed to started the Job with not getting permits clearness from Project Manager and safety Officer
- After the completion of the job, work permit shall be closed by permit issuer.
- In case the job require some more time to complete Permits renewal and extension to be done
- Implementation of work permits system to be in line with UEW work permit procedure which will be mutually agreed with client.
- Details procedure to cover the scope, permit generator, issuer, permits closing/extension requirements.

7. Legal requirements

Legal requirements like

1	Indian electricity act 2003 rules 1956
2	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996; Central Rules, 1998 Including requirements of: Contract Labor (Regulation and Abolition) Act, 1970 Employees State Insurance Act and Rules Workmen Compensation Act
3	Workmen compensation act 1923 along with allied rules
4	Contract labor act 1970 rules 1971
5	Child labor prohibition and regulation act 1986

8. GENERAL SITE SAFETY INSTRUCTION

Personal protective Equipment:

All PPE should as per National / International standards

Head Protection:

Hard Hat / Safety Helmet to be used with chin strap attached to chin for all the activities in the site and provided with ventilation hole for comfort

All hard hats/safety helmets should be inspected and a record maintained of their condition. No damaged Helmet should be in use. Damaged helmet to be replaced immediately. At least10% extra stock of helmet, from the total number of manpower to be maintained at site. Helmet should never be used for any other activities (i.e. to hold paint & other material) other than head protection.

All the employee needs to follow the color codes for safety helmets

Hand Protection

Appropriate Gloves shall be used where any risk of hand injury due to cut, burn, abrasion is present due to the work practices, e.g. welding, cutting, rigging, fabrication etc. Electrical gloves of proper rating shall be used where electrical hazards is presents

Foot Protection

Safety shoe shall be worn by site personal considering the nature of works where foot injury may takes place, i.e. crushing injury due to material fall, penetration of sharp objects and ensure that footwear maintained clean and dry.

Hearing protection

Generally Hearing protection (ear plugs / muffs)shall be worn by personnel involved in work areas where continuous noise level exceed 90dBA for entire shift of 8 hours, or where impact noise exposure exceeds 120dBA.

Additionally Hearing protection shall be used where it is required so by the site specific hazard

Eye Protection

Proper Safety glasses shall be worn by everyone in all designated construction areas where there is a chance of eye injury due to flying dust, welding flash, penetration of sharp objects etc.

Full face shields shall be worn for welding & gas cutting operation.

No safety eyewear made of plastic or polymer shall be used for welding, gas-cutting or any other hot work

Damaged, smoked out safety glasses to be replaced immediately with a new one.

Respiratory Protection

- Approved type of dust mask shall be used where excessive dust will be generated during operation e.g. chipping or concrete breaking operations etc.
- Dust- Mist respirator shall be used where there is a chance of excessive organic fumes / vapors generation/

Safety Belts

- Safety belts shall be worn by all personnel working at a height greater than 2.M above the ground level
- Only full body harness with double lanyard shall be used for this purpose.
- Safety belt should be used for all the height work greater than 2.M including working on properly constructed working platform
- Anchorage for the lifeline must be provided and in absence of any suitable anchorage point one temporary guide rope tied with two permanent structures, must be provided.

Hi Visibility jacket

- Hi visibility jacket must be worn by all employees including workmen, security and other employees who are working under the UEW at site

9. SITE SAFETY RULES

- Site entry- Personnel, equipment and materials shall enter and exit the site only through designated gate . Construction machinery & lifting tackles shall be entered the site only after safety inspection for the same by the Safety personnel at site. Any damaged tools / equipments shall not be allowed to enter the premises.

- Site personnel & visitors shall be allowed to enter the site only through pedestrian pathway earmarked for the same.

- Non PPE zone shall be determined and the display board shall be provided to clearly demarked PPE Zone & Non PPE Zone

- Safety induction for any new comer / occasional visitor to the site shall be carried out at security gate entry. Nobody shall be allowed to enter the site without site safety induction.

- Basic Personal Protective Equipment like Safety Helmet, Safety Shoes and Reflective Jackets are to be provided for all entering the site beyond Non-PPE zone

- Entry Pass shall be issued to the visitor after site induction. Workmen / Engineers & Staffs shall be issued Safety Passport system / ID cards (temporary / permanent) for authorized entry at site.

- Running is permitted only during an emergency.

- Smoking / consumption of Alcohol, illegal drugs and Tamaku & Gutkha is not allowed at site.
- Workers/operator/staffs/supervisors are not allowed to enter the site in intoxicated condition.

- Dike / secondary containment shall be provided for oil storage

- Safety signs and specific site safety rules shall be displayed at strategic location & to be followed strictly.

- Requirements of Work permits shall be followed strictly as specified under Work Permit system requirements described in this Plan.

- In general no night work is permuted at site .

- Work Beyond 7.00pm for any critical operation shall be carried out only after arranging sufficient safety precaution as per JSEA requirement.
- Lone working shall be discouraged in general.

- Lone working is strictly prohibited in high risk activities like – any work by using electrical power, Height work of more than 2mt.height, Excavation work of more than 1.5m depth, Hot work, Lifting & erection activity.

- Engagement of women work force shall be generally discouraged . In any case women worker is engaged for the project, required welfare facility shall be provided as per BWOC legislation

- Barricade shall be provided for all construction works as necessary and for all pits & openings.

- First Aid Box should be kept handy inside the site office / critical area and tie up with nearest hospital to be made for further treatment if required..

- All job related injuries or hazardous material exposures shall be reported as per Accident & Incident reporting procedure described in the manual

- Proper stacking of material to be practiced all the time at site. Stacking height should not cross more than chest height where manual material handling shall be done.

- Stacking of pipes / other materials which may roll shall be followed safe stacking method with stopper at base

- Working personal with loose garments / Dhoties shall not allow for performing in critical activities. Loose shirttails must be tucked into pants.
- In case of any hazards chemical is used for construction purposes we shall develop “Hazards chemical handling procedure” for the same in consultation as per its MSDS

10. TRAINING & COMMUNICATION AT SITE

"Training-Education" is one of the most important elements of any safety program. The training content should be able to demonstrate that the personnel working at site are conversant with and adhere to all relevant occupational health & safety legislation, codes of practice, manufacturer's and supplier's specifications, including site safety and environmental instructions.

The safety training shall be provided considering the hazard associated and the control measure for all the critical activities of the site, which includes Safe access, Height work, safety in Fabrication job, proper usage of PPEs, Electrical Safety, Machine tools & hand tools safe usage, Safety in hot work, Excavation job etc.

Planner for Safety training shall be prepared for the site considering the different requirements and criticality of the activities.

- **Induction safety training** shall be organized for all the UEW persons working in the site including management staff, engineers, supervisors, technician, helpers and sub- contractor peoples.

The induction training shall include:

- Project Safety program & policy
- Reporting responsibilities at different level regarding safety matters
- Site / project specific safety guidelines / Rules
- Emergency evacuation process
- First – aid facilities etc.
- Award & recognition program for safe working practice

The Content of the site specific training module shall be shared & approval shall be taken from Client prior to run the program at site.

it shall be ensured that no person will work in the site without attending the Project specific Induction training.

The records will be maintained at site and the summary to be reported to client in the weekly report submission.

- **Tool box training** to be conducted for specific safety topics in groups prior to start any operation. At least weekly one topic should be chosen and the tool box training to be conducted for different groups as per the monthly training planner.

The Duration of the tool box training shall be around 20 ~30mnts.

The toolbox training shall be carried out by the Safety Officer at site. Regional safety coordinator shall be the observer for the training on his visit to sit

.

- **Job Specific Training** shall be carried out for different trades of workmen prior to engage them in the job..

- Training on Firefighting & **Emergency preparedness** shall be carried out for all the personnel working in the site.

- Safety Passport / Induction card / ID card shall be provided to individual, indicating the status of safety training of an individual working at the site.

- Records of all the training shall be maintained in the stipulated format attached in this document.

- Individual's training records 'shall be maintained at site as per the prescribed format attached in this document.

- Safety Communication / instruction shall be carried out by displaying instruction stickers, safety signage, safety poster at prominent locations at site.

- Site safety performance shall be communicated by displaying safety performance board at site.

11. SAFETY INSPECTION & AUDIT:

It is essential to conduct formal safety inspections at least once in a month in order to prevent deviations from the safety standards. Reports should be submitted.

Safety audit should cover but not limited to:

- Site Organization
- Accident control
- Hygiene facilities
- Electrical systems
- Fire prevention
- Safe Work procedures
- Permits Procedures
- Mechanical equipment
- ELCB/RCCB
- Staking & storage of material
- Housekeeping practices
- Daily site inspection logs
- Protective equipment
- Safety training, Tool box talks
- First aid arrangement and first aid register
- Traffic control

Daily walkthrough safety inspection shall be carried out by site safety representative. The hazards identified and the action taken against those hazards shall be recorded in Daily safety inspection Log.

Specific inspection of tools & tackles, Electrical systems, PPEs, etc. being used for the project activities shall be carried out as per the HSE assurance plan

The outcome of the inspections and auditing shall be discussed with Site management and with the branch safety coordinator of UNITED CONTRACTING WORKS PVT. LTD. for further improvement in safety performance.

12. HAND AND POWER TOOLS

- All hand and power tools, and similar equipments are to be maintained in a safe condition and all power tools must be tested & tagged as per periodic safety inspection schedule.
- All hand held power tools shall be inspected by the operator prior to take in into usage as per the daily inspection checklist which will be printed into the tag.
- Any belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment are to be guarded, if such parts are exposed to contact by workers, or otherwise create a hazard.
- Machine guarding must be provided to protect the operator and other employees from hazards created by point of operation, nip points, rotating parts, flying chips, and sparks.
- The guarding is to be in conformity with any appropriate standards therefore, or in the absence of applicable specific standards, is so designed and constructed as to prevent the operator form having any part of his body in the danger zone during the operating cycle.
- The following are some of the machines, which usually require point of operation guarding: guillotine cutters, shears, power presses, power saws, jointers, portable power tools, etc.
- When the periphery of the blades of a celing fan is less than (2.128 m) above the floor or working level, the blades must be guarded. The guard must have openings not larger than (1.27 cm).
- Employees using hand and power tools are exposed to the hazard of falling, flying, abrasives, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases. All personal protective equipment shall meet the requirements and be maintained according to National / International Standard .
- All hand held powered platen sanders, grinders with wheels 5.08 cm diameter or less, routers, planners, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks one- fourth of an inch wider or less, are to be equipped with only a positive " on- off" control.
- All hand held powered drills, tapers, fastener drivers, horizontal, vertical, and angel grinders with wheels greater than 5.08 cm in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools, are to be equipped with a momentary contact " on-off" control, and may have a lock-on control, provided that turnoff can be accomplished by a single motion of the same finger, or fingers that turn it on.

- All other hand- held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, are to be equipped with a constant pressure switch that will shut off the power when the pressure is released.

Hand Tools

- Workers must learn to recognize the hazards associated with the different types of tools, and the safety precautions necessary to prevent injury from those hazards.
- Do not use broken, defective, burned, or mushroomed tools. Report defective tools to the supervisor for replacement.
- Always use the proper tools and equipment for any task you may be assigned to do. For example: do not use a wrench as a hammer, or a screwdriver as a chisel.
- Do not leave tools on scaffolds, ladders, or any overhead working surfaces, Rack, bins, hooks, or other suitable storage space must be provided and arranged to permit convenient arrangement of tools.
- Do not strike two hardened steel surfaces together (i.e., two hammers, or a hammer and hardened steel shafts, bearings etc.).
- Do not throw tools from one location to another, from one worker to another, or drop them to lower levels.
- When necessary to pass tools or material under the above conditions, suitable containers and/ or ropes must be used.
- Wooden tool handles must be sound, smooth, and in good condition, and securely fastened to the tool.
- Sharp- edged or pointed tools shall never be carried in employee's pockets.
- Only non-sparking tools shall be used in locations where sources of ignition may cause a fire explosion (Zone 0 & Zone 1 location).
- Tools requiring heat-treatment shall be tempered, formed, dressed, and sharpened by workmen experienced in these operations. Wrenches, including adjustable pipe end and socket wrenches are not to be used when jaws are sprung to the point that slippage occur.

Power tools-Electrical

Electric tools present several dangers to the user; the most serious is the possibility of electrocution. Only assigned, skilled operators shall operate power tools (operators must be provided with separate training and same to be mentioned in the ID card / safety Passport as power tools operator). The following safe work procedures shall be implemented and enforced at all UNITED CONTRACTING WORKS PVT. LTD. projects:

- All electrical power operated tools are to be double insulated or grounded
- Loose clothing, long hair that is not secured, gloves, rings and other jewelry shall not be worn around rotating equipment. Sleeves should be kept buttoned and rolled up.
- Materials should be secured when power tools are applied to it.
- Each power tool should be examined before use, for damaged parts, loose fittings, and frayed or cut electrical cords. Defective tools should be tagged and taken out of service.
- Put off the power supply before perform any tool change, other setting / adjustment activities while working with power tools.
- Interlocking devices shall be in working order and shall never be bypassed.
- All tools shall be checked periodically as per the HSE assurance plan and tagged. Tagging system should be followed at all UNITED CONTRACTING WORKS PVT. LTD. sites.
- The use of electric cords for hoisting or lowering tools is not permitted.
- Tools must have either a three-wire cord with ground and be grounded, double insulated, or powered by a low-voltage isolation transformer. A GFCI / RCCB/ RCD shall be used in the DB from where the power is drawn, to prevent the worker from electrical shock hazards.
- Never remove the third prong from the plug.
- Electric tools shall be operated within their design limitations.
- Never use an electrical tools standing on a water logged area / wet surface.
- When not in use, tools shall be stored in a dry place,
- Electric tools shall not be used in damp or wet locations.
- Work areas shall be well lighted.

Power tools-Hydraulic / Pneumatic

- Hydraulic & Pneumatic tools are generally operated under high pressure. Any snapping of pressure hose is dangerous. So we need to keep the hose in good condition.
- Clamping of hose need to be maintained in good condition.
- Where possible maintain a positive pressure lock for connecting the hose.
- Always inspect the equipments prior to take it into use for any leakage of Air / Oil.
- Damaged m/c out rightly need to send for repair. Don't try to adopt any makeshift arrangement.
- Never use the disconnected Pneumatic hose for cleaning purpose.

13. ELECTRICAL SAFETY PRACTICES – GENERAL

- All electrical cables must be in good condition free from any physical damage.
- All electrical cables running across walkways, roads, etc.: Shall be sufficiently covered against damage or shall be suspended at least 2 meters in the height.
- All Electrical Distribution Boards , used to draw construction power shall be protected with MCB/ RCCB/ RCBO/ RCD. The tripping current rating shall be of 30 mAmps..
- All electrical cables, boxes, power tools and other equipment shall be checked regularly against physical damage prior to start its operation.
- All electrical power tools must be double- insulated type.
- MCB/ RCCB/ RCBO/ RCD to be tested periodically as per the HSE assurance plan. The record for the same to be maintained.
- Only industrial type plug & socket to be used to draw electrical power from an extension board and DBs
- Never draw electrical power by inserting necked wire for any temporary purpose and for whatsoever urgency in any UNITED CONTRACTING WORKS PVT. LTD. project sites.
- General earting value for temporary construction power supply to be maintained <_5 ohm.
- Required no. of Earth pit to be provided during construction phase.

- Neural and Body Earthing shall be separately earthed for temporary power supply through DG.
- All metallic part of any electrical powered equipment, including welding machines shall be provided with body earthing.
- Electrically nonconductive materials shall be used for securing lighting strings to supports.
- All stationary / fixed type equipments other than portable power tools used for fabrication job must be provided with separate starter / switching device. Only portable electric equipment shall be permitted to draw power from a power socket directly.
- For lighting and other indoor job if domestic socket is used, that must be shuttered type.
- All DBs or switchboards shall be kept lock during normal condition.
- Temporary lights shall be equipped with guards to prevent accidental contact with the bulb.
- Temporary lights shall be equipped with. Heavy-duty electric cords with connections and insulation maintained in safe condition.
- Temporary lights shall not be suspended by their electric cords, unless cords and lights and lights are designed for these means of suspension.
- Splices shall have insulation equal to that of the cable.
- Extension cords shall be protected against accidental damage as may be caused by traffic, sharp comers or projections and pinching in doors or elsewhere.
- No Flexible wire shall be used at site for any activities in UNITED CONTRACTING WORKS PVT. LTD. project site.

- During handover/Pre-commissioning/Charging time please ensure LOTO (Lock out and Tag out) procedure to be followed.
- Ensure proper shutdown of the system as required after seeking permission of client and other agencies as required as per Electrical Work Permit.
- After completion of the activity the system can be charged only after proper communication with client and relevant other agencies and the tag to be removed only by the electrician engaged in that job after ensuring the safety of the equipment as per Electrical Work permit system.
- Caution and danger board to be pasted in charged electrical equipment
- No work to be carried out on electrical lines under adverse weather conditions
- Standard rubber hand gloves to be provided for working at electrical lines and rubber mat to be provided wherever required
- All machinery's to be earth protected & the earth resistance value to be periodically tested & recorded

14. Lock Out / Tag Out Procedure

- Electrical work permit to be obtained.
- Person engaged in these operation must undergo the LOTO procedure.
- Energy has to be Isolated
- The person working on the equipment / line shall apply the lock and danger tag on equipment followed by all work personal who all are engaged in this activity before starting the activity.
- Once a lock and danger tag has been placed only the person, who fitted the lock and tag can remove it.
- Any person who accidentally removes a lock and/or tag of another person must immediately contact the supervisor or the employee whose name appears on the tag and advise them of the incident so that they can secure the tag or replace the lock as required
- Work personal will return the lock and danger tag to Supervisor after the completion of work.
- On removal of the locks and tags of all other employees, the supervisor shall remove their locking device and danger tag

15. **SAFETY IN ELECTRICAL TESTING AND COMMISSIONING:**

- It is important to understand that electrical testing & commissioning activity some time generates voltage & currents that can cause harmful or even fatal electric shock.
- Do not perform an electrical testing activity at an electro static discharge (ESD) work area.
- Only experienced and qualified personal are allowed to perform testing activity.
- The work area to be barricaded/fenced against entry of unauthorized people and"caution-Testing activity under progress" signage to be displayed.
- Die-electric withstand test equipment shall be connected to a good ground for protection of operator.
- Test equipment and device under test should be positioned in the safest manner possible; the testing engineer should not have to reach over the device under test in order to start, stop or adjust the testing equipments.
- Risk of a testing engineer accidentally touching the devices under test while the test is in progress shall be eliminated.
- Make sure that return circuit of the tester should not be open as in that case, the enclosure of the equipment under testing can become energized and will lead to severe consequences.
- In case of DC testing the equipment under testing should be discharged prior to open the testing circuit by using a hot stick probe to remove the possibility of hazards due to stored energy.
- Testing engineers working near exposed energized electrical circuit should be trained for emergency requirements for quick response.
- During testing make sure that the external safety ground connection is secure.
- Always connect the return lead of the test equipment first.
- Prior to starting the test double-check and verify that the test connections are being made properly
- In case of any problem during testing turnoff the high voltage first.
- Make sure the equipment under testing has been discharged properly before touching the connection during DC testing
- Appropriate safety PPE, including safety shoes, and safety helmets must be used during testing and pre-commissioning activities.

16. COMPRESSED GAS SAFETY

- Compressed Gas such as oxygen, acetylene, Carbon dioxide, Nitrogen, Argon cylinders shall be handled with care, properly supported in an upright position away from any source of heat and securely tied off.
- All compressed gas cylinders in use shall have valve key on the valve. All cylinders not in use shall have the protection valve cap in place and shall be stored in a designated outside the work area.
- During handling from one work is to other all compressed gas cylinders should be secured on a cylinder trolley. Usage of loose cylinders should be avoided.
- Compressed gases, including air, shall not be used for cleaning clothes, the body or work areas.
- When gas cylinders are required to be lifted by hoisting equipment, a basket, cradle or similar handling device shall be used. Slings directly attached to cylinders are strictly forbidden.
- Cylinders shall never be lifted by the protective valve cap.

  Do not strike an arc on cylinders.
- Do not use cylinders as rollers.
- Before connecting regulators to cylinders, carefully crack open the cylinder valve to blow out any foreign particles. Close the valve. After the regulator is connected, ensure that the second stage of the regulator is closed. Stand to one side and open the cylinder valve slowly.
- Open valves on all fuel gases except acetylene (propane, mapp, natural gas etc.) completely to backseat valve and prevent leaking. Acetylene valves should be opened one quarter turn only.
- Do not exceed 15 psi on the torch when using acetylene.
- LPG cylinder usage is prohibited at site.
- Cutting nozzle to be cleared regularly and kept clean to prevent flash back.
- Use proper hose preferably with pressure testing certificate and rated for that purpose. When

  lighting a torch (1) open the fuel gas valve (2) light the torch (3) then open the oxygen valve. Use an approved spark lighter. Do not use matches, cigarette lighters, or cigarettes light a torch. Reverse the order to shut down the torch.
- Keep oil and grease away from oxygen regulators, hoses and fittings.

  Inspect all hoses, gauges, and torches before each use.
- **Flash back arrestors / non-return valves should be provided both at cutting torch and regulator end.**

17. **WELDING**

18. Workers engaged in welding should undergo the hot work training prior to start the work
19. Welding equipment shall be installed so that it can be seen continuously by the welder during welding activities..
20. Welding equipment shall not be placed in the path of falling sparks.
21. No makeshift valves for gas cylinders are allowed. Only use industrial type and standard fittings.
22. Prior to use, all equipment shall be thoroughly checked to ensure that:
    Ensure that all the Welding equipment's are suitably earthed.
23. Use right type of tools for the jobs.
24. Electrical safety practices shall be followed all the time.
25. Fire extinguisher and sand bucket to be kept near the hot work area
26. Area to be kept free from combustible material
27. Welders and welder helpers must use adequate eye and face protection while welding.
28. Body earthing shall be provided for welding machine connection.
29. Welding leads shall have proper insulation. Welding cables with damaged insulation should be removed from operation.
30. Bare conductor should not be used (iron re-bar) as return lead for welding circuit.
31. Electrical power cable & earthing lead should not be crisscross each other.
32. Cable terminal box should be of good condition providing adequate safeguarding from accidental touch with electricity.
33. Proper cable Lug (aluminum for aluminum welding cable & brass for copper cable) shall be provided for welding cable connection.
34. Welding electrode holder shall have Knuckle Guard to prevent accidental touch with the metallic part of the holder.
35. All the welding machines used at the UNITED CONTRACTING WORKS PVT. LTD. project sites should be checked as per HSE assurance plan. The record for the same has to be maintained.

18. CRANES, MATERIAL HOISTS AND OTHER LIFTING EQUIPMENT & TOOLS

- All cranes / hydra and other lifting equipment shall be inspected at gate prior to enter at site.
- All cranes and other lifting equipment including slings & D shackles shall have a valid statutory "load test certificate" before entering worksite. This equipment shall be inspected on a regular basis, and a valid test certificate shall be available at the times the equipment is on the worksite.
- Only experienced , competent operator shall be allowed to operate the equipment. He has to get a clearance from the safety Officer at site.
- All lifting gear and material must have valid certificates from competent authority. The area where hoisting activities are being carried out shall be roped / barricaded off. Personnel inside the rope area shall be only those directly employed on the hosting activity. No one is allowed to walk under the suspended load or boom under load.
- Safe working load to be verified for the lifting gear prior to take it into use for lifting e.g. slings and "D" Shackles.
- Over loading is totally prohibited. The total material weight has to be verified prior to lifting.
- Only trained, authorized operators to handle cranes. Signal man / banks man to be engaged prior to allow the crane to be operational
- Tag lines shall be used to control all loads. The tag line shall not be wrapped around the hands or body.
- Cranes with live booms are not permitted on site.
- Make sure at least two wraps of wire ropes remain on the drum when the load hook is in the extreme low position.

- Boom angle indicator & load chart shall be consulted prior to start lifting as per lifting plan
- Slings & other lifting tackles should be inspected at regular interval as per HSE assurance plan and shall be discarded if find damaged deformed or reduced dia.
- Chain pulley block must have a valid test certificate and must be inspected for its locking arrangement and any damaged chain links.
- Riggers and equipment operators shall know the weight to be handled and the capacity and proper use of handling devices (cranes, forklifts, chain falls, come alongs, clamps, chokers and shackles) before proceeding.
- Detail inspection & risk assessment to be carried out and the safety precaution / control to be in place prior to start any critical lifting operation.
- For critical lift lifting plan to be prepared and discussed with client for it's approval.
- All outdoor heavy lifting operations to be suspended if the wind speed exceeds 40 kmph.
- Over load tripping devices must be provided on the hoists and cranes.

19. SCAFFOLDING , LADDER & MEWP SAFETY

Tubular Scaffold & Frame Scaffold

- Scaffold must be provided for all work which cannot be safely done from the ground or part of the building. Ladders, properly secured, can be used – but only for light work which can be done with one hand
- Scaffold must be erected, altered, or dismantled only under competent supervision and, as far as possible, by experienced persons. All scaffolding materials must be inspected before use to check that they are up to standard.
- Scaffold must be kept in good order and every effort made to prevent the accidental displacement of any part.
- In a scaffold when platforms are being moved to the next level, the existing platform is left undistributed until the new bearers have been set in place and braced prior to receiving the new platforms.
- No rigging shall be done from scaffold handrails, mid rails, braces.

  Adjusting screws shall not be extended more than 12" of thread.
- Scaffolds under which personnel are to pass shall be provided with ½" mesh, 18 gauge wire screen or equivalent between the toe board and handrail.
- No make shift components / spares to be used against the actual designed components.

  Proper lock pins to be used to lock the bracings.
- The following points to be checked before using scaffolding:

Check from the ground:

- Base plates and sole plates, particularly as there is only a single line of standards.
- Line of standards and ledgers. Standards vertical
- Spacing of putlogs.
- Working platform. Check line and even support of boards: over-hang: lapped boards and fillets.
- Guardrails and toe boards
- Security of boards, toe boards and guardrails
- Longitudinal bracing
- Means of access

Check on the scaffold:

- Spade end of putlog fully home (75 mm in brickwork bed joint)
- Ties, particularly on lift below working platform or, in early stages, rakers on alternate standards.
- Platform loading (Not overloaded)
- Security and correct use of fittings, couplers, etc.
- Condition of tubes and fittings

Freestanding Mobile working scaffold

- These scaffolds shall be used for activities like conducting, cable tray work, ducting, pipe joining etc. and scaffold should be placed on firm and even surface
- Mobile Scaffold towers top plat form shall not be higher than 4 times of the minimum base dimension, unless secured to a permanent structure. (I.e. if the width of the scaffold tower is 2M. then the height of the top platform should not exceed 4 times of 2M, e.g.8M)
- Out riggers & additional support to be provided to make the scaffold stable & firm and as required to maintain the base & height ratio.
- Where space permits, all scaffold platforms shall be equipped with standard 42" high handrails rigidly secured (not wired) and standard 21" high mid rails, completely decked with safety plank or manufactured scaffold decking and equipped with rigidly secured toe boards on all four sides. Decking planks shall be secured in place. Planks shall overhang end supports a minimum of 6" and a maximum of 12".
- Rolling scaffolds shall be used only on a stable level, smooth surfaces, or the wheels shall be contained in wooden or channel iron runners. Personnel shall watch for overhead clearance when moving a scaffold. Casters shall be pinned.
- Bricks, tiles, blocks and similar material shall not be stacked higher than 24" on the scaffold deck.
- A scaffold shall be tied off or stabilized with outriggers while working on it.
- After the inspection scaffolds must be tagged

Green tag-Safe for use
Red tag-Unsafe for use

and tags must be signed by the inspector who carried out inspection of scaffolds, and same procedure should be followed for ladders as well.

MEWP (Boom Lift / Scissor Lift)

- All MEWP shall be inspected at gate prior to enter at site.
  .
- Third party certificate to be obtained prior to use it at site
- Periodical check shall be carried out as per safety assurance plan.
- Overloading shall not be permitted.
- Experienced & trained operator shall be engaged
- Banks man shall be engaged during movement of MEWP
- Safety belt shall be used while working on MEWP at a height of 2mts. Or more. Safety belt to tie with a lifeline or permanent structure.
- Working platform shall be free from cluttering
- In Scissor lift the extension of the work platform shall be carried out in both the side if required. One sided extension will lead to destabilization of the equipment.
- In Scissor lift the the scissor section / hydraulic lifting section shall be guarded properly to avoid accidental contact with the pinch points.
- The MEWP should only be used in stable a clear ground
- Any Cluttering of material or scrap shall not be permitted on floor in the surrounded area where MEWP is being used.

Ladders

- All ladders shall be of proper length and in good condition. The use of ladders with broken or missing rungs or steps, broken or split side rails or with other faulty of defective construction is strictly prohibited in UNITED CONTRACTING WORKS PVT. LTD.roject Site.
- Use of metallic ladders in close proximity to live electric wiring is strictly prohibited.

  Use of ladder in a horizontal position as walkways or as scaffolds is strictly prohibited.

  All ladders shall extend at least 1m above the level to be served.
- No portable single ladder should be more than 6m in length. The spacing of rung shall be 250 to 300 mm.
- All ladders shall be placed at a maximum verticality of 4:1 (4 vertical to 1 horizontal) having clear access at top and bottom.
- The ladder should be securely lashed or otherwise fastened to prevent its slipping.
- The feet of the ladder should be placed on a substantially firm and level base, and not on any other loosely kept / held objects, like barrels.
- Wooden boxes etc. Never place a ladder in front of a door that open towards the ladder, unless the door is locked, blocked or guarded.
- While ascending or descending the user shall face the ladder. Use both hands and place his feet at the side rather than the middle of the rungs.
- Do not work from the top rungs of any straight or extension ladder. Do not

  work or stand on the top of a stepladder.
- Step ladders shall not be in use with damaged spreaders lock.
- Extensive usage of ladders as only means of access is not permitted at UNITED CONTRACTING WORKS PVT. LTD. site. Use of Extension Ladder & Step ladder must be avoided as far as possible at site.
- **Inspection of ladders shall be carried out as per HSE assurance plan in UNITED CONTRACTING WORKS PVT. LTD. work site.**

20. WORKING AT HEIGHT

The following points to be taken care during working at height:

- All workers working at a height 2mt. or more must undergo the CBTHR training. Prior to start of the activity.
- All the workers will be explained safe work execution plan and related safety precaution to be adopted.
- Proper usage of PPEs (full body harness with proper anchorage & Safety Helmet with chin strap in place) shall be ensured at the time of working.
- A communication system have been established and explained to the workers.
- Adequate illumination has been ensured in case of night work.
- Work-area inspected prior to starting of the job.
- Area below the workplace shall be barricaded as per the site rules, especially below hot-works.
- Workmen provided with bag/ box to carry bolt, nuts and hand tools.
- Height working area shall be barricaded.
- All work platforms to be of adequate strength and ergonomically suitable (i.e. if 32 mm Wooden board is used for platform, adequate support to be provided in every 1mt., for 38 mm. board maximum span length should not exceed 1.5 mt.)
- Fabricated make shift arrangements are checked for quality and type of material welding, anchoring etc.
- Workmen are instructed to strictly compliance to anchor the safety belt during higher elevation (more than 1.5M of height) job.
- Proper arrangement made (life line etc.) for anchoring the safety belt.
- Fall protection device (Fall arrestor) to be used for height work wherever required

21. MATERIAL HANDLING OPERATIONS MANUAL / MECHANICAL

Material handling alone is found to be responsible for twenty five percent of total accidents that take place in industry.

Manual Handling Of Materials:

Some of the common injuries during manual handlings are:

- Cut fingers due to sharp edges.
- Burns due to handling of hot articles.
- Foot injuries due to dropped articles.
- Fingers getting caught underneath an object while placing it on the floor.
- Strains to wrist or fingers because of awkward handling of articles.
- Slipped discs due to improper posture in lifting an object.

The following precautions are required to the observed while lifting and carrying an article manually.

- Personal protective equipment such as safety gloves, safety shoes are to be used during lifting and carrying heavy, sharp edged article
- If the weight is too heavy for one person to lift, then more than one person shall be engaged for the job
- When more than one person is engaged, it is safer to have persons of similar capability, height etc.
- Ensure proper lifting technique.
- Ensure Firm grip over object to be lift by the palm and not the finger.
- Ensure manual handling for heavy load to be kept as low as possible.

Mechanical Handling of Materials:

- All machinery will be inspected before being placed in service and at regular intervals thereafter;
- Maintenance schedules will be established for each piece of equipment and strictly followed;
- No repair, adjustment or replacement of parts on machinery is permitted in site.
- At the start of each shift the operator will check oil, water, fuel and hydraulic levels and he will check that all gauges are operating and that the machine is functioning smoothly. Safety equipment (guards, limit switches, governors, etc.) will be checked daily;
- When vehicles are left unattended, engines will be stopped and parking brakes applied or the wheels choked, blades, scraper buckets, and other hydraulic equipment will be lowered to the ground before the operator leaves the machine;
- Special care to be taken to prevent any oil to go into the land during Oil filling or any other operation & maintenance activity of mechanical material handling equipment, MEWP or DG set.

RDING OF MACHINERY

All moving machinery will be guarded. In particular gears, pulleys, V-belt drives, fans and revolving shafts, all of which are present on most of the static equipment used on or around construction sites.

Guards will be installed on equipment prior to arrival on site and will be maintained in position at all time while the equipment is operating. Guards which are removed for routine maintenance or repair work, will be replaced before the equipment is returned to service.

OPERATORS

- Only trained experienced personnel will operate mechanical equipment. Operators will be trained in the procedures and functions relevant to that specific equipment. They will be fully aware of the capability and limitations of the machine and have knowledge of the day-to-day maintenance required.

- All drivers and operators of heavy equipment will be in possession of current licenses for the particular class of machinery applicable to the legal compliances.

- Perform daily / weekly maintenance checks of machine.

- Ensure persons and objects are clear of path of travel. Check to rear when reversing, reverse light and horn work and equipment fit for purpose

22. BARRICADES :

- Temporary Barricades with caution tapes shall be provided around work areas to provide a visual guard to prevent unwanted movement of persons, including excavations, holes, and openings in floors, roofs and elevated platforms and underneath any raised load / overhead job / hoisting work.

- Barricades shall be about 42" (one meter) high and maintained square and level.

- For a longer job for several weeks in a same area and a physical protection is required, Hard Barricading / Protective barricading shall be installed, e.g. Wooden post, Fabricated steel frame etc. Hard barricading shall be fixed rigidly into the ground to withstand some load.

- Hard barricading should be designed to withstand at lease 200 lbs of force in any direction with minimal deflection.

23. GUARDING OF OPENING & CUT- OUTS:

- There should be no opening in any work platform except for allowing access to such working platform.
- All holes or openings through floors or decking at all elevations shall be provided with hole covers made of. Re-bar mesh shall be placed over the opening or the hole shall be guarded by a railing with toe board.
- Material and equipment shall not be stored on a hole cover.
- Every hole cover shall have a sign reading "WARNING – TEMPORARY COVER – DO NOT REMOVE UNLESS AUTHORISED" or shall otherwise identified
- A hole cover shall be cleated, wired or otherwise secured so it cannot be slipped sideways or horizontally beyond the hole.
- Every hole cover shall extend adequately beyond the edge of the hole.

24. TRENCHES AND EXCAVATIONS:

Prior to starting any trench or excavation work, the proposed works shall be adequately assessed and planned to ensure that they are executed safely and without risks to health and safety. The factors to be considered include:-

- All earth moving machinery and excavator shall be inspected at the gate prior to enter at site
- All experience competitor operator shall be allowed to operate the equipment. He has get approval from site safety officer.
- Any person working near a excavated pit/trench of 2meter or more depth shall be used personal fall arrester /safety belts
- An work permit shall be required prior to beginning work.
- A warning or protective barricade along with hard barricade shall be provided around every excavation area. Excavated materials shall be piled at least three feet back from the edge of the excavation.
- Proper cutting angle (slop / angle of repose) to be maintained in any excavated pit or trench depending on the soil condition.
- Shoring / hard barricading shall be considered for an excavated area depending upon the working condition & area of operation.
- Every excavation shall have a safe access way.
- All excavation walls shall be inspected before being entered and after a heavy rain.
- No one is permitted in an excavation while construction equipment is working next to the edge.
- The presence of any underground or overhead services to be checked.
- The provision of edge protection to prevent materials, plant and personnel falling into the excavation.

In addition, any excavation of significant depth or complexity will be subject to a written procedure detailing the sequence of work and the relevant method and precautions to be observed

25. Form Work

• Tubular steel frames used as staging to support concrete formwork should have a safety factor of at least 2 and be used in accordance with manufacturer's recommendation.

• Before erection of steel frame staging is started, a thorough inspection should be undertaken on it.

• Timber jacks, joists, stringers and ledgers should be inspected for defects such as cracks / excessive knots.

• Struts and diagonal braces must be in proper position and secured for frames to develop full load carrying capacity.

• As erection progresses, all connecting devices should be in place and fastened for full stability of joints and units.

• As additional heights above two tiers are added, suitable planking should be used as a working platform, which should consist of two 2" x 10" planks in minimum.

• The capacity of the soil for foundations should be determined for every staging job. The effect of weather conditions should also be taken into consideration as dry clay may become very plastic after a rainfall and show a marked decrease in load carrying capacity. Care should be taken not to disturb soil used for foundation supports.

• Final inspection of the staging equipment should be carried out before allowing other work to check soundness of the footing, all lower adjustments screws snug against the leg of the panel, all upper adjustment screws or heads of jacks in full contact with the formwork, panel plumb in both directions, and all cross braces in place and locking devices in closed and secure position.

• During concrete pouring operation, there should be constant inspection of the staging system with provision for correction as necessary.

• Before the reinforcement & shuttering works are started for Beams, proper working platform / walkways are to be provided.

• Before starting the reinforcement work on concrete column, the existing scaffolding must be extended to more than the required height, so that it provides a means to anchor safety belts used by the workmen.

• All workmen working above 2 Meter height must use Safety Belt properly.

26.**ENVIRONMENTAL HAZARDS**

We will implement the environmental/industrial hygiene method, procedures and guild line at site.

Environmental hazards points will be covered in JSEA

The following elements will be taken care:

- Evaluation and examination of the project
- Interpretation of gathered data
- Preparation and Implementation of control measures

27.**HOUSE KEEPING**

- The worksite and premises shall be maintained in a healthy, clean and sanitary condition. The walkways and roadways shall be maintained clean.
- Special attention shall be given to remove of slipping and tripping hazards and to proper stacking of materials. The stacking height to be maintained at chest level wherever possible.
- Stack or place materials, tool and other equipment in such way that no hindrances to occur in actual work area.
- Remove trash and debris daily from the worksite and premises including nails & welding stubs.
- Remove combustible scrap daily from work site and collect the same in designated bins as described in housekeeping & waste management plan
- Separate house-keeping person to be engaged if required.
- House keeping shall be checked regularly during daily site safety inspection.

28. **VEHICLES / TRAFFIC & PEDISTRIAN MOVEMENT AT SITE**

- A detail traffic & pedestrian movement plan within the site shall be prepared & displayed at site. Safety signage and instruction shall be displayed at prominent location which is required as per the plan.
- UNITED CONTRACTING WORKS PVT. LTD. personnel engaged at site shall comply with all site rules, regulations and signs regarding traffic and vehicles at all times.
- Hauled material that overhangs the sides or ends of a truck shall be marked with red flag or reflective tape.
- Loads shall not be suspended from a cable that allows swinging beyond the sides of a truck or crane.
- Vertical clearance of the route to be used shall be checked prior to moving equipment or high loads..
- Condition of the Vehicles / Cranes, being used in site shall be inspected fortnightly as per the monthly safety inspection plan.
- Tool box talks shall be conducted on Defensive driving for the driver / operator. Maximum Speed limit for all the vehicles should be restricted as 15 kmph or as per site safety rule

29. **FIRE PREVENTION**

- Hot work (Welding, cutting) activities to be carried out under strict monitoring & in designated area at site as far as possible.
- ABC or clean agent fire Extinguisher and sand bucket shall be made available at job site where hot work is being conducted.
- Work permit to be taken for any hot work in critical area.
- Extinguishers, sand bucket and other emergency equipment shall not be covered or blocked, Fire extinguisher and sand bucket to be kept near stores and site office as required
- Suitable fire extinguishers and sand buckets shall be provided in all the critical areas at site like store, fabrication yard. DG area, fuel storage area, main electrical panel area etc.
- Fire extinguishers shall be maintained in operational condition all the time and inspection to be carried out on regular interval.
- Flammable materials, such as fuel oil, etc., must be properly contained, clearly identified, separately stored in a designated area and kept clear of working areas. By no means are the fuel oil and Gas cylinders allowed to be kept in the main store with other materials.
- Work area to be kept free of waste material. Proper housekeeping shall be maintained.
- All Electrical cable, power tools & other electrical equipments like welding machine, power saw etc shall be checked periodically as per the monthly site safety program in order to minimize fire risk from them.
- Training on fire extinguishing shall be carried out for as per training matrix.

30. INCIDENT/ACCIDENT REPORTING & INVESTIGATION

Reporting Accident, Incident and **near misses** (Near miss is defined as an unintentional unsafe occurrence that could have resulted in an injury, fatality, or property) shall be carried out and reported to the higher-ups.

Every work related injury or illness, regardless of severity, must be reported immediately by the worker to the site safety supervisor. One point lesson will be prepared and share with everyone. All reported injuries and illnesses are to be investigated in accordance with this.

Accident investigations are conducted for:

- Injury or illness involving medical attention
- Significant property or equipment damage
- Injury or incident that has hospitalization potential
- Loss of member of the body
- Severe disfigurement

Procedures to be followed in case of incident/accident:

- Immediately provide medical attention for the affected employee(s)
- Notify Safety Coordinator of respective branch, client representative and Project coordinator by telephone immediately
- Follow up with **incident report (within 24 hours) in the stipulated format.**
- For any major incident or potential near miss cases perform an Accident investigation of the incident/ accident and complete the **Incident Investigation Report within 2 working days.**
- Ensure that corrective actions have been implemented.
- Copies of the Incident Investigation Report will be reviewed for completeness and proper corrective action, and shall be maintained

Note: In the case of any incident or near miss, the incident investigation report also needs to be maintained.

31. SAFETY PERFORMANCE MONITORING & REPORTING:

We understand safety performance reporting is of highest importance in this project. To meet that requirement following reports to be generated:

- Daily & cumulative man-hour worked.
- Weekly First aid cases &Loss time injury report.
- Weekly Safety inspection and corrective action taken data.
- Weekly Safety coordination meeting report.
- Training data
- Monthly safety reports.

The formats for the same shall be developed mutually and to be followed for reporting purpose.

32. EMERGENCY PROCEDURE

The Emergency procedures are designed to ensure the health and safety of workers in the event of emergency at site. The following safety procedures will be adopted for dealing with site emergencies.

- Details of assembly points, exit routes, location of fire points and type of fire equipment and contact persons will be made known to all workmen's
- Emergency telephone numbers will be provided and prominently posted
- Mock drill should conduct by Safety officer and Project manager.
- Person sounding the emergency alarm will report its location, nature, known injuries. This person will remain at that location until emergency help arrives. Sirens should be placed at various locations at site as indicated in the emergency plan.
- Everybody at site will be made aware of emergency plan by displaying the above information at the office and site for everyone.
- Required training will be imparted to all concerned
- Proper storage facility will be incorporated for flammables as per the MSDS provided by the manufacturer.
- Detail site specific Emergency Preparedness plan shall be prepared as per site requirements

33. First aid facilities

- Medical Tie-up will be done with nearest Hospital
- First Aid will be operated on the project.
- The facility will be set up to administer care of all injured employees resulting out of course and scope of employment.
- It will be suitably equipped to provide medical and rescue emergency response in all anticipated situations, from minor to major medical/traumatic events.
- The facility will be provided and maintained by for all the workers and staff working at project.
- Location and availability of first aid facilities shall be communicated with all the workmen at site.
- All the injuries will be recorded in First Aid Register by the First Aider which is available in First Aid Room

34. Others-Welfare Facilities at Site:

- Adequate supplies of drinking water shall be made available in site.
- All containers used for distribution of drinking water shall be clearly marked as “DRINKING WATER” and not to be used for any other purpose.
- Portable container used for storing drinking water shall have tight fittings lids and be equipped with tap these shall be kept free from contamination.
- First aid boxes shall be placed at conspicuous locations regularly inspected and contents shall be replenished.

35. PPE's Matrix

UEW Personnel & Contractors Activities	1 Helmet-Green	2 Helmet-White	3 Helmet Blue	4 Helmet-Red	5 Helmet-Yellow	6 Safety Shoes	7 Full Body Harness	8 Ear Muffs / Plugs	9 High Viz Jackets	10 Welding Shield	11 Cotton Hand Gloves	12 Leather Gloves	13 Cutting Goggles	14 Mask
UEW Personnel														
Safety Engineer														
Safety Supervisor														
Site Personnel														
Electricians														
Visitor / Guests														
Contractor's Supervisor														
Civil worker														
Carpenters														
Fitter														
Plumber and Pipe fitter														
Working at height (2M)														
Gas Cutting														
Welder														
Waste handling and House Keeping personal														
Security Staff														

NOTE: This is a General Guideline. PPE's Matrix & Responsibility shall be finalized by the Project Manager along with the Site Officer, Safety Manager & Contractor before the commencement of site activity

36. SAFETY TRAINING MATRIX

Safety Training Module														
Estimated Time For Training (in Hrs.)	3	1	3	1	1	1	1	2	1	1	1	1	2	1
Who is required/recommended to attend	SHE Orientation	PPE	Electrical Safety	Working at height	Job safety analysis	Hand and power tools safety	Material lifting and handling	LOTO system	Cable drum handling and cable pulling	Accident reporting	emergency response	Crane/fork inspection	Fire protection	Waste Management and House Keeping
Project Manager														
Site Engineer														
Safety Officer														
Electricians														
Visitor / Guests														
Fitter														
Helper														
Cable Puller														
Civil worker														
Bar benders														
Welder														
Plumber/ Pipe Fitter														
Security Staff														

ANNEXURES

SAFETY ASSURANCE PLAN

	ACTIVITY	PERFORMER	FREQUENCY	REMARKS
1	Safety committee meeting	Internal	Monthly	To be conducted by the safety officer
2	Safety induction for workers and for the Staff members	Site Safety In charge	Prior to engaging the workers / staff for site activity	All personnel to be engaged for site activity should under go safety induction compulsorily, without this they will not allowed to work
3	Conducting tool box training at site	Site Safety In charge	Daily /prior to new activity	
4	Tools and equipment inspection	Site Safety In charge	Quarterly and prior to use	Project engineer in coordination with the safety in charge shall carry out inspection activity.
5	Inspection of the Scaffolding and temporary structure for working at height	Site Safety In charge	Weekly, Completion of erection and prior to use and after any Change in the work condition.	Site in charge shall identify the competent person
6	Electrical safety inspection	Site Safety In charge	Once in month checked & tagged	Site Engineer in coordination with the Safety in charge shall carry out inspection activity & tags to be attached
7	Inspection of fire extinguisher	Site Safety In charge	Every three month	
8	Inspection of first aid facility	Safety officer	Once in a month	
9	Safety inspection	Safety coordinatorat branch level	During site audit	Concerned person should accompany the Safety coordinator
10	Certification of Fitness for all the equipment	Project Engineer	When the equipment first enters the site and before starts using the equipment	Project Engineer in coordination with the Site Safety in charge shall carry out inspection activity.
11	Safety statistical report	Site Safety In charge	Every month	Man hours worked can be calculated at actual basis
12	Third party inspection of the lifting tools and tackles	Competent person as per the Factories Act	Once in a year	Project Engineer in coordination with the Site Safety In charge shall verify the certificate prior to hire the cranes etc.
13	House keeping	Site engineer	As required	Separate gang & Timings

Safety Reports to be maintained

Reports	To be Maintained
Monthly activity plan	Every month
Electrical inspection report (including PDB location)	Every month
Tool box talk report	Daily
Daily Site Inspection report	Daily
Fire extinguisher inspection report.	Every 3 month
Equipment inspection report. (for crane, scissor lift, JCB etc.)	Before using them at site
Monthly HSE report (including monthly man hours report)	Every month
Scaffolding / Ladder inspection report.	Every weekly
Welding Machine & Gas Cutting set Inspection checklist.	Monthly
Portable tools inspection checklist.	Quarterly
Third party certificate for all lifting tools and tackles.	Before using them at site.
SHE committee Meeting	Monthly
PPEs Inspection Report.	Monthly
Permit System in line with site requirements.	Daily basis/weekly
ELCB Inspection Report.	Monthly
Incident Investigation Report including near miss cases.	
Emergency contact phone numbers.	To be displayed at site

SITE ORIENTATION FORM

Name of Employee: **(Print Name)**	**Reference No:**
Name of Project:	**Date:**
Company:	**Person Conducting the Orientation:**
The following topics are to be reviewed with all employees during their initial site orientation. **Topics** 1. Information to acquaint the employee with special safety requirements of the work site, including security and traffic regulations; 2. Description of the nature of the project; 3. Accident reporting procedures; 4. How to report unsafe acts or conditions; 5. Site disciplinary procedures; 6. Personal protection equipment requirements; 7. Hazards prevalent for the work being performed (fall protection, trenching, ladder usage, scaffold safety, etc.); and 8. Emergency Communication 9. Other _____	
Comments:	

By signing this site orientation form, I hereby acknowledge that the basic site safety controls outlined above have been thoroughly reviewed with me and that I agree to obey by the contents of the site Safety Requirements.

_____

_____

Employee Signature Date

Note: Any employee questions regarding the Safety Requirements should be directed to the SNWPL Safety Representative.

DAILY SAFETY INSPECTION REPORT

Project:_____ **Date:** _____

SL. No.	Observation	Action Taken	Responsibility	Remarks

Signature of Site Safety In-charge:

	TOOL BOX TALK RECORDS		
PROJECT :		LOCATION :	
DATE :		SUPERVISOR :	
TOPIC DISCUSSED :			

ACTIVITIES	HAZARDS	CONTROL MEASURES

Sr. No.	NAME	SIGN	Sr. No.	NAME	SIGN
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

NAME & SIGN OF SAFETY

ELECTRICAL SAFETY INSPECTION CHECKLIST

Date:_____

Sr.No	Contents	Yes / No	Remarks
A	**Cable**		
1	Whether the condition of Cable is checked?		
2	Are cables received from other site checked for insulation resistance before putting them into use?		
3	Are all main Cables taken either underground/ overhead?		
4	Are welding cables routed properly above the ground?		
5	Are welding & electrical cables overlapping?		
6	Is any improper joining of cables-wires prevailing at site?		
B	**DBs/ SDBs**		
1	Is earth conductor continued unto DB / SDB?		
2	Whether DBs & extension boards are protected from rain / water?		
3	Is there any over loading of DBs / SDBs?		
4	Are correct / proper fuses & CB's provided at main boards & sub-boards?		
5	Is energized wiring in junction boxes, CB panels & similar places covered all times?		
C	**ELCB**		
1	Whether the connections are routed through ELCB?		
2	Is ELCB sensitivity maintained at 30 mA?		
3	Are the ELCB numbered & tested periodically & test results recorded in a logbook countersigned by competent person?		
D	**Grounding**		
1	Is natural earthing ensured at the source of power (main DB at Generator or Transformer)		
2	Whether the continuity & tightness of earth conductor are checked?		
3	Mention the gauge of earth conductor used at site.		
4	Mention the value of Earth Resistance.		
E	**Electrically Operated Machines / Accessories**		
1	Whether the plug top provided everywhere?		
2	Are all metal parts of electrical equipment & light fittings / accessories grounded?		
3	Are Halogen lamps fixed at proper places?		
4	Are portable power tools maintained as pr norms?		
5	Any other information		

Signature of Site Safety In-charge:_____

ELCB TEST RECORDS

Project:_____ Date: _____

Date of testing	ELCB number & location	Is ELCB sensitivity maintained at 30 mA?	Test Result / Observation	Last tested on	Next Due date	Any other Comments	Signature of Authorized person

Check list for Work at Height

Site / Location :
Date and Time :
Name of Auditors :

Sr. No.	Check Points	Location-1		Location-2		Location-3		Location 4	
		Yes	No	Yes	No	Yes	No	Yes	No
1	Whether the work is performed at a height more than 1.5 meters?								
2	Is the work at height permit Required? Is it obtained?								
Ladder:									
3	Whether ladder/scaffolding pipe/clamps etc used are in good condition having marking of inspection?								
4	Whether ladder is placed at solid and leveled surface?								
5	Whether ladder is placed with an angle with horizontal ground > 75^0								
6	Whether the ladder used is OK? No broken rung, The rung spacing :S 12" etc								
7	When one person is climbing ladder, no material is in his hand and ladder is hold by another person at bottom?								
8	In case of rolling ladder its shoe brakes are applied.								
9	Is ladder tied up at upper end and its upper portion extended above 1 m from platform.								
10	While ascending and descending the ladder person faces toward the ladder or not? Does he maintain 3 point contact?								
11	Other observations for ladder:								

Scaffold :		Location-1		Location-2		Location-3		Location 4	
		Yes	No	Yes	No	Yes	No	Yes	No
12	Is there any scaffold erection in progress? If yes whether only trained riggers are employed for the job under competent supervision?								
13	Whether scaffolding has been erected on rigid / firm / leveled surfaces only? Are base plates provided for scaffolding posts?								

Sr	Check Points	Location-		Location-2		Location-3		Location 4	
		Ye	No	Yes	No	Yes	No	Yes	No
14	Are the scaffolding in plumb and level?								
15	Are all braces bearer and clamps secured all sections pinned or appropriately secured?								
16	Are all the wheel / castors locked?								
17	Is there a safe and convenient means of access such as ladder (i.e. Without climbing on cross brace)?								
18	Are the gratings placed in order without undue gaps and secured properly?								
19	Is every work platform fitted with handrail (42" high), knee rail (21"high)?								
20	Are all compounds inspected for defects such as broken welds, corroded members and missing locks, bent or dented tube?								
21	Is the front / face of the scaffold within 14" of the work?								
22	Does the scaffold have a height to base ratio of at least 4:1?								
23	Is scaffold height above 6 mtr? If yes is it fastened with structure?								
24	Is electrical safety distance maintained?								
25	Is the scaffold legs are under digged or on the edge of excavation or aboveground?								
26	Are properly anchored safety belts being used while working on scaffold?								
27	In case any painting or insulation work carried out without properly secured scaffold?								
a	Arrangement is made by providing life line (≥ 1" dia PP rope)?								
b	Do the workmen fasten their lanyard with life line?								
c	Is there any ladder provided for access								

Signature of Site Safety In-charge_____

(All the Ladders, Scaffolding platforms or any other arrangements for height work is required to be checked in this format periodicall

HOT WORK PERMIT

The Hot work will be carried out in the area specified and precautions are taken to avoid o any untoward incident.

The Following measures have been taken:

1. Barricading the area	:	YES / NO
2. Posting of warning Signs	:	YES / NO
3. Providing Fire Extinguisher	:	YES / NO
4. Provided Leather aprons	:	YES / NO
5. Provided Welding Shield	:	YES / NO
6. Remove al combustible material	:	YES / NO
7. Covered all materials which are At approx 15 feet distance	:	YES / NO

I have personally checked and assure that all the above conditions are fulfilled and I am personally responsible for any lapse. We may be permitted to work from _____to _____ on ……. Please extend the date till…….. Since there is no change in the welder and location.

Contractors Name and Signature with date and time.

Department / Area where work is carried out.

We have ensured that there are no combustible materials in the vicinity and adequate precautions are taken by.

Permission is granted to carry out the work on…….and further work will be allowed only after ascertaining that all precautions are taken.

SAFETY ENGINEER / PROJECT MANAGER
The Work is extended to be carried out from

…… To……..

Safety Steward's remark

WORK CARRIED OUT SAFELY YES / NO

Date:

Signature
Returned to SAFETY ENGINEER / PROJECT MANAGER
I Copy: Contractor
II Copy: To be displayed

HAND & POWER TOOLS CHECKLIST

Project:_____

Date:_____

Yes/No	
	Are all tools and equipment (both company and employee owned) used by employees at their workplace in good condition?
	Are hand tools such as chisels and punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?
	Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?
	Are worn or bent wrenches replaced regularly?
	Are appropriate handles used on files and similar tools?
	Are employees made aware of the hazards caused by faulty or improperly used hand tools?
	Are appropriate safety glasses, face shields, etc. used while using hand tools or equipment which might produce flying materials or be subject to breakage?
	Are jacks checked periodically to ensure they are in good operating condition?
	Are tool handles wedged tightly in the head of all tools?
	Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?
	Are tools stored in dry, secure locations where they won't be tampered with?
	Is eye and face protection used when driving hardened or tempered spuds or nails?
	Are grinders, saws and similar equipment provided with appropriate safety guards?
	Are power tools used with the correct shield, guard, or attachment, recommended by the manufacturer?
	Are rotating or moving parts of equipment guarded to prevent physical contact?
	Are all cord-connected, electrically operated tools and equipment effectively grounded or of the approved double insulated type?
	Are effective guards in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, and air compressors?
	Are portable fans provided with full guards or screens having openings 1/2 inch or less?
	Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits, used during periods
REMARKS:-	

Signature of Site Safety In-charge

N.B: PLEASE MARK "O" FOR OK AND "R" FOR REPLACE OR REPAIR

AREA / ACTIVITY :

Unit Number		Mark here O/R
OXY-ACETYLENE- WELDING AND CUTTING EQUIPMENT	Regulator serviceable	
	Torch valves serviceable	
	Joints tested for leaks	
	Flashback arrestors fitted torch and bottle end	
	Hoses tested for leaks	
	Cylinders chained to trolley	
	Trolley and wheels in good repair	
	Fire extinguishers fitted and serviceable	
	Copper hose connections	
	Equipment left unpressurized	
Remarks of action		

Unit Number		Mark here O/R
ARC WELDING AND CUTTING EQUIPMENT	Cables in order	
	Condition of plug	
	Electrical clamps effective	
	Correct for job heavy/light duty	
	electrode holder & cables not loose	
	frame of welding unit earthed	
	Welding cables dry and free from grease	
	Trolley serviceable	
	Fire extinguisher available/ serviceable	
Remarks of action		

Unit Number		Mark here O/R
PERSONAL PROTECTIVE EQUIPMENT	Goggles	
	Helmet	
	Visor	
	Gauntlets	
	Apron	
	Spats	
	Safety shoes	
	Ventilation	
Remarks of action taken		

EQUIPMENT INSPECTION RECORD

Date: _____

Inspector: _____

Equipment Name: _____ Serial Number: _____

Equipment Location: _____

General Condition: _____

Were any defects or safety hazards noted? YES NO

If yes, specify: _____

If you answered yes to the previous question, was equipment taken out of operation immediately and reported to supervisor? YES NO

If yes, please note supervisor: _

If repairs are necessary, specify: ___

Note any parts in need of replacement:

1. _____ 5. _____
2. _____ 6. _____
3. _____ 7. _____
4. _____ 8. _____

Additional Comments: _____

_____ _____

Inspector's Signature Date

CHECKLIST OF THE FIRE EXTINGUISHERS

Project:_____ Date:_____

Type of FFE	Checks to be carried out	Status ok / Not ok	Status ok / Not ok	Status ok / Not ok	Status ok / Not ok	Status ok / Not ok	Status ok / Not ok
Co_2		ID no.	ID no.	ID no.	ID no.	ID no.	ID no.
	Kgs.	Cap.	Cap.	Cap.	Cap.	Cap.	Cap.
	1. Weight of Cylinder	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	2. Safety lock pin	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3. Discharge Hose	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	4. Valve operation	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	5. Visual inspection	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	5.1 Color	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	5.2 Label	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
Foam		ID no.	ID no.	ID no.	ID no.	ID no.	ID no.
	Liters.	Cap.	Cap.	Cap.	Cap.	Cap.	Cap.
	1. Valve operation	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	2. Discharge Hose	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3. Visual inspection	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3.1 Color	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3.2 Label	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
DCP		ID no.	ID no.	ID no.	ID no.	ID no.	ID no.
	Kgs.	Cap.	Cap.	Cap.	Cap.	Cap.	Cap.
	1. Moisture	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	2. Plunger & Safety pin	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3. Visual inspection	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3.1 Color	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok
	3.2 Label	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok	ok / Not ok

First Aid and Injury Register

Sr.No.	Date	Name of the person	Reason	Medicine with Exp. Date	Qty	Remarks	Signature

PPE SUPPLY REGISTER

Name of recipient	ID Number	Item(s) issued/replaced	Issue Date	Recipient's signature confirming they have received the listed PPE and appropriate training in its use.
			/ /	
			/ /	
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			/ /	

HOUSE KEEPING CHECKLIST:

DATE:_____

SL NO	CHECK POINT	YES/NO	REMARKS
1	Worksites clean and orderly?		
2	Work surfaces kept dry or appropriate means taken to assure the surfaces are slip-resistant?		
3	All spilled materials or liquids cleaned up immediately?		
4	Combustible scrap, debris and waste stored safely and removed from the worksite promptly?		
5	Metallic scrap removed from site promptly?		
6	Work areas adequately illuminated?		
7	Separate house-keeping team engaged if required?		
8	The walkways and roadways maintained cleanly without any obstruction?		
9	Whether materials stacked properly in stores to protect from rain water? Whether stacking height maintained at chest level?		
10	Appropriate signage's and safety posters displayed at sites?		

ACCIDENT / INCIDENT REPORT

PROJECT SITE: DATE:

NAME OF THE PROJECT MANAGER :

NAME OF THE CONTRACTOR :
(In case of sub-contractor personnel)

1. Name & Address of the injured person :

2. Age & Date of Birth :

3. Sex :

4. Occupation :

5. Time of Accident :

6. Exact place of Accident :

7. Description of Accident
(State exactly what injured person was doing just before & at the time of accident)

8. Name or names of person who witnessed the accident :

9. Nature or extent injury :
(Eg. Fracture, Scald, Bruise, Cut Injuries etc.)

10. Location of injury (Part of the body) :

(Eg. Leg, Hand, Head etc)

11. Details of First aid given & further measures taken
    :

12. Accident is due to
    (Immediate Cause & Underlying Cause) :

13. Remedial measures taken to prevent recurrence :

SIGNATURE
(PROJECT MANAGER / SITE IN CHARGE)

Cc: 1. Branch Office
    2. Safety Manager
    3. Site File.

MONTHLY SAFETY REPORT

(For the Month of_____)

Name of Site: **Location:**

Division / Business Unit: ***Electrical / Mech / Generator*** **(Strike out which is not applicable) Name of Project Manager / Site-In charge:**

Manpower Data:

Site Name	Safety Coordinator	Average no. of employees worked			Man-hours Worked		
		UEW	Contractor	Sub-contractors	UEW	Contractor	Sub-contractor

Loss Time Data:

No. of Loss Time Incident			Name of the injured	Man days Loss due to Incident			Man days loss continuing from previous		
UEW	Contractor	Sub-contractors		UEW	Contractor	Sub-contractors	S&W	Contrctors	Sub-contracto

Positive Performance measurements:

No. of Near-miss Incident Reported	No. of safety Training Hours (including Tool Box Talks)	No of Safety audit completed	No. of Safety meeting (including Client's safety meeting)

Reported By:_____

Signature: _____

HOUSE KEEPING
&
WASTE MANAGEMENT PLAN

1.**Waste Management**

Purpose of waste management is:

1) To establish system for collection, transfer, storage and disposal of Wastes generated from different site activities.
2) To ensure that:

a) Hazardous wastes generated from site activities are identified, collected and stored as per the legal requirements.

b) The Hazardous wastes are disposed of either to authorized scrap contractors or following the guidelines given by SPCB/CPCB.

c) Records required by Rules concerning hazardous wastes collection/generation and disposals are maintained.

SCOPE:

The procedure is applicable to all wastes generated due to activities/operation/services carried at sites. Currently the following have been identified as Wastes:

i) Nonferrous Metal Scrap, generated specifically from scraps cable
ii) Iron scrap generated during cable tray fixing, etc.
iii) Concrete
iv) Insulation/plastic Material
v) Packing materials

PROCEDURE:

The wastes are generated mainly from the following site activities/operations/services:

- Concrete.
- Conducting & cabling activities
- Cable tray work

2. **COLLECTION OF WASTES:**

Welding Stubs:

Welding Stubs or remaining of welding rods to be collected into a separate container. The same will be kept in a designated place further disposal.

Nonferrous Metal (copper & aluminum) Scrap:

Copper & aluminum cable cuttings and earth strips shall be collected separately and to be kept in the designated area after segregation.

Iron Scrap:

Proactive measures to be taken for reducing scrap generation. Whenever the iron scrap are generated, they are temporarily stored in an identified area within barricade to avoid any unsafe occurrences and transferred to scrap dealer time to time for recycling.

Insulation Material:

Proactive measure to be taken for reducing scrap generation. Whenever the insulation scrap generated, they are temporarily stored in an identified area within, barricade and transferred to scrap dealer time to time.

Packing materials/wooden scarp:

Collect the packing materials and wooden scrap materials in one place and dispose the same as per site specific requirements

3.**STORAGE OF WASTES:**

The storage of different types of wastes identified as above can be done by:

Nonferrous Metal (copper & aluminum) Scrap:

Nonferrous metal scrap like copper & aluminum is generated from cable cuttings & earth strips. The same will be segregated properly and be kept in their designated place for disposal to the vendor for recycling time to time.

Iron Scrap

Iron scraps are stored in an identified area within scrap yard within barricade.

3.3 Welding stubs:

Welding stubs must be collected and stored in a hazardous waste bin