# Safety Questionnaire for interview

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**1 What is Work Method statement?**

*It is the submitted by contractor to client, covering the general work procedure of a particular job in a safe manner as per required standard.*

**2 What is the use of W.M.S (Work Method Statement)?**

*We can plan and execute the work easily and safely. It also helps to know the codes and standards used for each activity.*

**3 What is a JSA and what is its use?**

*Job Safety Analysis is the step by step analysis of a job to determine the safe working procedure. It includes the following steps.*

***A) Watch the job being done***
***B) Break the job down into steps***
***C) Describe the hazards in each step of task***
***D) Identify the desired control measures and***
***E) Implement these counter measures in the job execution***

**4 What is Work Permit?**

*Work permit is the written document authorizing a person or a group to Perform maintenance, inspection or construction work*

**5 What is confined space?**

*A confined space has limited or restricted means for entry or exit, and it is not designed for continuous employee occupancy, which subject to the hazards like deficiency of oxygen, toxic or flammable gases or substances, dust etc.*

**6 In what circumstances a confined space work permit can be issued?**

*If properly ventilated, gas test readings are satisfactory, properly barricaded and warning signs are posted, trained stand by man is present with log sheet, sufficient lighting and low voltage electricity (24V – 110v), proper means of communication, locked and tagged out if necessary, lifeline and man retrieval system if necessary, etc.*

**7 Who is the confined space attendant?**

*He is one who is aware the confined space hazards and know how to react if any thing goes wrong, able to maintain confined space entry log sheet, etc.*

**8 What are the hazards in a confined space?**

*Oxygen deficiency or enrichment, presents of toxic or flammable gases, chemical hazards, fire hazard, fall of materials, fall hazard electrocution, dust, sound, heat or cold, caught in between moving parts of equipments, engulfment etc.*

**9 What are the duties of a confined space attendant?**

*He is responsible for the safety of entrants, should be present whenever people are working in confined space, Maintain updated entry log sheet, maintain continues communication with entrants and monitor conditions in the confined space to ensure a safe working atmosphere, Prevent unauthorized entry of personnel, initiate alarm for help if needed, evacuate the entrants if conditions are not satisfying or in case of any general evacuation is initiated, contact rescue personnel if necessary, etc.*

**10 Give some examples of confined space?**

*Pipes, Vessels, Tanks, Boilers and Tube areas, Silos, Trenches and excavations deeper than 4 feet, Sludge pits, Duct works, etc.*

**11 Name one hazardous job in a confined space?**

*Welding, Grinding, Chemical cleaning, Use of gas cutting set, Erection of materials.*

**12 Who is a competent person?**

*Is one who is properly trained and authorized to perform a specific work in safe manner*

**13 What is an accident?**

*An accident is an uncontrolled event that results in undesirable consequences to personnel (injury / illness) or the assets (damage / loss) to the environment.*

**14 What is a near miss?**

*A potential hazard, which has not yet caused an accident or An occurrence that did not result in but have the potential to result in undesirable consequences to personnel (illness / injury) and or to the assets (damage / loss) or to the neighboring community and environment.*

**15 Who makes an accident report?**

*Concerned area supervisor or site safety representative.*

**16 Who makes an accident investigation report?**

*A team of front line supervisor, HSE manager, sub- contractor representative if sub- contractor personnel are injured, High officials- depending upon the severity of the accident.*

**17 What is use of an accident investigation report?**

*To find out root cause of the accident, make recommendations to prevent re-occurrence and evaluate the effectiveness of emergency response.*

**18 What is waste management?**

*Waste management means safely disposing the by-product of a process or a work to the environment (after proper treatment, if necessary) so that no threat for livings, properties and environment exists.*

**19 What is MSDS?**

*Materiel safety data sheet is the document prepared by the manufacturer giving- Product name, Producer's address, Emergency contact phone number, Information of ingredients, Possible hazards, First-Aid measures, Precautions to be taken for storage and handling (recommended PPEs, extinguishers), Physical and Chemical properties, etc.*

**20 What is an Isotope?**

*Isotope means one or more species of atoms having same atomic number but different mass number.*

*Isotopes can be stable or unstable.*

*Radioactive isotopes are unstable substances, which emits heavy particles (alpha and beta) and higher energy electromagnetic waves (Gama) from their nucleus by decay.*

**21 Why is an Isotope hazardous?**

*Isotopes are hazardous because it emits uncontrolled energy in the form of radio active waves which is hazardous to all living thing as it can destroy the its living tissues that causes fatality or can convert it in to cancer.*

**22 What is Radio activity?**

*Radio activity is the spontaneous disintegration of atomic nuclei. The nucleus emits ALPHA particles, BETA particles, GAMA particles or electromagnetic rays during this process.*

**23 What is the unit for measuring radiation?**

*Micro Sivert or milli- Rem.*

**24 In what condition a work permit can be issued for Radiography?**

*The controlled area is calculated, evacuated and barricaded with Yellow/Black tapes, warning signs (a minimum of 4 no's), and Red or Yellow flash lights.*

**25 What are the safety measures to be taken while doing Radiography?**

*Ensure a competent person is surveying outside the barricaded area with survey meter. The crew is authorized and following safety precautions. The controlled area is calculated, evacuated and barricaded with Yellow/Black tapes, warning signs (a minimum 4 no's) and Red or Yellow flash lights.*

**26 What is the controlled area?**

*Any area where the radiation does is more than 0.75 mRem/h (7.5 micro sivert)*

**27 What is a Gieger meter?**

*It is the instrument used to measure the radiation dose (Radiation survey meter).*

**28 What is the use of a film badge?**

*This badge will be worn by the personnel, exposed to radiation due their nature of duty and this is processed to calculate the received radiation dose of a person during the period (normally one month) of exposure.*

**29 What is decay chart?**

*It is the chart showing the change in radioactivity of a source, for a period, at regular interval of time.*

**30 Who is an authorized exposed Person?**

*He is one who got formal training in the use of sealed source and X-Ray equipment used in Industrial Radiography.*

**31 What are the requirements of Man Basket?**

*It should be designed and fabricated according to standards, have third party certificate, two guide ropes, damage free lifting gears, the load bearing capacity should be written on man basket, shackles with cotter pin only be used.*

### *32* How are slings Inspected?

*All slings must be inspected before every use and periodically it should be inspected thoroughly and shall be rejected, if found wear of the one third the original outside diameter of outside individual wires, Severe corrosion, Distortion (Kinking, crushing, bird caging…). Broken wires(a maximum of 10 randomly distributed broken wires in one rope lay or 5 broken wires in one strand in one rope lay), Heat damage (loss of internal lubricant by over heat exposure), Pulled eye splices (any evidence that eye splices have been slipped, sleeves damaged), Deformation of wires and strands or pushed out of their original position and sthe sling should be clean from dirt and rust. Before use the slings has to be colour coded as per the month colour code.*

### 33 What are the requirements for a crane lifting?

*Crane position on firm and level ground with wood pads and steel plates. Outriggers are fully extended tires are off ground, Certified Operators and riggers are available safe load indicator is working and check list is filled by competent person, Crane has valid inspection sticker , Insurance and third Party Certificate. The load's weight is confirmed and is within the safe working limit of the crane. Safety Devices are not by passed, The swing arm radius barricaded and unauthorized persons are evacuated, The lifting tools free from defect pads are use to protect the slings from load and vice-versa, Wind speed is less than 32 Km/hr., approved lifting plan is available for critical lifts, permit for the activity obtained, crane Operator's and Rigger's vision is not obstructed, the load is well balance and tag lines are used to control the weight etc.*

### *34* What is working Radius?

*It is the maximum distance where the crane boom has to reach for lifting or lowering the load.*

### 35 What is SWL?

*Safe Working Load is the maximum load that can be applied to the lifting tool, safely.*

### 36 What is lifting Plan?

*It is the document prepared for planning critical lift by calculating and considering all factors which is going to effect the lifting and thereby selecting the correct tools and cranes and ensure safe lifting procedure to be followed for a particular lift, giving details such as the size and weight of the object to be lifted, which crane is used for lifting and what the safety factor is, where the crane is positioned, from where the load is lifted, where it is fitted, size and SWL of each lifting tool is used JSA and load chart are attached with it.*

**37 What is excavation?**

*A man made cut, cavity, trench or depression formed by earth removal.*

**38 What is Trench?**

*A narrow excavation where the depth is greater than width.*

**39 What is Shoring?**

*A structure that supports the sides of an excavation and protects against cave ins.*

**40 What is the difference between flash back arrestor and check valve?**

*A check valve allows flow in one direction only. This prevents oxygen reaching acetylene cylinder and acetylene reaching oxygen cylinder in the event of blockage in the torch or line or pressure variations.*

**41 What are the classes of fire and what type of extinguishers are used for them?**

***Class A:*** ***Ordinary combustible materials.***

***Eg:-*** ***Paper, Wood , Cloth, Plastic, Rubber***

***Extinguisher:-*** ***Water, DCP ,Foam, CO2,Halon…***

***Class B:*** ***Combustible liquids and greases…***

***Eg:-*** ***Gasoline, Diesel, Oil, Grease, Oil based Paint, Tar…***

***Extinguisher:-*** ***Co2/Foam/DCP***

***Class C:-*** ***Energized Electrical Equipment***

***Eg:-*** ***DCP, FM 200, Halon, Carbon dioxide.***

***Class D:-*** ***Combustible Metals***

***Eg:-*** ***Magnesium, Potassium, Zinc, Calcium, Sodium, Titanium***

***Extinguisher:-*** ***Metal X Type, Combustible metal type,***

**42 What are the responsibilities of Fire Watch?**

*Fire watch is a person designed to identify and eliminate fire hazards, alert and extinguish fire in case of any outbreak of fire and to protect the person and properties from a fire. He is the man to react first by keeping a close watch on such hazardous areas.*

**43 What is Color Coding System?**

*This is the system followed to inspect and ensure the serviceability of tools, equipment periodically (normally it is monthly) like fire extinguishers, full body harness, lifting gears electrical codes and cables, power tools, etc., These things are inspected by competent person and are indicated by putting the colour of particular month.(The colour is decided in advance and it is being used by all persons in site). The items which are found defective and unserviceable will not be colour coded and has to be removed from service.*

**44 Who can Color Code?**

*Competent Person.*

**45 What is the maximum distance between two adjacent access in along excavation?**

*A ladder must be present within 25 feet, of employees working in excavation.*

*In open excavation - At every 30m on the perimeter, if less than 1.2m deep.*

*At every 7.5m on the perimeter, if more than 1.2m deep.*

**46 When an excavation is considered as Confined Space?**

*If the depth is more than 1.2 m*

**47 Who can erect a scaffolding?**

*Certified Scaffolder.*

**48 Who can inspect the components used for erecting a scaffold?**

*A Competent and Certified Scaffolding Supervisor*

**49 What is Tag System?**

*A Tag is put on scaffolding, by a competent person, indicating the present condition whether it can be used and whether fall protection needed or not.*

**50 Who can place a Scaffold Tag?**

*Competent Person (Scaffolding Supervisor)*

**51 What are the details in a scaffold tag?**

*Location, Maximum loading capacity (kN/m2 or psf)date erected and date inspected with Foreman Name and Signature.*

**52 In which conditions a scaffold cannot be erected?**

*Extreme weather(Strong wind, rain, Ice), ground not stable, safe clearance (minimum feet) can't be maintained with live wire, certified workers and supervisor are not available permit is available.*

**53 What is the minimum overlapping of two adjacent planks in a scaffold platform?**

*Not less than 12"*

**54 What is guard rail system?**

*A barrier consisting of top rails, mid rails, toe boards, and vertical uprights erected prevent men and materials falling from an elevated work area.*

**55 What is a toe-board?**

*Barrier secured along the sides and ends of a platform to guard against falling of materials, tools, and other objects.*

**56 What is the minimum height of toe-board?**

*4 inches*

**57 What is the height of the top-rail from the platform?**

*38 to 45 inches.*

**58 What are the requirements in placing an access ladder on a scaffold?**

*Provide access when scaffold platforms are more than 2 feet above or below a point of access*

*When using ladders, bottom rung must not be more than 24 inches high. Ladder to be at the correct (i.e.1 feet for every 4 feet in height). Ladders are to be tied at both sides not by the rungs. Make sure the ladder extends a safe distance (at least 90 cm) above the landing stage. When the horizontal travel distance exceeds 15 Mtrs provide at least two accesses. If the platform is longer, access shall be provided at every 30 meters. The ladders should be free from damage and should be colour coded. All access ladders must be tagged.*

**59 In what circumstances fall protection system has to be used?**

*If a person could fall more than 1.8 meters then fall protection system should be used.*

*E.g. - Any activity at an elevation more than 1.8 meters such as erection, dismantling or maintenance of scaffolding, pipes, equipments,…*

**60 What is the minimum width required for a walk-way in scaffolding?**

*Minimum width of a walk way is 18 inches".*

**61 What materials can be placed on a scaffold platform?**

*All types of construction materials which is used for particular construction activity can be kept on scaffolding platform but before keeping the materials and tools required for the work on the platform, we must ensure load bearing capacity of that scaffolding platform. The platform shall not be overload and shall be fitted with falling object protection system like toe board, nets etc.*

**62 What are the requirements for working on a moving scaffold?**

*Mobile scaffolding shall be plumb, level and square. It shall only be used and moved on surfaces sufficiently firm and level to ensure stability. It shall be moved only by manually pushing or pulling the base. No men, equipment or materials shall be on the working platform or elsewhere on the scaffolding while it is in motion. Castors shall be locked at all times except during scaffold movement. The temporary foundation or track set on uneven ground for scaffold movement shall be level and properly secured. The height of the working platform shall not exceed 4 times of the minimum base dimension. If it exceeds this limit outriggers must be installed. A complete guard rail system must be provided. The scaffolding shall be inspected and tagged before use by a competent person.*

**63 When should we inspect a scaffold?**

*A Scaffolding shall be inspected and tagged after completing erection. Also before each work period or where they are altered, adjusted or subjected to rain or heavy winds. Thereafter the scaffolding shall be examined at least once in every seven days.*

**64 With what color a ladder can be painted?**

*Aluminum ladders and wooden ladders shall not be painted.*

**65 What is a life-line?**

*Life line is component that consists of a flexible line that connects to an anchorage at one end to hang vertically or that connects to anchorages at both ends to stretch horizontally and which serves as a method to connect other component of a personnel fall arrest system to the anchorage.*

**66 How can we calculate the safe anchorage of a life-line?**

*When life line is used they shall be fastened to fixed safe points of anchorage capable of supporting 2300 Kgs. shall be independent, and shall be protected from*

*sharp edges and abrasion. Safe anchorage points may include structural members (minimum 4''structural member or 4'' pipes) but do not include guard rails, vents, other small dia piping systems, electrical conduit, outrigger beams or counter weights. It shall be maid from 10mm dia wire ropes. Horizontal lifelines shall be installed at the highest feasible point, preferably above shoulder height. This life lines shall be maintained with unloaded sag at the centre no greater than 30cm (12 Inch) for every 10 meters of lifeline length between attachments points.*

**67 What is lock-out/Tag-out system?**

*For servicing or maintenance of live equipments or pipe lines, where the unexpected energizing or release of energy could cause injury, lock and tag are placed on the isolating device to avoid uncontrolled operation and give details of the lock-out schedule.*

**68 Expand the following:-**

| | |
|---|---|
| • **STARRT:-** | **Safety Task and Risk Reduction Talk** |
| • **COSHH:-** | **Control of substance Hazardous to Health** |
| • **OSHA:-** | **Occupational Safety and health Administration** |
| • **OHSAS:-** | **Occupational Health and Safety Assessment Series.** |
| • **ELCB:-** | **Earth Leakage Circuit Breaker** |
| • **GFCI :-** | **Ground Fault Circuit Interrupter** |
| • **BS:-** | **British Standards Institute** |
| • **SWL:-** | **Safe Working Load** |
| • **ANSI:-** | **American National Standard Institute** |
| • **LTI:-** | **Lost Time Incident** |
| • **ASTM:-** | **American Society for Testing and Materials.** |
| • **JSA:-** | **Job Safety Analysis** |
| • **LEL:-** | **Lower Explosive Limit** |
| • **UEL:-** | **Upper Explosive Limit** |
| • **PEL:-** | **Permissible Exposure Limit** |
| • **REL:-** | **Recommended Exposure limit** |
| • **PSI:-** | **Pounds / Square Inch (1 Bar = 14.7 psi)** |
| • **STEL:-** | **Short Term Exposure Limit** |
| • **WBGT:-** | **Wet Bulb Globe Temperature** |
| • **APR-** | **Air Purifying Respirator** |
| • **SCBA-** | **Self Contained Breathing Apparatus** |
| • **RSO-** | **Radiation Safety Officer** |
| • **NFPA-** | **National Fire Protection Association.** |

**69 What is the importance of a Tool-box meeting?**

*The workers can be educated about safe work rules and procedures, and their awareness can be improved on some special task its importance.*

**70 What is the emergency evacuation plan?**

*It is the procedure to provide concise guidelines for evacuation in case of some emergencies and to identify the emergencies in advance. This also helps us to plan and to define roles and responsibilities of all building custodian fire wardens and occupants.*

**71 What is Hydro-Test?**

*It is the test carried out for leak test for pipes, equipments etc by filling water in these equipments and pipes with some pressure and its joints and connections are checked for any leak or breakage.*

**72 What is a Hipot-Test?**

*It is the insulation leakage test done for high voltage electrical cables, with high voltage megger.*

**73 What are the safety requirements for doing a hot work?**

**A)** *Remove all combustible materials from the area (with in 10m), if possible.*

**B)** *Use fire blanket to protect immovable combustible materials and also for welding slugs.*

**C)** *Cover the area with fire blanket for containment of sparks generated while doing hot work.*

**D)** *Provide proper fire extinguisher in sufficient numbers.*

**E)** *Appoint a fire-watch with red jacket, if necessary.*

**F)** *Barricade the area and post proper signage.*

**G)** *Use of proper PPE and damage free tools and equipments.*

**H)** *Obtain a valid hot work permit*

**I)** *Conduct gas test if presence of combustible gases expected prior to work.*

**74 What are the benefits of near-miss reporting?**

*To make analysis of the incident, in order to avoid re-occurrence.*

*To rectify the causes of those near misses before it turns into accidents.*

*To identify the deficiencies of site safety performances and find remedial actions.*

*To improve safety performances by reducing LTAs, Incidents and near misses.*

**75 What is a risk assessment?**

*Risk assessment is a method of estimating the rate of risk of an activity, by classifying actual and potential consequences and finding out mitigating actions to limit that risk.*

**76 In what situation Ear protection is needed?**

*In areas, where sound pollution is more than 85 dba*

**77 What is the emergency evacuation procedure to follow in the event of a gas release?**

*Don't get panic on hearing alarm.*

*Switch off all the equipments and energized circuits.*

*Observe the direction of wind flow, proceed out in the cross wind direction to the plant boundary fence and then proceed up wind.*

*Obey further instructions from emergency response team.*

*Resume work after getting clearance only.*

**78 What is an "Assembly Muster Point"?**

*The area determined and marked, for assembly of people working the area in case of any emergency.*

**79 What is meant by "Head counting"? What is its purpose?**

*On hearing emergency alarm, all persons have to assemble in "Assembly Muster Point". There area supervisor will call his workers with attendance sheet and confirm that nobody is trapped in the site. This procedure is called head counting. Its purpose is to ensure all workers are present in the assembly area, they are safely evacuated and identify the person if anybody is trapped and take necessary actions to rescue these trapped workers.*

**80 What is Heat Stroke? What are the different stages through which a person undergoes before he gets Heat Stroke?**

*During hot days, due to dehydration, body temperature increase beyond safe limit, because of break down of body's heat regulating mechanism. Due to this the person collapses and if not taken care off he can even die. This is called heat stroke.*

*Generally pulse rises 20 beats per min for each 1 degree C rise in temperature.*

***Heat cramps:-*** *Exercising in hot weather can lead to muscle cramps, because of brief imbalances in body salt.*

***Heat exhaustion:-*** *Further losing of fluid and salt can lead to dizziness and weakness. Body temperature may rise up to 102 Deg F.*

***Heat stroke:*** *In some cases, Extreme heat can upset body's thermostat, causing body temperature to rise to 105 Deg F or higher. Symptoms are lethargy, confusion and unconsciousness. Heat stroke can kill.*

**81 What is permit?**

*PTW System is a formed. Legal documents system used to control potentially dangerous job. It is also means of communication between site management supervisor operator and those who carry out work.*

*Or Second Answer*

*A PTW system aims to ensure that proper planning and precautions are taken with hazards to control the risk of a particular job.*

*The permit is a written document which authorizes certain people to carry out specific work at a certain time and place.*

**82 What is the principle of permitry? Or**

**Why we need the permit? Or Why PTW is needed.**

*To protect the human life environment and reputation of company*

**83 What are the responsibilities of permit holder?**

- ***Responsibility of the permit holder***

*Before Work Start*

- *To under stand the work content and the requirements of Job HSE plan*
- *Tell the work party about work content and requirements of the job HSE plan. And a sure all members understand the same by taking freed back.*
- *Take validation from area authority.*

***During the work***

- *Display the permit at site*
- *Follow the requirement of JHSE plan*
- *Stay at worksite At all time to supervise the work party.*
- *Before supportive the permit ensure the worksite & equipment are safe*
- *If any hazardous condition arise*
  - ♥ *Stop the work*
  - ♥ *Stop the equipment*
  - ♥ *Asked to move personnel at Assembly point*
  - ♥ *Inform to area authorizes*
  - ♥ *Suspend the permit*

***After finish the work***

- *Ensure that the state & equipment are in safe*
- *Suspend or cancel the permit*

***Or you can also reply as follows***

***Responsibility of permit holder***

- *Before work start on a permit, the permit holder must;- understand the work content and the requirement of the job HSE plan.*
- *Tell the work party about the work content and the requirement of the HSE plan.*
- *Ensure that the permit is validated by the appropriate area authority before the permit holder must.*
- *Ensure that the permit is displayed at the worksite whenever work is under way.*
- *Ensure that the job HSE plan is complied with throughout the work.*
- *Tell anyone who takes over as permit holder about the status of the work and the requirement of the permit and job HSE plan.*
- *Stop work and move all personnel to a safe location it condition on site become hazardous or the precautions on the job HSE plan become inadequate. – when no further work is to take place under a permit the permit holder must;*
- *Ensure that the site and equipment have been safe.*
- *Sign the permit to indicate whether work is complete or not.*
- *Return the permit back to the area authority.*
- *Fill the box of the permit when contains PTW system required.*

**84 What JOB HSE Plan?**

- *Identify the hazards due to work and its location,*
- *Define the safety precautions required.*
- *Include a worksite examination to identify and assess the hazards (except for Class B Permits at remote locations where it is known that no other facilities, such as overhead or underground services could create a hazard to the work party)*

## JOB SAFETY PLAN

### The key sections of the Job Safety Plan are:

- *Work Description (by Applicant) – this section provides brief information on the work content.*
- *Hazard assessment - the List of Hazards that may be encountered during the work.*
- *Actions by Area Authority - the actions (for example isolations) which the Area Authority must carry out before work can start*
- *Actions by Permit Holder - The actions that the Permit Holder must carry out, separated into:*
  - *Personal Protective Equipment,*
  - *Preparation activities*
  - *Precautions during the work.*
- *Content Agreement – Both the Applicant and the Responsible Supervisor are to sign indicating that they are in agreement on the content of the Job Safety Plan.*
- *Acceptance by Holder - The Permit Holder is to sign that he will ensure that the controls listed on the Job Safety Plan are applied.*

**Use of safety plan ?**

- *Identify the hazards involved with the work.*
- *Identify any other activities which may conflict with the work.*
- *List the personal protective equipment required.*
- *List the preparations required by the Area Authority and the Permit Holder.*
- *List the controls to be observed by the Permit Holder during the work.*

**85 What is Health Risk assessment (HRA) ?**

- *HRA –Health Risk Assessment*
- *HRA is a process to identify evaluates and control health risk at workplace.*

**Controlling health risk at work.**

- *Identify health hazard & their harmful effect*
- *Types of disease –acute & chronic*
- *Health hazard may be divided into following grove. Chemical, biological, physical, ergonomic a, psychological.*
- 
- *Physical – exposure route –A cute affect – chronic effect-*
- *Noise –ear – Temporary hearing loss, trauma, tinnitus-permanent hearing loss –ear defenses, ear plug etc*
- *Heat ;- whole body – heat stress/stroke – kidney stones shade drinking water work planning.*

- *Sunlight;- Eyes/whole body eye strain skin cancer vision deficiency goggles sunglasses protective clothing.*
- *Dust;- inhalation – respiratory irritation- silicosis –mask goggles*
- *Electricity;- hand & whole body – skin burn – N/A-use of PPE, Awareness*
- 
- *Chemical;-*
- *Crude oil;- skin inhalation asphyxiate dermatatotis skin cancer use of PPE awareness*
- *Hydrocarbon gases;- inhalation –asphyxiate –respiratory irritation use of PPE awareness*
- *H2S – Inhalation –noise unconsciousness- possible-fatality*

**86 What is the difference between Hazards and risk ?**

- *Risk is combination of severity and effect*
- *Hazard is in thing with potential to cause harm*

**87 What is NORM?**

*NORM (Naturally occurring radioactive materials)*

***NORM restricted area ----------***

*Norm are materials deposited in the form of uranium 238 and thorium 232 it found; - Tailpipe*

*Safely valve*

*Wellheads*

*Manifold*

*Separators*

*Oil cooled*

*Pig wax*

*Storage cell*

***Precaution.***

- *Limit the no of person*
- *Wear disposable coverall and PVC hand gloves.*
- *Eating, Drinking, Smoking, P3 type mask use of hanky prohibits*
- *Wash with water before leave the site*
- *Monitoring by meter; Dose meter*
- *Contaminated tools & to be covered with polytheyne with level.*

**88 What is golden rules of PDO ?**

*Comply, Intervene and Respect.*

*Comply : As per the standards, rules, policies and procedures.*

*Intervene: Stopping unsafe acts or unsafe condition.*

*Respect: Respecting the neighbours, peoples, environment, etc*

**89 What is House rules of PDO?**

- *Stop any work that feels unsafe.*
- *Understand the rules of the job, if not I will find out*
- *Wear correct PPE for the task*
- *I use the correct tools for the job and use them correctly*
- *I keep the workplace clean, tidy and obstruction*
- *I hold the handrail when using the stairs*
- *I will use a seat-belt and not use mobile phones while driving*
- *I reduce the sources of waste*

**90 What are the different types of permits?**

***Type of permit***

♥ *Class A – Red effect*

*Require for high risk job*

*72 hr before*

*JHSE plan*

*Authorization for 14 days*

*Daily validation*

♥ *Class B – Blue effect*

*Require for medium Risk job*

*24 hrs before*

*Authorized for 14 days*

*Daily validation*

**91 What are the colours of permit?**

- *Class A – Red effect*
- *Class B – Blue effect*

**92 What do you need for No Permit Job?**

- *Job HSE Plan*
- *Hazard Analysis*

**93 Where is Class A permit used? Where is class B permit used?**

| | |
|---|---|
| ***Class A Permit*** | *The Permit to Work required for tasks considered to have a high risk potential.* |
| ***Class B Permit*** | *The Permit to Work required for tasks considered to have a moderate risk potential.* |

**94 What are the minimum things needed for the applying for permit?**

- *Job HSE Plan*
- *HRA*
- *Hazard Analysis*
- *Certificates, if any.*

**95 What are different types of certificates?**

- *Mechanical Isolation*
- *Electrical Isolation/De-isolation*
- *Electrical Immobilisation/Mobilisation*
- *Confined Space Entry*
- *Excavation*
- *Radiography*
- *Overhead Line Clearance*
- *Additional Gas Test record*
- *Electrical Safety Document (EPTW, SFT, LOA)*

**96 What are the activities which need certificates ?**

- *Electrical isolations*
- *Mechanical isolations*
- *Overhead lines clearance certificate*

**97 Who should sign / authorize the excavation certificate?**

- *Electrical, Instrumentation, Mechanical and Civil authorities*

**98 Who should do the gas test*?***

*Authorized gas tester.*

**99 What is the minimum requirement for gas testing?**

*Authorized gas tests;- A person who holds a current gas tester card and a permit to work licenses.*

**100 What is the first activity to be done after getting the permit?**

*First check the permit, whether it is authorized or not certificate & job safety plan attached or not if it is ok then I will check the site, so it safe for working understand the work and job safety plan. Brief the work party about the work*

*content & conduct tool box talk. Checks for isolation, check for conflicts and start the work.*

*The permit contains 1. Job safety plan 2. Health risk assessment 3. Lay out of plan*

**101 What is work site examination?**

- *Seeing the site for clearance of overhead lines, cables lines and any other third party properties.*
- *Any other third party interference like road diversions, etc*

**102 *Hearing the fire / emergency alarm what should be done?***

*Or*

***What will you do after hearing the emergency alarm?***

*Or*

***Hearing the emergency alarm what will you do?***

- ***For emergency condition arise***
  - ♥ *Stop the work*
  - ♥ *Stop the equipment*
  - ♥ *Asked to move personnel at Assembly point*
  - ♥ *Inform to area authorizes*
  - ♥ *Suspend the permit*

**103 What do you mean by EPI ?**

*Extended Period Isolations*

***Use of Extended Period Isolations***

*Extended Period Isolation (EPIs) are isolations which must remain although no work is being done within their boundary. They may be required for two main reasons:*

- ♥ *Where work has started but will be suspended until the Validity Period of the Permit has passed. For example, when awaiting spares for a repair.*
- ♥ *Where equipment becomes redundant and is to be permanently isolated.*

## ➢ ***Types of areas***

***1. Process facilities***

*Areas within the boundary fence of any hydrocarbon processing facility.*

***2. Hydrocarbon Areas***

*Areas outside the boundaries of process facility where hydrocarbon are or have been present within 50 M of the boundary fence/well site /flow pipeline.*

***3. Non hydrocarbon areas***

*Area where hydrocarbon never have been present.*

***Hazardous Area***

*Area surrounding a hydrocarbon bearing facility in which an explosive gas/air mixture could be present .*

- ***Hazard areas are subdivided in 3 zone***

♥ *Zone 0; Explosive gas atmosphere is likely to presence continuously*
♥ *Zone 1; I likely to occur e.g. Leakey valve for long time flange well heat.*
♥ *Zone 2; I likely to occur for short time.*

- ***Confined Space***

*Confined space is the spaces which have*

♥ *Limited means if access and aggress*
♥ *Not designated for routine work*
♥ *Oxygen Deficiency atmosphere*
♥ *Possibility of poisons gases (19.5 to 22.5)*

*Example; Excavated pits*

*Vessel*

*Tank*

*Mixer drum*

**What does in JSP plan contain.**

***Job safety plan;*** *- Plan of identifying hazard and selecting suitable controls measures and precautions.*

***Job hazard analysis*** *;- It is the application of the hazard and effect management process at the task level, identifying and assessing the hazard of each element of the task and definer appropriate control and recovery measure.*

**What is job HSE job plan?**

- *JHSE Plan*

*JSP is a document which must be attached the every permit to describe the hazard and control & recovery measures*

**Who are people involved in permits system**

***Person in PTW***

1. *permit applicant*
2. *Responsible supervisor*
3. *Area Authority*
4. *Permit holder*

**How many person involve in PTWS?**

- ***PTW Cycle***

1. *Apply the permit – Applicant*
2. *Authorized the permit – responsible supervisor*
3. *Brief permit holder – applicant*
4. *Prepare work site – Area authority*
5. *Valuable permit - Area authority*
6. *Accept permit – permit holder*
7. *Carry out work – permit holder.*

**What is the work of Applicants?**

***Responsibility of the permit applicant***

- *fill in the header and box of a permit including a clear work description*
- *Fill in the applicant section of any certificate required with the permit.*
- *Produce a job HSE plan identifying work and location hazard and necessary contents.*
- *Obtain the signature of an other affected custodian when required.*
- *Ensure that the permit has been authorized by the responsible supervisor before it is given to the permit holder.*
- *Ensure that there is a licensed permit holder in charge of the work for all periods when work is being done under a permit.*
- *The permit applicant is briefed the permit holder in the work and hazard and how these will be unrolled.*
- *Ensure that the permit holder is briefed on the work using the 10 b safety plan the permit holder applicant must ensure that the permit holder signs permit in box and gives it to the area authority for cancellations.*

**What is the work of responsible Supervisor**

***Responsibilities of responsible supervisor***

- *Examine the worksite with permit applicant before authorizing (A) class permit.*
- *Decide whether it is necessary to restrict other work at the site while the class (A) work is being done. When authorizing any permit, the responsible supervisor*
- *Must;-*
- *Ensure that the work description is clear complete and correct.*
- *Ensure that all hazards have been identified.*
- *When the job HSE plans to ensure that the controls needed to prevent learn to personnel. Equipment and environment.*
- *Write on the permit the time for when it is authorized for work.*
- *Sign the permit to authorize it.*
- *Each day the responsible supervisor must give the area authority a list of the permit that the can validity that day.*
- *A responsible supervisor is to ensure that another person taking over his responsible is aware to the status of the permit in his area.*
- *The permit to work required for tasks considered to have a responsibilities.*
- *The permit to work required for tasks considered to have do potential.*
- *Hazardous area; - area a hydrocarbon lacing facility in which an act pasture occur to be present.*
- *An area in which an explosive gas atmosphere occur in normal operation.*
- *An area in which an explosive gas atmosphere occur in Norman operation and of it is likely to do so only infrequently and will exist for a short period only.*
- *Work which involves. or may result in an open flame the production of sparks or other potential source of venation.*
- *Process facility the area within the boundary fence of any hydrocarbon process facility.*
- *Including; - gathering station, pumping station, terminals, and other hydrocarbon part of an area.*
- *Header;- the top left hand part of a permit which contains brief detail of the work which can be seen when permit is placed in a permit rack*

**What is the responsibility of area authority?**

- ***Responsibilities of area authority;-***

*The area authority is responsible for validity a permit before work starts . He will do normally at the permit issue point for this area .*

***Before validating a permit the area authority must;-***

- *Ensure that the worksite preparations shown on the permit or job HSE plan are in place.*
- *If required by the permit box 4, examine the worksite*
- *Ensure that work will not conflict with other work in the area.*
- *Confirm that condition in the work area is still safe before each validation of the permit.*
- *If at any time, it is not safe for any work to continue the area authority must stop that work. when work on a permit is finished or the permit reaches the end of its authorization period the are authority must;-*
- *State on the permit whether or not the work is complete.*
- *For work in process facility. Check that the worksite has been left in a safe state.*
- *Cancel the permit.*
- *An area authority is to ensure that another person taken over his responsibility is aware of the status of permit in his area.*

**What do you mean by authorized gas tester?**

***Authorized Gas Tester*** *A person who holds a current Gas Testers Card (having passed the Gas Testing Course) and a Permit to Work license. The gas tester will do gas tests required for work such as open flame work and confined space entry. The Authorised Gas Tester for Class A Permits must be the relevant Area Authority.*

**What do you mean by Isolation?**

***Isolation Boundary*** *The set of valves, electrical switchgear or other similar devices used to establish an area safe from hazardous fluids or electrical power in which work may take place.*

**What are types of Isolations?**

***Isolation types / Process***

*1. Isolation*

*2.Tagging of Isolation points*

*3. Securing of Isolations ( Mechanical, Electrical).*

*4. Providing of isolation.*

**When is permit cancelled?**

***Permit cancellation.***

- *The work is complete.*
- *The work has not completed, but a new permit is required.*
- *Permit has reached the end of its authorization period.*
- *Work is delayed until after authorization period.*
- *Work is different from the work description.*

**Who should sign/authorizes the excavation certificates?**

- *Instrument department,*
- ***E****lectrical department,*
- *Pipeline department ,*
- *Telecom Department*

**EPI – extended period of isolation what will you do?**

- *Extended Period Isolation* — *An Extended Period Isolation (EPI) is an isolation which remains in place without work being done within its boundary. It is used where, for example, work has started on equipment, but is Suspended whilst waiting for spares.*

**What is emergency procedure?**

***There are two types of emergency procedure;-***

***Emergency due to gas leak and Fire in the plant***

*Stop all the activities & take lab ours, machineries out*

*Remove the key from the machineries before leaving*

*Assemble in the assembly point.*

*Po head count tour workers*

*It ok wait for operate instruction*

*If missing immediately inform operator and start searching*

***Emergency due to injury;-***

*Stop all the activities*

*Remove machineries and workers from the site.*

*See the uniting of the site if it is safe keep the injured person there and inform the operator, construction manager and emergency number*

*In the meantime get a first Aider & give him first aid*

**Will you do if some one falls due to gas leak?**

- *Stop the job immediately.*
- *Observed the wind direction*
- *Try to reach the escape gate nearest to your Eros wind or lip wind.*

**I am giving you the PTW license. What do you them about your responsibilities?**

- *Mainly the safety of the people working under me keeping the assets & the environment in a safe under on.*

**Will you do when permit has been given in your hand*?***

*I will read the permit carefully. I will check all the job HSE plan and HRA if the all things will be correct then I will go for validation.*

**When should permit suspended ?**

***Permit must be suspended if any one of the following occurs:***

***a)*** *An unsafe situation develops which requires the work to be stopped, for example:*

- *A Reportable Incident occurs during the work.*
- *A Gas or Oil leak occurs near the work.*
- *Anyone suspects that an unsafe situation exists. In this case he has the Authority and Responsibility to stop the work.*

***b)*** *The work is delayed or interrupted for more than 4 hours, for any reason.*

***c)*** *The authorization or Validation period expires.*

***d)*** *The work needs to be stopped to allow conflicting work of a higher priority to proceed. In this case the Permit Holder is to be instructed to stop work by the Responsible Supervisor/Area Authority and is to be informed of the reasons. It is the responsibility of the Area Authority to ensure that it is safe to stop work and leave the Worksite in its current condition.*

***e)*** *The equipment is to be de-isolated so that it can be tested after being worked on.*

**What is the biggest hazard in general?**

*Driving, it should be controlled by motivation. If not followed, he should be given punishment under Driving compliance scheme of PDO.*

**Q What is Hazard Operability Study?**

*The application of a formal systematic critical examination to the process and engineering intentions of new or existing facilities to assess the hazard potential of mal-operation or mal-function of individual items of equipments and their consequential effects on the facility as a whole.*

**Q. What are source models?**

*Source models represent the material release process. They provide useful information for determining the consequences of an accident, including the rate of material release, the total quantity released and the physical state of the material.*

**Q. What are dispersion models?**

*Dispersion models describe the airborne transport of toxic/inflammable materials away from the accident site and into the plant and community.*

**Q. What is explosion?**

*The uncontrolled release of energy from a flame front propagating through flammable medium and characterized by the generation of heat, light and pressure.*

**Q. What is Risk?**

*Risk is defined as a measure of economic loss or human injury in terms of both the likelihood and the magnitude of the loss or injury.*

**Q. What is risk assessment?**

*Risk assessment includes accident scenario identification and consequence analysis. Scenario identification describes how an accident occurs. It frequently includes an analysis of the probabilities. Consequence analysis describes the damage expected. This includes loss of life, damage to the environment or capital equipments and day's outage.*

**Q. What is Occupational Safety and Health Audit?**

*A systematic, objective and documented evaluation of the occupational safety and health systems and procedures*

**Q. What is Occupational safety and health management system?**

*A part of the overall management system that facilitates the management of OSH and risks associated with the business of the organization*

**Q. What is Maximum Credible Loss Scenario (MCLS) study?**

*MCLS is described as the worst "credible" accident or as an accident with a maximum damage distance, which is still believed to be possible.*

**Q. What is flammability limits?**

*The concentration of a mixture of flammable vapor or gas in air (% by volume of vapor to air) in which a flash will occur or a flame will travel if the mixture is ignited*

## ***Manufacture, Storage and Import of Hazardous Chemical (MSIHC) Rules, 1989***

**Q. Which types of industrial activities are covered under the MSIHC Rules?**

*A. The following activities are covered under MSIHC*

*(a) An operation or process listed in Schedule 4 carried out in an industrial installation involving one or more hazardous chemicals*

*(b) An isolated storage involving one or more hazardous chemicals listed in Schedule 2, and*

*(c) Pipeline for conveyance of a hazardous chemical other than the flammable gas at a pressure of less than 8 bars absolute*

**Q. Which chemicals are covered under MSIHC Rules?**

*The chemicals fulfilling the criteria given in Part I and/or listed in Part II of Schedule I and chemicals listed in Schedule 2 and 3 are covered under MSIHC Rules*

**Q. How does an occupier know that which provisions/rules are applicable to his factory?**

*If one of the operations or processes listed in Schedule 4 is carried out in a factory involving one or more hazardous chemicals, an occupier has to first ascertain the category to which his factory belongs i.e. whether the factory comes under lower-tier, middle-tier or higher-tier because the requirements/ provisions are different for different categories of factories*

**Q. Which are the three categories of factories?**

*The three categories of factories are given below :*

***LOWER-TIER FACTORY***

*Factories wherein an operation/process given in Schedule 4 is carried out involving one or more chemicals which satisfies any of the criteria laid down in Part I of Schedule I and/or listed in Column 2 of Part II of Schedule I irrespective of quantity of hazardous chemicals stored inside the factory, fall under this category.*

***MIDDLE-TIER FACTORY***

*Factories wherein an operation/process given in Schedule 4 is carried out involving one or more chemicals in quantities equal to or more than the quantity given in Column 3 of Schedule 2, fall under this category*

***HIGHER-TIER FACTORY***

*Factories wherein an operation/process given in Schedule 4 is carried out involving one or more chemicals in quantities equal to or more than the quantity given in Column 4 of Schedule 2, fall under the category*

**Q. Which are the specific rules to be complied with for different categories of factories?**

***A***. *CATEGORY* *PROVISIONS/RULES OF MSIHC APPLICABLE*

| | |
|---|---|
| *Lower-tier* | *4, 5 and 17* |
| *Middle-tier* | *4, 5, 7, 8, 9, 13, 14, 15 & 17* |
| *Higher-tier* | *4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15 & 17* |

**Q. What are the requirements under different rules?**

*Rule 4 : General Responsibility of the Occupier –*

*(i) To identify major accident*
*(ii) To prevent major accident and*
*(iii) Provide the workers information, training and equipment*

*Rule 5: Notification of major accident in Schedule 6*

*Rule 6: Industrial activity to which rules 7 to 15 apply*

*Rule 7: Approval and notification of sites in Schedule 7*

*Rule 8: Updation of notification following changes in T.Q.*

*Rule 9: Transitional provisions*

*Rule 10 : Safety Reports/Safety Audit Reports with help of expert : Safety Reports in Schedule 8. Safety Audit every year*

*Rule 11: Updating of reports under Rules 10*

*Rule 12: Requirements for further information to be sent to the authority*

*Rule 13: Preparation of on-site emergency plan by the occupier in Schedule 11(i). Authority to ensure a rehearsal of the plan at least once in a calendar year*

*Rule 14: Preparation of off-site emergency plan by the Authority in Schedule 12(i). Authority to ensure a rehearsal of the plan at least once in a calendar year*

*Rule 15: Information to be given to persons liable to be affected by a major accident*

*Rule 17: Collection, development and dissemination of information in Schedule 9*

**Q. What constitutes a major accident OR what is the definition of major accident?**

*"Major accident" means an incident involving loss of life inside or outside the installation, or ten or more injuries inside and/or one or more injuries outside or release of toxic chemicals or explosion or fire or spillage of hazardous chemicals resulting in on-site or off-site emergencies or damage to equipment leading to stoppage of process or adverse affects to the environment*

**Q. Which type of factories are to be notified and by whom and when?**

*An occupier of middle or higher-tier factory should submit a written report to the concerned authority i.e. the Chief Inspector of Factories of the State where the factory is located in Schedule 7 at least 3 months before the commencement of that activity.*

**Q. Who should notify the major accident and to whom? What is the time limit for notifying major accident?**

*An occupier shall notify the major accident within 48 hours to the concerned authority (the Chief Inspector of Factories in case of factory) and furnish thereafter a report relating to the accident in Schedule 6.*

**Q. How does an occupier know whether he has to prepare an on-site emergency plan?**

*If the factory is middle or higher-tier factory, the occupier has to prepare on-site emergency plan.*

**Q. What is the role of an occupier of a major accident hazard installation in preparation of off-site emergency plan?**

*An occupier of a major accident hazard installation has to provide such information relating to industrial activity under his control to the concerned authority i.e. the District Emergency Authority/District Collector as may be required including the nature, extent and likely effects of site of possible major accident.*

**Q. How often a mock drill/rehearsal of on-site emergency plan should be done?**

*The mock drill of the on-site emergency plan shall be conducted every 6 months*

**Q. Who is responsible for conduct of mock drill of on-site emergency plan?**

*An occupier is responsible for conduct of mock drills of on-site emergency plan*

**Q. Who is responsible for organizing rehearsal of the off-site emergency plan and what is the frequency?**

*The District Emergency Authority /District Collector is responsible for conduct of rehearsal of off-site emergency plan and the frequency is at least once in a calendar year.*

**Q. Whether safety report and safety audit report are needed for every MAH installation OR how does an occupier know whether he has to get the safety report and the safety audit report prepared?**

*No. It is not required for every MAH installation. The Safety Reports and Safety Audit Reports are required to be prepared by an occupier of higher-tier factories*

**Q. What is the frequency of safety report and safety audit report?**

*The Safety Report shall be prepared in the prescribed format given in Schedule 8 at least 90 days before the commencement of the activity. The Safety Audit should be carried out and the Safety Audit Report shall be updated once in a year.*

**Q. What are the duties of the authorities?**

*The duties of the authorities are:*

*(a) Inspect the industrial activity at least once in a calendar year*

*(b) Report on compliance of Rules by the occupiers to the Ministry of Environment and Forests, through appropriate channel annually*

*(c) On receipt of report on major accident, undertake full analysis of the major accident and send requisite information within 90 days to MOE&F through appropriate channel*

*(d) Compile information regarding major accidents and make a available copy to MOE&F through appropriate channel*

(e) *Inform in writing to occupier of any lacunae to be rectified to avoid major accidents*

(f) *Approve the notification of sites within 60 days from the date of receipt. Report if notices contravention and issue improvement notice within 45 days of the receipt of the report*

(g) *Prepare and keep up-to-date off-site emergency plan and ensure that rehearsal of off-site plan is conducted once in a year.*

## ***Factories Act***

**Q. Do a hand driven lifting equipment need certification from competent person under article 29 of Factories Act?**

*Section 29 of the Factories Act deals with lifting machines and lifting tackles which are defined under explanation. In our opinion hand driven lifting equipment does not require certification.*

**Q. Definition of "worker" under Factories Act 1948 & Maharashtra Factories Rules? Whether officers/executives are to be considered for calculation of the employment strength with regard to recruitment of Welfare Officer under the Act?**

*Under the Factories Act, definition of "worker" is clearly given. For the purpose of calculation of employment strength, officers and executives etc. have to be taken into account.*

## ***Section 1*: Leadership and Commitment**

a) *Yes; Company's senior management provides a strong and visible leadership to promote a culture in which all employees share a commitment to HSE, in addition to personally participating in HSE activities viz. training, HSE workshops, HSE incentive schemes, inspections, audits etc., they also set personal examples by their actions in their day-to-day work.*

b) *Managing HSE is a **Line Responsibility** and all employees; both individually and collectively are responsible for HSE Performance. Job assignment and responsibilities are so delegated that all employees have to perform their task safely.*

*HSE responsibilities assigned to various functionaries in the organisation clearly indicate the integration of HSE Systems into our work performance.*

*c) Yes; as above.*

## *Section 2*: Policy and Strategic Objectives

***(i) HSE Policy Document***

***a)*** *Yes; copies attached as Annexure 1 to 5.*

***b)*** *Corporate Manager (Quality & HSE), who is based at Corporate Office, is responsible for Quality, Health, Safety & Environment in the Organisation. He is overall in-charge of all HSE activities in the company assisted by a HSE Systems Manager, who in turn heads the HSE Department of the organisation.*

***c)*** *Managing HSE is a **Line Responsibility** and all employees; both individually and collectively are responsible for HSE Performance. Though the Contract Manager, who is the senior person in the contract level is responsible for implementation of HSE Policy in his contract area.*

***(ii) Employee access to HSE Policy Document***

***a)*** *The HSE Policy and its daughter policies, duly signed by the Managing Director will be displayed at prominent locations and put up in all notice boards. This is disseminated down the line including sub- contractors, through meetings, in-house training courses, toolbox meetings, and other relevant forums.*

***b)*** *Same as above.*

## *Section 3:* Organization, Responsibilities, Resources, Standards and Documents.

***(i) Commitment and Communication***

***a)*** *In addition to personally participating in HSE activities viz. training, HSE workshops, HSE incentive schemes, inspections, audits etc., the senior management set personal examples in their day-to-day work by:*

- *Putting HSE matters high on the agenda of meetings and regularly attending and chairing HSE meetings.*

- *Participating in review / monitoring of HSE performance against all HSE Plans and targets.*
- *Providing immediate and visible involvement in the investigation of incidents.*
- *Recognizing and rewarding achievements.*
- *Allocating adequate and appropriate resources and expertise to meet HSE targets. (eg. Finance, manpower, skills and training.)*
- *Conducting workplace audits and inspections.*
- *Empowering all to stop unsafe work.*

***b)*** *Copy of Corporate Organization Chart and the Contract Organization Chart are attached as Annexure 6 and 7.*

***c)*** *One of the effective tools for communication in the HSE field is a meeting at various levels and frequencies, starting from daily tool box meeting to the half yearly Management Review meeting convened by the Managing Director.*

*Corporate HSE issues are discussed in unit level meetings and disseminated to the lower levels. Project HSE issues are discussed in project monthly meetings and disseminated to the worker level through toolbox meetings, as well as by display on the notice boards.*

*The Construction Manager and his team of subordinate staff ensure adequate level of HSE awareness at all levels of the workforce.*

***(ii) Competence of training of managers / supervisors / senior site staff / HSEAs***

*(a) All the managers / staff / HSE Advisors have undergone the HSE trainings as specified in the Corporate HSE Plan and the respective Project HSE Management Plans, before / on being deployed in the project*

- *HSE Induction Course*
- *Enhanced Site Supervision Workshop*
- *Supervising Safety*
- *STOP for Supervision*

*In addition to the above there are certain trade specific mandatory training courses,*

*as given in Annexure 8.*

***(iii)Competence and General HSE Training***

***a)*** *All newly recruited employees are given basic HSE orientation at the H.O. (Muscat) by the Corporate HSE department and general induction by the HRD department. They are subsequently given the mandatory HSE training in the respective disciplines before / on being deployed at work-sites. They are kept updated and refreshed of their knowledge through continuous refresher trainings that are ongoing process.*

***b)*** *All new employees are made familiar about the company's HSE policies and specific work practices during their HSE Orientation programme and the HSE Induction course and through various HSE Meetings / forums.*

***c)*** *In addition to the HSE trainings and meetings, tool box talk is the communication medium utilized in the company, an effective way to ensure all employees are provided with the necessary information to be aware of the hazards involved in their jobs and control measures that are to be applied.*

***d)*** *Please refer Annexure 8.*

***e)*** *HSE knowledge of existing staff is kept updated and refreshed through continuous refresher trainings, meetings and other related forums that are ongoing process.*

***(iv)Specialized Training***

***a)*** *As most of our operations involves extensive driving and working in interior areas, specialized training courses to enhance the defensive driving skills of those who are required to drive, are imparted to deal with the hazards associated with driving in those interior areas. In addition to the above there are certain trade specific specialized training courses provided to nominated personnel as in Annexure 8.*

***b) Road Transport***

*HSE Standards Manual (contents of list of HSE Standards Manual & Systems Procedures, attached as Annexure 9), Chapter 04 – Road Safety Management (HSESM-001-Chapter 004) provides the basic guidelines on road safety management in view of the road traffic accidents being greatest contributors in increasing total number of accidents experienced in any activity and the importance that any infrastructure development activity relies heavily on road transport. This includes the following:*

- *Requirements to Drive*
- *Roadworthiness Assurance*
- *Road Conditions*
- *Environmental Factors*
- *Weather Conditions*
- *Safe Journey Management*
- *Night Journey*

## ***Working in Heat***

*HSE Standards Manual, Chapter 05 – Health Management (HSESM-001-Chapter 005) deals with the requirements for the protection of health of employees, sets out certain minimum standards and activities envisaged to promote health and health hazard management.*

*This covers all the precautions to be taken to manage the threat posed by the hazard of working in high temperatures.*

## ***Camp Hygiene***

*HSE Standards Manual, Chapter 05 – Health Management (HSESM-001-Chapter 005) provides the standards required to maintain camp hygiene and sanitation.*

## ***Waste Disposal***

*HSE Standards Manual, Chapter 13, Waste Management (HSESM-001-Chapter 013), provides the basic guidelines on managing wastes that have the potential to cause harm to human health and the environment.*

***Communication to a multi-cultural workforce***

*Generally, communication is a major hurdle in a multi-linguistic, multi-cultural work atmosphere due to diversity in culture and the languages spoken by employees. However, it has become possible to communicate in Arabic, Hindi, English and a few other Indian languages, used by many employees in the projects.*

*The following are the appropriate modes of communication that are utilised to promote HSE and make personnel aware of HSE issues, which will be in varied languages that the employees understand, to ensure its effectiveness.*

- *Various HSE meetings (Daily, fortnightly, monthly, quarterly etc.).*
- *Display of posters such as client HSE Policy; 'Hazard Identification & Control' etc.*
- *One to One discussions*
- *Notice boards and handouts*
- *Written communication (procedures, instructions, PTW etc.)*
- *Training and coaching sessions.*
- *'HSE Alert' and 'Safety Strokes' Monthly magazine of client*
- *Dissemination of learning points of incident investigations and review committee findings.*

## ***Radiation***

*HSE Standards Manual, Chapter 03, Personal Protective Equipment (HSESM-001-Chapter 003), sets out the precautions to be taken while working with radioactive materials, in addition to the following:*

- *Proper respiratory protection should be worn when entering contaminated vessels or when handling such equipment.*
- *Avoid direct skin contact with radioactive scale and solids to the possible extent.*
- *Eating, drinking, smoking and chewing should not be allowed in the work area.*
- *Face and hands shall be thoroughly washed immediately after any skin contact, particularly prior to eating, drinking or smoking.*
- *Surface contamination shall be handled in wet state to avoid inhalation.*

- *Contaminated vessels and equipment that are to be opened should be removed from service, vented and left to stand idle for four hours, before commencing the work.*
- *Contaminated materials shall be washed / disposed off in accordance with approved procedures / practices.*

## ***Chemical Handling***

*HSE Standards Manual, Chapter 12, Management of Chemicals (HSESM-001-Chapter 012), provides the guidelines for safe management of chemicals and chemical handling.*

## ***Asbestos***

*Asbestos can pose a dangerous health risk if not handled properly. Breathing asbestos dust is very hazardous. Asbestos insulation that is not damaged or friable will generally not produce asbestos fibers at a dangerous level, especially in non-enclosed structures. To minimize the health risk it is important not to drill, cut, remove, tear, step on, brush against, hammer on, or in any way disturb suspected material that contain asbestos (ACM). Any personnel on noticing any deterioration in the condition of the suspected ACM, will immediately notify their supervisor. Only trained and authorized personnel with proper equipment should disturb or remove ACM.*

*The following are the precautions that will be taken while working with asbestos containing materials:*

- *No smoking or eating in asbestos contaminated area.*
- *Wear necessary like, respiratory protection, gloves, disposable coveralls, etc at all times while working with friable asbestos.*
- *Work with asbestos only when in wet state.*
- *Continuously monitor the level of airborne asbestos concentration wherever asbestos is being disturbed.*
- *Provide adequate warning signs and prohibit entry of unauthorized personnel.*
- *Asbestos contaminated waste shall be disposed in properly sealed and labeled impermeable bags / containers at approved yards.*

***(v) HSE Qualified Staff – additional training.***

*a) Yes; HSE Staff who are authorized to conduct HSE trainings are approved by PDO and suitably qualified in accordance with Sec 4.0 of PR 1171 part II, Contract HSE Management and the necessary instructor's qualification as required by SP 1157, HSE Training Specification.*

*As a minimum, they possess a basic graduate degree, postgraduate degree / diploma in industrial safety and a recognized certification for trainer capabilities, in addition to relevant job experience / knowledge.*

***(vi)Assessment of suitability of subcontractors & others***

***a)*** *Sub-Contracts are released after ascertaining the HSE competency of the Sub-contractors, in addition to their PDO approval and other capabilities. Management Systems Procedures of the company (MSP-010, Subcontracting) elaborates the process of sub-contractor registration and approval. Template of the Contents List of Galfar's MSP is attached as Annexure 10, for reference.*

*Sub-contractors are made aware of the developments in the HSE field through the routine meetings. The Project Manager and his team of subordinate staff ensure adequate level of HSE awareness at all levels of the workforce, including sub-contractors. They are also subjected to audits level and depth that are carried out as per the Corporate HSE Plan.*

*Sub-contractors including the Local Community Contractors are treated as integral part of the contract, and are subjected to the same standard of treatment as that of own employees in matters pertaining to HSE.*

***b)*** *Sub-contractors including the Local Community Contractors are treated as integral part of the contract, and are subjected to the same standard of treatment as that of own employees in matters pertaining to HSE, which is monitored through periodic audits.*

***vii)Standards***

***a)*** *HSE Standards pertaining to each activity in detail and HSE Systems Procedures are elaborated in the Galfar HSE Standards Manual & Systems Procedures (please refer Annexure 9 for the template of the same).*

***b)*** *Compliance with this Manual is mandatory, but with reference to the specified activity, Contract specific HSE plan, Client's Corporate HSE plan and Manual, other HSE related documents of Galfar, Client and other reliable authorities in specific disciplines would also be referred. Implementation of the same will be monitored through scheduled / structured process of inspections and audits.*

*HSE Standards Manual & Systems Procedures has been structured in order to facilitate accessibility to necessary HSE related information of almost all related activities concerned, by Managers, Supervisors and other employees.*

*Any user of this document who encounters any mistake, inappropriate or confusing entry would notify the CM (Q&HSE), using user feed back form as per the provisions of MSP-004, Document & Data Control, to maintain this as a live document that is correct, relevant and up-to-date.*

*Controlled copies of the HSE Standards Manual & Systems Procedures are available with the Construction Manager and HSE Advisor for easy reference to all concerned.*

## Section 4: Hazards and Effects Management

## (i) Hazards and Effects Assessment

### a) *The following are the techniques used in Hazard & Effects Management Process:*

- *Identify the Hazards and its Effects.*
- *Eliminate the Hazard, if possible.*

- *Evaluate the Risks.*
- *Determine the Controls in Place and its Effectiveness.*
- *Reduce the Risk by Applying Additional Controls.*
- *Isolate the Hazard.*
- *Assess Residual Risk, if any, after Controls are in Place.*
- *Evaluate the Contingency / Recovery Plans.*

***Hazard Identification***

*This is done before start of any contract. The analysis is included in the Project HSE Management Plan. Hazards identified are subjected to review during the HSE Workshop of the contract and any new / additional hazards identified and discussed in the workshop are incorporated in the HSE Plan. Hazard Identification and Analysis is also done during the periodic revision of the HSE Plan.*

***Hazard Control***

*Certain control measures that are identified as generally applicable to all hazards that are adopted as a proactive measure. In addition to the above specific control measures as established during the Hazard Analysis are implemented before starting any job. On-the-job review is also carried out for the adequacy of the controls and if required additional controls are put in place to prevent exposure to the hazard identified.*

***Recovery Measures***

*In case of any undesired event or incident at the worksite or camp, despite essential precautionary / control measures being in place, the same shall be handled in such a way so as to reduce the gravity of consequence and to regain control over the situation within the least possible time.*

*HSE Standards Manual, Chapter 16 – Emergency Response & Management (HSESM-001-Chapter 16), elaborates the key elements of emergency planning & response*

*to confirm / improve the establishment of the emergency response system to ensure that an effective and efficient response is achieved in case of any emergency.*

## (ii)Exposure of the workforce

*a) The hazards at the work and its effects are assessed to avoid the exposure of the workforce to chemical or physical agents, through the Hazards & Effects Management Process and the routine site inspections that are part of the supervisor's job and the findings are disseminated through toolbox talks, meetings, discussions and other modes of communication.*

## (iii)Handling of Chemicals

*a) HSE Standards Manual, Chapter 12, Management of Chemicals (HSESM-001-Chapter 012), provides the guidelines for safe management of chemicals and chemical handling. In addition, "SHOC" cards of chemicals are made available at work site and the workforce is adequately made aware of the hazards associated with such chemicals.*

## (iv)Personal Protective Equipment

*a) Construction Manager ensures:*

- *Recorded issue of PPE's as per job specific requirements and its proper use and maintenance.*
- *Procurement of PPE's according to demand.*
- *Assessment of the demand.*

*HSE Advisor:*

- *Ensure that the employees wear the prescribed PPE's.*
- *Educate the workers on the use and care of PPE's.*
- *Advise the Construction Manager on the quality and type of PPE's required at site.*

*The above is in addition to the provisions of HSE Standards Manual, Chapter 03, Personal Protective Equipment (HSESM-001-Chapter 003).*

## (v) Waste Management

*a) HSE Standards Manual, Chapter 13, Waste Management (HSESM-001-Chapter 013) provides the basic guidelines on managing wastes that have the potential to cause harm to human health and the environment. This includes the following:*

- *Hierarchy of waste management*
- *Classification of wastes.*
- *Management of aqueous waste.*
- *Management of gaseous waste.*
- *Management of non-hazardous waste.*
- *Management of hazardous waste.*
- *Waste log / inventory.*

## Section 5: Planning and Procedures

### *(i) HSE or Operations Manuals*

***a)*** *Yes; HSE Standards pertaining to each activity in detail and HSE Systems Procedures are elaborated in the Client HSE Standards Manual & Systems Procedures. This describes in detail the company approved HSE working practices / standards related to our work activities (please refer Annexure 9 for the template of the same).*

***b)*** *HSE protection in Client is through its HSE Management System, which describes the way the organization is managed in relation to its stated HSE objectives. It has a structured approach to manage the HSE risks associated with its business and a defined process for systematic and continuous improvement in its HSE performance. The system also ensures that critical activities are properly controlled and is regularly assessed for adherence to the laid down standards by a program of performance monitoring, audit and review.*

***(ii)Equipment control and maintenance***

***a)*** *Only those vehicles / equipment carrying necessary safety attachments as laid down by the HSE Standards Manual and the customer requirements will be allocated for the project. Periodical maintenance and preventive maintenance will be carried out by the 'Plant' department according to maintenance schedule, which will be monitored by the HSE Advisor through vehicle inspections for HSE requirements.*

***b)*** *HSE Standards Manual (contents of list of HSE Standards Manual & Systems Procedures, attached as Annexure 9), Chapter 04 – Road Safety Management (HSESM-001-Chapter 004) provides the basic guidelines on road safety management in view of the road traffic accidents being greatest contributors in increasing total number of accidents experienced in any activity and the importance that any infrastructure development activity relies heavily on road transport.*

*In addition to the above, a well-defined system is in place for Safe Journey Management. Safe Journey Managers are made available in each location to*

*control and monitor Journey Plan. They will ensure that the system is applied wherever applicable, with reference to the Safe Journey Management Procedure, HSESP-002.*

## *Section 6:* Implementation and Performance Monitoring

### *(i) Management and performance monitoring of work activities*

***a)*** *HSE activities of the project like, management site visits, meetings, audits, inspections for critical items, emergency drills, etc. are monitored by the HSE Advisor for its prompt conduct, as planned for the project through the HSE Monitoring Plan, and report submitted to Corporate HSE department for further monitoring.*

*HSE statistics and performance data are fed back from all projects to the Corporate HSE department. Analysis of these data and the performance appraisal will be the constant agenda for all HSE meetings and its learning points are disseminated to all projects.*

***b)*** *The following performance indicators (targets will be fixed on consultation with the customer) are fixed to evaluate, supervise and monitor the HSE performance, as a step towards achieving our aim of ' zero accidents'.*

- *Lost Time Injury Frequency (LTIF)*
- *Total Recordable Case Frequency (TRCF)*
- *Road Traffic Accident Frequency (RTAF)*
- *Total Recordable Occupational Illness Frequency*
- *Achievement of milestones*
- *Number of HSE Defaults.*
- *Closure of Non-conformances / action items, etc.*

**c)** *Corporate HSE Department prepares a compiled report on incidents of the*

*week and the statistics on man-hours worked without any lost time injury, which will be submitted to the Corporate Manager (QHSE), for management information.*

*All the statistics related to HSE of the month for review at all levels are disseminated across the company through the Safety Strokes magazine issued from Corporate HSE Department on monthly basis.*

*When the analysis of the incident reveals a significant learning potential, the learning points along with the incidents, are circulated from Corporate HSE Department on a weekly basis, to the BUH's and HSE Advisors / Focal Points for further dissemination.*

*Such learning points are effectively disseminated to all levels of employees, by the supervisors through the toolbox meetings and other HSE meetings / forums.*

*Q What is safety?*

*The controlled of recognized hazard to attain an acceptable level of risk.*

*Q What is risk?*

*Source, situation, or act with potential for harm in terms of human injury or health (Probability of an accident).*

*Q What is an accident?*

*An un controllable /Un planned event that result in the personal (injury, illness) or the damage, (assets, loss) or to the neighboring community or to the environment.*

*Or*

*An un controllable /Un planned Un desirable event that result in un desirable consequence to*

*the personal (injury, illness) and or the assets (damage, loss) or to the neighboring community or to the environment.*

*OR*

*An accident is an incident which has given rise to injury ill health or fatality.*