



MAY 2021

**OGDCL**

# **SAFETY HANDBOOK**

**For Oil & Gas Development and Production Leases**



**This handbook is intended as reference and may not be all encompassing. Ask your Location HSE Representative/ Coordinator for any further information. The specific HSE Management System procedures are available in the latest revision of OGDCL's Integrated HSE System Manual.**

Occupational Health, Safety, Environment & QA/ QC Department



## OIL AND GAS DEVELOPMENT COMPANY LIMITED

# Occupational Health, Safety, and Environment Policy Statement and Commitment

As a responsible oil and gas E&P company, we are committed to embrace Health, Safety and Environment (HSE) in all our activities. The emphasis on HSE management is crucial to our operational requirement and to maintain market repute. In carrying out our multidimensional activities, we also ensure welfare of indigenous communities, protection of ecosystems and environment. As we continue to avail exploration and production opportunities on a sound foundation of technical and financial prudence, we intend to:

- Exhibit visible leadership at each level and ensure necessary resources, trainings and infrastructure are in place for aiming HSE excellence.
- Identify hazards and ensure effective controls to manage operational risks.
- Ensure that our entities meet or exceed applicable HSE laws, regulations, standards and other requirements.
- Set objectives and targets to safeguard humans & assets, protect environment and conserve energy & natural resources.
- Ensure that Contingency Plans are in place for business continuity.
- Provide employees with self-assured methods & practices, authority to stop unsafe work & motivation through rewards and recognition.
- Employ contractors and service companies who aspire to the high HSE standards at all times, and recognize that HSE is everyone's responsibility.
- Improve HSE system by continually focusing on Leading Indicators and disseminating lessons learned from Lagging Indicators.
- Assess HSE KPIs regularly & share performance accordingly.

Through observance of this policy, we aim to assist in protecting the environment and the overall wellbeing of our stakeholders, specifically our employees, clients, shareholders, partners, contractors, subcontractors, service companies and communities.



**Managing Director / CEO**



## Important

Following safety precautionary guidelines will be strictly enforced to ensure the safety of our people at all Locations and our communities. Everyone who works for or on behalf of OGDCL is responsible for his/ her own safety and the safety of those around. However, Senior Management is accountable for timely communicating, training, implementing, and devising system of auditing for these guidelines to assure continuity in the compliance and performance.

- ✧ Work (both routine and non-routine) will not be conducted without a pre-job risk assessment and a safety discussion (formal meeting/ toolbox talk) appropriate for the level of risk.
- ✧ All authorized persons will be trained and competent in the work they conduct.
- ✧ Personal protection equipment will be worn as per risk assessment and minimum site requirements.
- ✧ Emergency response plans, developed through a review of potential emergency scenarios, will be in place before commencement of work.
- ✧ Everyone has an obligation to STOP work that is unsafe. (TOP HSE Cards are available on every prominent area along with the Drop Boxes)

- ✧ Location InCharge, Section InCharges, Shift InCharges and Supervisors to ensure that all workforce members have been communicated the substance of this Safety Handbook.

- ✧ Every Workforce Member to a) comply with the precautionary guidelines in this Safety Handbook; b) work safely and to promote positive safety culture; c) attend & participate in scheduled safety meetings; d) report all hazards, unsafe work behaviors and conditions to the Location InCharge and HSE & e) timely report accidents & nonconformities to the Location InCharge and HSE Representative.





## Basic Safety Rules

### Stop Unsafe Work



Immediately STOP any unsafe work that has the potential to injure personnel, damage equipment, or harm the environment.

### Report Incidents



Immediately report all work related injuries/illnesses, no matter how minor, to your supervisor.



Immediately report all fires, spills, or releases, no matter how small, to your supervisor.



Immediately report any unsafe condition, unsafe act, near hit, or vehicle collision to your supervisor.

### Follow Safe Practices



Comply at all times with all safe driving requirements, particularly speed limits, when operating a vehicle.



Ensure that all persons in vehicles wear seat belts at all times.



Use the handrail and take only one step at a time when going up or down stairways.



Erect barricades and flagging around hazardous work areas, such as holes in decking and floor surfaces, trenches, road crossings, and overhead hazardous work.



Use only proper tools and equipment maintained (pre-inspected) in a safe working condition. Do not use homemade, modified, or damaged tools.



Maintain good housekeeping in your work area at all times.



Rest and dine (eat/ drink) only in designated areas.



Use proper manual lifting techniques, or obtain assistance or mechanical lifting aids when lifting heavy loads.



-  Ensure all safety guards, switches, and alarms are in place and functional on operating machinery and electrical switchgear.
-  Lock, tag, clear, and try equipment to ensure proper isolation before working on energized equipment that has the potential for injury to personnel.
-  Notify (in written form) the appropriate supervisor and affected parties, tag the device, and document the action properly whenever a safety device is removed from service and/ or defeated.
-  Chain-lock or car-seal open all block valves on in-service pressure relief systems.
-  Inspect all fire extinguishers and other emergency equipment and keep them clear of any obstructions.
-  Properly label (in indigenous language as well) and store all chemical or hazardous material containers. Where specified, store drums in secondary containment areas or on drum containment pallets.

### Avoid Unsafe Activities

-  Do not climb or stand on equipment, piping, valves, or unstable surfaces (e.g., chairs or barrels) to perform work.
-  Use approved (& pre-inspected) fall protection measures (e.g., personal fall arrest system or scaffolding) if the working height is greater than 1.8 m (6 ft) from the floor or platform level.
-  Do not wear finger rings, wristwatches, jewelry, loose clothing, unsecured long hair, or loose accessories within an arm's reach of rotating equipment or electrical switchgear.
-  Do not apply compressed industrial gases to yourself or others.
-  Do not operate equipment having a "DANGER, DO NOT OPERATE" (hold) tag.



-  Do not start work in any area, or on any equipment, without consent of the supervisor.
-  Do not use electronic devices (e.g., mobile phones, smart watches, and instruments) that are not listed as safe for use in classified locations without proper approval.
-  Do not engage in horseplay or fighting.
-  Do not run in work areas.

### Protect Yourself

-  Wear approved hard hats, safety eyewear with side shields, and safety footwear in all restricted areas, project sites, and in areas where specifically designated.
-  Use approved additional hazard-specific personal protective equipment (PPE), including goggles, face-shield, respiratory protection equipment, and body/hand protection where specific hazards requiring their use have been identified.
-  Wear adequate PPE prescribed by the chemical hazard bulletin (CHB) or material safety data sheet (MSDS) when handling chemicals or hazardous materials.
-  Use approved hearing protection in designated high noise areas.
-  Use proper hand protection (e.g., gloves) when performing tasks that may present a hand injury risk.



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*Criterion for the selection of Lifesaving Golden Rules is based on critical operational areas and incidents trend over the past ten years in OGDCL.*



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## GUIDELINE 01

### HYDROCARBON SAFETY

[LIFESAVING GOLDEN RULE]

- ☠ Line management shall provide a disciplined framework for managing the integrity of operating systems and processes that handle hydrocarbons and other hazardous substances to prevent unplanned releases which could result in incidents.
- ☠ The basis of design of a facility or process, permanent or temporary, which transports, produces, stores, uses or disposes of hydrocarbon shall be reviewed at least every five years utilizing process risk assessment such as HazOp.
- ☠ HazOp shall take into account the actual changes (or the changes that can reasonably be expected during the operations lifetime) in a workshop format led by an experienced Chairperson from independent party, Custodian from process/ project team, Secretary from HSEQ domain and concerned Discipline Engineers/ Sector Experts with following objectives:
  - ❑ To check, verify and validate the efficacy of process controls and barriers/ internal controls.
  - ❑ To up to date documentation/ arrangements for achieving safe operating limits and ensure availability to O&M personnel.
  - ❑ To ensure placement of conscious labeling on equipment, storage vessels, containers, tanks and pipelines carrying or containing hydrocarbons or other hazardous material as per appropriate international standards.
  - ❑ To ensure provision of an emergency response plan (which includes means of escape; emergency response teams; appropriate safe refuge and assembly areas; communication system, and emergency response equipment for spillage containment, fires, explosions, burns, etc.)



## **GUIDELINE 02**

### **PERMIT TO WORK**

[LIFESAVING GOLDEN RULE]

Before conducting work that involves confined space entry, work on energy systems, ground disturbance in locations where buried hazards may exist, or hot work in potentially flammable & explosive environments, a permit to work must be obtained that:

- ❑ defines scope of work
- ❑ identifies hazards and assesses risk through JHA and Risk assessment methodology.
- ❑ establishes control measures to eliminate or mitigate hazards
- ❑ links the work to other associated work permits or simultaneous operations (SIMOPS)
- ❑ is authorized by the responsible person(s)
- ❑ communicates above information to all involved in the work
- ❑ ensures adequate control over the return to normal operations

PS:-

- *JHA is a formalized procedure whereby persons involved in a task get together before work starts to formally assess the work, identify associated hazards/ risks and recommend safe job practices and precautionary measures.*
- *PTW is a formal written system used to control certain types of work which are identified as potentially hazardous. It is also a formal means of communication between operations & maintenance (O&M) teams, supervisors and those who carry out the work.*



### **GUIDELINE 03**

#### **PERSONAL PROTECTIVE EQUIPMENT**

- ☠ Every person engaged in the operations and every other person who may be exposed to the risk of injury, poisoning or disease arising from the operations should be provided with appropriate PPE.
- ☠ No person should be allowed to work in a field boundary unless he is wearing a suitable coverall, safety helmet, and safety shoes which should be provided by the Location Management/Contractor.
- ☠ A sufficient stock of PPE shall be maintained in each Section in order to ensure immediate supply as and when need for the same arises.
- ☠ No person should be allowed to enter any place where toxic vapors are present or there is deficiency of oxygen unless he has been provided with and is wearing a breathing apparatus of suitable type.
- ☠ No person should be allowed to work on a manned installation unless the installation is equipped with an emergency communication system according to the nature of emergency, emergency detection and response system.
- ☠ All PPE shall be maintained, cared and stored as required in the manufacturer, supplier or user instructions or as the training requires.
- ☠ For the purposes of compliance, PPE shall be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection.
- ☠ The contaminated PPE which cannot be decontaminated shall be disposed of in a manner that protects employees from exposure to hazards.



## GUIDELINE 04

### WORKING AT HEIGHTS

[LIFESAVING GOLDEN RULE]

Ladders will be used for access only; working from a ladder will not be permitted. Short duration working from Step Ladders may be authorized by the Location Management providing the user has produced a safe method of use. Working at heights of 1.8 meters (6 feet) or higher above the ground cannot proceed unless:

- ☠ a fixed platform is used with guard or hand rails, verified by an authorized person(s) or ...
- ☠ fall arrest equipment is used that is capable of supporting at least a 2275 kg (5000 lbs) static load per person and has:
  - ▣ a proper anchor mounted, preferably overhead
  - ▣ full body harness using double latch self locking snap hooks at each connection
  - ▣ synthetic fiber lanyards
  - ▣ shock absorber
- ☠ fall arrest equipment will limit free fall to 1.8 meters (6 feet) or less, a visual inspection of the fall arrest equipment and system is completed and any equipment that is damaged or has been activated is taken out of service
- ☠ anchoring point of fall arrest equipment verified/crosschecked by Shift Incharge/ Supervisor
- ☠ authorized person(s) are competent to perform the work

*PS:- Where it is not practicable to provide a standard working platform and the working height indicates a potential fall, safety harnesses must be worn.*



## **GUIDELINE 05**

### **SCAFFOLDING**

#### [LIFESAVING GOLDEN RULE]

- ☠ All scaffolding must be manufactured/ erected as per applicable Standards.
- ☠ When erecting/ dismantling scaffolding a securely attached safety harness and where appropriate inertia reel must be used. 100% Tie-off is required at all times.
- ☠ In addition to the main guard rail, an additional guardrail may be required such that the gap between the toe-board and main guardrail does not exceed 470mm and all boards must be secured, without causing a tripping hazard.
- ☠ Scaffolding must not be disturbed or altered by any unauthorized persons. Where alterations are required, the Authorized Scaffolders must be contacted who will carry out the work under competent supervision.
- ☠ Where materials are to be positioned on scaffolding the supervision must ensure that the scaffolding is not overloaded.
- ☠ Before use, scaffolding shall be inspected by an authorized scaffold inspector who shall complete a "scaffold tag" and secure it in a prominent position at the base of all ladder access points.
- ☠ No scaffold may be erected which impedes normal access or can be accidentally struck by moving equipment without prior consultation with the Location Management so that a safe system of work can be agreed.
- ☠ No one should be permitted to erect or carry scaffolding near live overhead electrical cables, or equipment.



## GUIDELINE 06

### ENERGY ISOLATION

[LIFESAVING GOLDEN RULE]

- ☠ Any isolation of energy systems; mechanical, electrical, process, hydraulic and others, cannot proceed unless:
  - ▣ the method of isolation and discharge of stored energy are agreed and executed by an authorized person(s) in compliance with the applicable Lock-out Tag-out (LOTO) standards
  - ▣ any stored energy is discharged
  - ▣ a system of locks and tags is utilized at isolation points
  - ▣ a test is conducted to ensure the isolation is effective
  - ▣ isolation effectiveness is periodically monitored
- ☠ Electrical isolation, lockout, and use of hold tag procedures shall be used before and during any activity requiring personnel to work on or near de-energized circuit parts or where there is danger of injury due to an unexpected startup of equipment (e.g., a motor-driven pump).
- ☠ Other energy sources such as pressurized gas, process fluids, and hydraulic, pneumatic, thermal, chemical, and mechanical systems shall be isolated by valves, blinding, double block and bleed, or disconnecting.

#### Lock, Tag, Clear, and Try

- ☠ Identify (& crosscheck) isolation locations and types of isolation devices required prior to beginning work.
- ☠ Shut down/de-energize equipment and remove any residual energy (e.g., contents of process piping) by draining, venting, or purging after isolation. The Operations/ Process Department shall always be the first to install an approved Lock(s) on all isolation points, and the last to remove them.
- ☠ Tag the lock(s) with a "DANGER, DO NOT OPERATE" tag (indigenous language be used as well).
- ☠ Clear the equipment/area of all affected personnel and tools prior to trying to start the equipment.



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- ☠ Before starting work, Try to start or energize the equipment locally to verify proper isolation and de-energization.
- ☠ Install lock(s) at each corresponding isolation point (maintenance/contractor personnel). If performing maintenance or servicing of equipment, verify that isolation and de-energization of the equipment has been accomplished.
- ☠ Only the person(s) originally attaching the lock and tag is authorized to remove the lock and tag. When a shift change occurs, the oncoming supervisor must review isolation locations and placement of locks and tags. Operations/ Process Department's locks and tags may be left installed and keys to locks may be transferred.
- ☠ Remove lock(s) and tag(s) when the work is completed or you leave the job permanently.
- ☠ Remove lock(s) and tag(s) when the equipment is safe to energize (Operations/ Process Department).
- ☠ When work is complete and all lockout devices removed, all affected personnel shall be notified and the equipment placed back in service.



## **GUIDELINE 07**

### **CONFINED SPACE ENTRY**

[LIFESAVING GOLDEN RULE]

Entry into any confined space cannot proceed unless:

- ❑ all other options have been ruled out
- ❑ permit is issued with authorization by a responsible person(s)
- ❑ permit is communicated to all affected personnel and posted, as required
- ❑ the Emergency response and medical evacuation procedure for the particular confined space is communicated to personnel concerned
- ❑ all persons involved are competent to do the work
- ❑ all sources of energy affecting the space have been isolated
- ❑ testing of atmospheres inside confined space is conducted, verified and repeated as often as defined by the risk assessment
- ❑ Electrical lighting for use in confined spaces shall not exceed 24 volts; Powered hand tools used in confined spaces shall be air operated (where this is not possible, all such tools shall be equipped with a deadman's switch)
- ❑ stand-by person is stationed or buddy system is in place
- ❑ warning signs displayed (in indigenous language as well) along with pictorial illustration
- ❑ unauthorized entry is prevented

*PS:- All persons working in the confined space must be physically and mentally fit. Employees with medical history having asthma, heart & vision/ eyesight related disorders may not be allowed to enter into the confined spaces until they possess a valid Medical Fitness Certificate.*



## GUIDELINE 08

### LIFTING OPERATIONS

[LIFESAVING GOLDEN RULE]

- ☠ Lifting operations utilizing cranes, hoists, or other mechanical lifting devices won't commence, unless:
  - ❑ an assessment of the lift has been completed and the lift plan including appropriate, lift method and equipment has been determined by authorized person(s)
  - ❑ operators of powered lifting equipment are trained and certified for that equipment
  - ❑ rigging of the load is carried out by authorized person(s) in compliance with the safe lifting procedure
  - ❑ lifting devices and equipment has been third party certified for use within the last 12 months
  - ❑ lifting accessories must be color coded for the visual and easy identification and distinction of safe and discarded ones.
  - ❑ load does not exceed dynamic and/or static capacities of the lifting equipment
  - ❑ any safety devices installed on lifting equipment are operational and must not be overruled
  - ❑ all lifting devices and equipment have been visually examined before each lift by an authorized person(s)
  - ❑ ensured that the minimum clearance distance from the energized power lines is 10 ft for upto 50 KV load and 15 ft for over 50 to 200 KV load.
- ☠ Do not leave the crane cab unattended while a load is suspended, unless the load is properly secured to a load-bearing structural member.
- ☠ Position (lower) hydraulic crane booms and secure the hook while traveling.
- ☠ Do not perform crane lifts at wind speeds above 32 km/h (20 mph) unless otherwise specified by the manufacturer.



## GUIDELINE 09

### MOBILE CRANES/ CRANE-MOUNTED TRUCKS

- ☠ All cranes must carry relevant test certificates and thorough examination reports, together with the manufacturer's handbook.
- ☠ Only competent persons who are authorized by the Location Management shall be allowed to operate cranes.
- ☠ Crane duty charts (Load Radius Tables) must be displayed on or be available in the crane for easy reference, in English, and a language understood by the operator. In addition, the Crane Manufacturers Operating and Erection manuals must be available on site.
- ☠ All cranes shall be fitted with:
  - A reverse warning audible alarm.
  - Load Radius Indicator.
  - Automatic Safe Load Indication.
  - Crane hooks with Safety Latches
- ☠ The assembly, rigging and de-rigging of any crane components, including fly jibs, shall only be done under the supervision of an authorized lifting supervisor. An approved risk assessment, together with the erection procedures must be in place covering rigging activities for the equipment.
- ☠ No crane shall travel with a suspended load.
- ☠ Outriggers, when installed, must always be used. (Unless authorized by Location Management).
- ☠ Ensure operator is fully aware of any overhead hazards such as cables or walkways. Make a note of buildings or structures within the operating area.
- ☠ Ensure the ground within the operating area is cordoned off to keep the area free of other workers or pedestrians.
- ☠ At all times be aware of changing conditions such as increasing winds. If high winds begin to affect the lift, especially when close to other structures, the operation be aborted until conditions improve.



## **GUIDELINE 10**

### **GROUND DISTURBANCE**

[LIFESAVING GOLDEN RULE]

Work that involves a manmade cut, cavity, trench or depression in the earth's surface formed by earth removal cannot proceed unless:

- ▣ hazard identification and risk assessment of the work site is completed by an authorized person(s).
- ▣ all underground hazards, i.e., pipelines, electric cables, etc., have been identified, located and if necessary, isolated.

Where persons are to enter an excavation:

- ▣ a confined space entry permit shall be issued if the entry meets the confined space definition
- ▣ ground movement is controlled and collapse is prevented by systematically shoring, sloping, benching, etc., as appropriate
- ▣ excavated soil to be stacked a minimum distance of one meter from the edge of the excavation edge
- ▣ personnel to keep clear of machinery whilst it is in operation, minimum distance of 5 meters
- ▣ ground and environmental conditions are continuously monitored for change

Suitable entry and exit point shall be provided when working in trenches, considering any possible emergency and weather condition.



## **GUIDELINE 11**

### **WORKING WITH ELECTRICITY**

Electrical works must not be considered as safe, unless the following safety guidelines are adhered with:

- ❑ Electrical cords and electrical plugs regularly inspected to reduce the risk of electrical fires and keep away from sources of heat and water.
- ❑ Good quality of electrical plugs, receptacles, wiring, and extension cords utilized. All electrical installations must conform to the relevant safety standards and hazardous area / zone classification.
- ❑ Shut down all electrical appliances before leaving the offices/ rooms.
- ❑ Have defective appliances immediately reported and checked by an electrician.
- ❑ All worn cords and plugs replaced immediately.
- ❑ Electrical cables must be adequately insulated and protected against mechanical damage.
- ❑ Proper protective junction box used to connect the cables.
- ❑ Electrical isolations and de-isolations should be made by authorized persons only. Work on live lines must be avoided wherever possible.
- ❑ While undertaking digging excavation work, the possibility of a buried electric or instrument cable should always be considered.
- ❑ The condition of the insulation between live/neutral and live/earth conductors, and the resistance of the earth circuit should be checked once a quarter.
- ❑ Circuit breakers and fuses must be adequately selected to withstand rated peak current.
- ❑ Fuses must be inserted in the live conductor and replaced, when ruptured.
- ❑ Place and maintain sufficient quantity (in light of the applicable legal and best practices standards) of appropriate type of fire extinguishers close by.
- ❑ Earthing resistivity maintained in the range 0.1 ohm to 1.5 ohm through interconnected earth systems.



## **GUIDELINE 12**

### **WORKING WITH PRESSURE**

- ☠ Working with pressurized equipment is always potentially dangerous and must not be considered as safe unless authorized persons to pressurize or depressurize equipment have been made familiar with the hazards involved and procedures required (as even sudden changes of pressure can cause noise, severe vibration and shock loads).
- ☠ All valves controlling the operation must be opened or closed slowly. "Whip Checks" or hose safety lanyards, and or tie-downs must remain in place until all stored pressure, or energy, has been relieved.
- ☠ During the pressurization of equipment, all unnecessary personnel should stay out of the immediate area until the operation is completed. Barriers or signage will be posted to prevent unauthorized personnel from entering the area. This is to avoid possible injury due to equipment failure.
- ☠ No attempt must be made to locate high-pressure leaks by feeling with the hands.
- ☠ Flange bolts shall be loosened and the flange carefully separated before removing the bolts.
- ☠ Pressure Equipment such as grease guns; paint spray guns; high-pressure jetting equipment; and shot blasting equipment shall be directed away from the body and away from other personnel in the area.



### **GUIDELINE 13**

#### **PRESSURE TESTING**

Apply the following minimum safety requirements when conducting pressure testing of equipment or piping.

#### **Test Preparation and Equipment**

- ☠ Obtain an Approved Test Procedure prior to the test but after hazard identification and risk assessment.
- ☠ Pressure test procedures must include:
  - ▣ Safety instruction sheets, pressure test or hydrostatic test diagrams, and the test manifold arrangement.
  - ▣ A blind list.
  - ▣ Locations of check valves and air vents.
  - ▣ Locations of lowest-rated components that determine the test pressure.
  - ▣ Relief valve and vacuum valve (if any) sizes and set pressures.
  - ▣ Test medium (fluid, gas, additives) and location of filling points.
  - ▣ Special support requirements of equipment/piping being tested, safe clearance distances, and locations of barricades and warning signs.
  - ▣ Pressure test sequence, intervals, and duration of pressure increase and points of inspection.
  - ▣ Contingency/ emergency plans.
- ☠ Perform safety talk/ toolbox talk before execution of pressure testing.
- ☠ Complete a QC Checklist for pressure testing safely before, during, and after the test.
- ☠ Locate relief valves on the systems to be tested, including near the test pump. Tag relief valves with the set pressure, valid test date, and the word "TEST."
- ☠ Remove or car-seal open all block valves installed on the inlet and outlet of relief valves.
- ☠ Install vents at high points in the system to vent air/gas while the system is being filled with the test



liquid. Install drains to allow removal of test liquid when the test is finished.

- ☠ Use two or more calibrated pressure gauges on the system under test; one must be located within eyesight of the pump operator. Verify that gauges have been calibrated within 30 days prior to the test.
- ☠ Disconnect and/or blind equipment or piping that is not being pressure tested.
- ☠ Install restraints to restrict movement of the piping and joints during the test.
- ☠ Provide safety chains (or equivalent) on hoses connecting the test pumps to manifolds in order to prevent whipping in case a coupling becomes disconnected.
- ☠ Test any pressure-testing manifolds separately from other piping, and to a pressure not less than 20% above the maximum test pressure to be applied on the system when the pressure test occurs.
- ☠ Do not overload supports, vessels/piping, and any foundations due to the weight of the test liquid.

### **Conducting Pressure Tests**

- ☠ Allow only personnel involved with the pressure test near the system at any time during the test.
- ☠ Vent hazardous gases or vapors clear of any areas where personnel are working or possible ignition sources.
- ☠ Do not leave test pumps unattended while in operation, unless they are isolated from the system.
- ☠ Provide vent relief capacity to ensure vessels are not subject to vacuum during the draining of test fluid.
- ☠ Keep test relief valves installed until the test liquid has been completely drained to prevent possible overpressure due to thermal expansion.
- ☠ Raise pressure in a gradual and controlled manner. Use 10-minute holds at each pressure increase step to allow time for material to strain and for personnel to check for weaknesses and leaks.



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- ☠ Do not exceed pressures specified in the requirements until weaknesses have been repaired and leaks have been stopped.
- ☠ Depressurize the system being tested before any work is performed to stop leaks or repair weaknesses, including the tightening of bolts. During a tightness test, bolts may be tightened if approved in the written procedure.
- ☠ Do not depressurize the system by loosening bolts or fittings.
- ☠ Obtain approval as per Location Waste Management Plan, for the disposal of pressure-test liquids containing chemical additives.



#### **GUIDELINE 14**

##### **SAFE STORAGE OF PRESSURIZED CYLINDERS**

- ☠ Pressurized cylinders must be secured in an upright position (preferably with a chain or strap in a proper cylinder trolley/ cart).
- ☠ Valve protector caps must be in place when cylinders of compressed gas are moved or stored.
- ☠ Oxygen and fuel cylinders must be stored 20ft apart, or be separated by a non- combustible barrier.
- ☠ Avoid storing cylinders in confined areas – a leak could result in a dangerous gas buildup.
- ☠ Use standardized labelling and identification as per various types of cylinders.
- ☠ Use proper warning signs in areas where cylinders are stored.
- ☠ Keep cylinders in a location free from vehicle traffic, excessive heat and electrical circuits.
- ☠ Handle cylinders with care and avoid dropping or hitting them against anything.
- ☠ Avoid lifting cylinders by their caps or guards or with magnets or slings, which can damage the valves.
- ☠ Keep empty cylinders away from full ones.



## **GUIDELINE 15**

### **WORKING IN NOXIOUS AND FLAMMABLE GASEOUS ENVIRONMENT**

[LIFESAVING GOLDEN RULE]

Working in noxious and flammable gaseous environment must not be considered as safe, unless following safety guidelines adhered with:

- ❑ No one should enter or be permitted to enter any cellar, sump, pit or any confined place or hazardous area or the area where a leakage has been detected, fire has gutted, or flare or explosive material has become accidentally extinguished unless a test therein by an authorized person indicates that the area is gas free.
- ❑ Ensure that everybody is informed on toxic gas risk and properly trained on their specific role during emergencies, and on collective/personal protective equipment and that each worker has both a personal toxic gas detector and a proper breathing escaping device (full face mask / hood with specific filter / air bottle).
- ❑ Where any test shows the concentration of flammable gas to exceed 20% of its lowest explosive limit, the supply of electrical energy should be cut off immediately from all cables and apparatus lying within 25 meters of the installation and all sources of ignition should also be removed from the said area. Normal work should not be resumed unless the area is made gas free.
- ❑ Post safety signs and any other means, warning of the potential presence of toxic gas.
- ❑ Strict prohibition of work at all work places where concentration of hydrogen sulfide is found to exceed the limit of 20 ppm, all persons in that place and other likely to be effected should be evacuated and the place should be immediately cordoned off with warning signs so as to prevent persons inadvertently entering the same. All corrective measures should be taken under the



supervision of an authorized person(s) appointed by the manager and no person should be readmitted until that working place has been inspected by the manager or a person appointed by him in that behalf.

- ▣ Reports of withdrawal, evacuation and re-admittance should be recorded in a paged book.
- ▣ During the time corrective measures are being taken all persons should wear suitable breathing apparatus.
- ▣ Suitable detectors should be installed at appropriate locations to detect and measure continuously the concentration of inflammable and obnoxious gases in the atmosphere.
- ▣ All gas and fire detectors should be calibrated and certified according to OEM's specifications and record thereof should be maintained.
- ▣ The detection mechanism should be so installed so as to allow monitoring from a central control room and should give automatic audible and visual signals in case the concentration of obnoxious and flammable gases exceeds their prescribed safer limits.



## **GUIDELINE 16**

### **SAFE HANDLING OF CHEMICALS**

The handling, storage and segregation of chemicals is not considered as safe, unless the following safety guidelines are adhered with:

- ❑ Flammables must not be stored with the Oxidizing agents; Corrosive chemicals; Common alkalis (bases); Materials susceptible to spontaneous heating and/or explosions and Substances that react with air or moisture to create heat.
- ❑ All the chemicals should be handled and stored in a safe manner so as to avoid injury or adverse impact on the health of persons handling the chemicals.
- ❑ MSDS (Material Safety Data Sheets) of all the chemicals in use or stored are available at all times.
- ❑ Eyewash showers should be provided close to the areas where chemicals are handled or stored.
- ❑ The eyewash showers should be installed or constructed in such a manner that it should deliver the water at optimal human temperature.
- ❑ The chemical containers should be conspicuously labeled with chemical name, its physical and chemical properties, manufacturer's name, storage temperature, expiry date and chemical hazards.
- ❑ No person should be allowed to handle the chemicals unless he is wearing suitable protective gears.
- ❑ The persons handling the chemicals should be made aware of the materials they are using and the dangers they face if they mishandle these materials.
- ❑ Avoid storing flammables in direct sunlight or near other heat sources; eliminate all sources of ignition.
- ❑ Keep the area dry and cool.
- ❑ Provide adequate ventilation to prevent the accumulation of large amounts of vapor.
- ❑ Cabinets must be labeled; **FLAMMABLE – KEEP FLAME AWAY OR NO NAKED FLAME.**



- ❑ Vent openings must be sealed with bungs according to manufacturer's instructions. However, if the cabinet is vented, it should be vented from the bottom directly outdoors.
- ❑ Storage rooms have specific construction and ventilation requirements. Applicable regulatory and other requirements must be reviewed for additional storage requirements.
- ❑ Store flammable materials in a designated and approved fireproof cabinet or storage rooms but not with flammable liquids. Flammable solids such as sulfur, calcium carbide, and white phosphorus can ignite in the presence of air or oxygen and continue to burn until the material is spent.

*PS:- Workforce members working in the Chemicals Stores and Laboratories should not work alone, rather they must adopt buddy system.*



## GUIDELINE 17

### WELDING

- ☠ Welding shall not be started unless permit is issued with authorization by a responsible person(s); job hazard assessment of the work site is completed by an authorized person(s); and is communicated to all affected personnel and posted, as required.
- ☠ Welding units shall be in good condition, properly maintained, and earthed.
- ☠ Isolation switches on welding units shall be readily accessible.
- ☠ Terminals and live components shall be adequately protected.
- ☠ Cables shall be frequently inspected to ensure the insulation is intact.
- ☠ Damaged cables or electrical holders shall be properly repaired or replaced.
- ☠ Welding return/ earth cable must be used where practicable instead of energizing the entire interconnected equipment so that chances of heat/ spark at joints be avoided.
- ☠ The welding return/ earth cable shall be secured onto the work piece. If this is not practical it shall be as near as possible.
- ☠ Proper cable connectors shall be used when connecting runs of cables.
- ☠ Welders shall wear:
  - ▣ Face and eye protection with correct grade of filter.
  - ▣ Welders' gauntlets (long gloves).
  - ▣ Long sleeved heavy cotton overalls.
- ☠ Welders shall wear safety helmets at all times, except when it is agreed as impractical, and written permission is granted by the Location Management, subject to mitigation of hazard, i.e. no work overhead, or shielded from falling objects.
- ☠ Install flashback arrestors on the outlets of all oxygen/fuel cylinder regulators and on the inlet of



- ☠ oxygen/fuel cutting torches.
- ☠ Welding areas should whenever possible be screened off using noncombustible or Flameproof Welding Screen/ Flame Retardant Blanket or other suitable material.
- ☠ Whenever possible move the object to be welded inside a maintenance shop or laydown yard.
- ☠ Conduct welding and brazing operations in well ventilated areas.
- ☠ Remove combustible material from around the work area or protect materials from sparks, slag, or heat with fireproof material or wetting.
- ☠ Turn off all equipment and close compressed gas cylinder valves when unattended.
- ☠ Provide a portable fire extinguisher near the hot work area. Cover all sewers in hydrocarbon facilities within 23 m (75 ft) of the work area.
- ☠ Maintain a trained Fire Watch during welding and cutting operations and for 30 minutes afterwards.
- ☠ Do not perform welding, cutting, and brazing in oxygen enriched environments (i.e., an oxygen concentration greater than 23.5%).
- ☠ Verify the surface, pipeline, or vessel/container to be cut, welded, or brazed has been drained, cleaned, and purged to remove all flammable or toxic materials (including residue). Determine the flammability of any coatings prior to beginning work. Identify the presence of hydrocarbons using gas testing equipment if necessary (requirement is Hot Work Permit).
- ☠ Use mechanical ventilation and/or local exhaust when welding, cutting, or heating alloys that release toxic material. Additional respiratory protection may be required.
- ☠ Use only friction lighters (strikers) to light a torch; never light it with matches or a cigarette lighter.
- ☠ Ensure acetylene cylinders have a handle or valve wrench in place at all times.



**GUIDELINE 18**  
**MAN RIDING BASKET**

(Only applicable with the permission of Location Management)

- ❑ When the carriage of personnel by crane is required, the man riding basket must be suitably tested and have a valid third party test certificate and clearly marked "Man Riding Only" and "Load-bearing Capacity" on it. All wire ropes and other attached lifting equipment must also have a valid certificate.
- ❑ Man riding basket shall be used for carrying single person only.
- ❑ All cranes used for carrying personnel must be provided with a deadman's handle facility to ensure that the brake is applied when the control lever is released. Crane hooks must be fitted with safety latches or equivalent and the operator must be in his cabin at all times.
- ❑ At no time shall the crane be allowed to be used in a free fall situation. Cranes must have power lowering capabilities for carrying men.
- ❑ Limit devices must be fitted to the cranes to ensure that the carrier cannot be raised above the over hoist limit of the crane. The limit switch must be tested, daily, before raising persons in the baskets.
- ❑ All workforce members using man riding basket must be secured to the crane hook by a safety harness. The safety harness must be secured to the master link of the supporting sling or to the hook of the crane.
- ❑ Do not perform man riding basket operations at wind speeds greater than 25 km/h (15 mph).



**GUIDELINE 19**  
**COMPRESSED AIR**

- ☠ All air receivers and compressors shall be in good condition and properly maintained.
- ☠ Air receivers shall be individually identified and marked with their safe working pressure.
- ☠ Air receivers shall be accompanied by a valid test certificate which shall be kept on site and shown to the Location's Representative before bringing the vessel onto site.
- ☠ All air receivers must be fitted with a properly set pressure relief valve.
- ☠ Air receivers shall be examined and the pressure relief valve tested by an independent examiner.
- ☠ All compressed air fittings shall be wired and/or restrained to prevent them from whipping.
- ☠ Only hose clamps designed for compressed air service shall be used. Worm drive clips are not acceptable.
- ☠ Whip arrestors must be fitted to all compressed air hose couplings.
- ☠ Compressed air must never be used for purposes other than the intended.
- ☠ Nozzles used for air blowing must be fitted with a deadman's valve.



## **GUIDELINE 20**

### **MECHANICAL EQUIPMENT**

- ☠ Unauthorized personnel must not operate, interfere or tamper with plant or equipment.
- ☠ Every dangerous part of machinery shall be securely guarded.
- ☠ Any guards removed for maintenance or repair purposes must be replaced before the machine is set in motion.
- ☠ No mobile plant (mechanically propelled vehicles) shall carry passengers unless a proper fixed seat is provided, except when the equipment is specifically designed for standing personnel.
- ☠ Mobile plant (mechanically propelled vehicles) must be parked on firm level ground when unattended, the engine stopped, brakes on and any load or attachment lowered to the ground and the keys left in the ignition.
- ☠ No mechanical plant or equipment shall be sited on or operated on any area without the permission of the Location Management.
- ☠ All items of mobile plant (mechanically propelled vehicles) shall be fitted with a reverse warning audible alarm (seat belts and roll over protection).
- ☠ All drivers/ operators of mobile plant (mechanically propelled vehicles) shall strictly obey the instructions of the site security, traffic regulations and speed limits.
- ☠ All mobile equipment (mechanically propelled vehicles) shall be inspected by an authorized person prior to use on site. Equipment considered being unsafe, shall not be allowed access.
- ☠ All mobile plant for use in live activity areas, or during the start up and commissioning phase, must be fitted with exhaust Flame Arrestors.



## **GUIDELINE 21**

### **MANAGEMENT OF CHANGE**

[LIFESAVING GOLDEN RULE]

Work arising from temporary and permanent changes to organization, personnel, systems, process, procedures, equipment, products, materials or substances, and laws & regulations cannot proceed unless a Management of Change process is completed, where applicable, to include:

- ☠ a risk assessment conducted by all impacted by the change.
- ☠ development of a work plan that clearly specifies the timescale for the change and any control measures to be implemented regarding:
  - ▣ equipment, facilities and process
  - ▣ operations, maintenance, inspection procedures
  - ▣ training, personnel and communication
  - ▣ drawings and necessary documentation
  - ▣ authorization of the work plan by the responsible person(s) through completion



## **GUIDELINE 22**

### **DRIVING SAFETY**

#### [LIFESAVING GOLDEN RULE]

- ☠ All categories of vehicle, including self propelled mobile plant, must not be operated unless:
  - ❑ Vehicle is fit for purpose, inspected and confirmed to be in a safe working order.
  - ❑ Number of passengers does not exceed manufacturer's design specification of the vehicle
  - ❑ Loads are secure and do not exceed manufacturer's design specifications or legal limits for the vehicle
  - ❑ Seat belts are installed and worn by all occupants
  - ❑ Safety helmets are worn by riders and passengers of motorcycles and similar types of vehicle
  
- ☠ Drivers must not be authorized to operate vehicle unless:
  - ❑ They are trained, certified / licensed and medically fit to operate the class of vehicle
  - ❑ They are not under the influence of alcohol or drugs, and are not suffering from fatigue
  - ❑ They do not use hand-held cell phones and radios while driving (best practice is to switch off all phones and two-way radios while driving)
  
- ☠ Drivers shall not be allowed to drive more than the time permissible under the law. However more than 10-hour driving in a 24-hour day shall not be allowed in any case. A break of at least 15 minutes shall be required every 2 hours of driving preferably at authorized rest areas.
  
- ☠ All vehicles shall be equipped with the following standard emergency equipment:
  - ❑ fire extinguisher that is approved for the type vehicle, and
  - ❑ approved first aid kit.



- ☠ For all routine journeys, Journey Management Plan shall be readily available in vehicles with predetermined risks especially considering hazardous situations;
  - ▣ where paved roads are not available/ off road driving conditions.
  - ▣ routes with security threats, dangerous intersections, sharp turns, landslide areas, slippery conditions, and/ or blind-spots.
  - ▣ areas with potentially limited cellular phone coverage.
  - ▣ indistinct stopovers.
  - ▣ environmentally protected areas, wildlife sanctuaries, etc.
  - ▣ transportation of heavy/ fragile/ hazardous material or equipment.
  - ▣ night travel or any other high rated risk aspect.
- ☠ However for the non-routine journeys, Journey Management Plan shall be chalked out on situational basis, accordingly.
- ☠ Only designated personnel shall operate a company vehicle.
- ☠ Hitchhikers may not be given rides in a company vehicle.



### **GUIDELINE 23**

### **HOUSEKEEPING**

Loose tools and equipment scattered around the work area are the cause of many accidents and injuries. The area should be kept clean of oil spills excess or unnecessary tools and equipment with the following points:-

- ❑ Clean up spills promptly and properly.
- ❑ Place garbage and waste materials in appropriate containers.
- ❑ Walk ways, passages, and doorways should be kept clear of obstructions and free from mud and water.
- ❑ Provide recommended light intensities to all working areas.
- ❑ Watch for hazards such as boards with nails, pieces of pipes, electrical wires, grease and oil, etc.
- ❑ All offices and workshops should be kept clean and clear of scrap.
- ❑ Manholes, open hatches and loose grating create tremendous hazardous. Always keep openings covered or place guards or barriers around them.
- ❑ Store material or equipment securely, neatly and in a place where they do not hinder operations.
- ❑ Use soaps and cleaners provided for cleaning skin. Solvents should not be used.
- ❑ Avoid unnecessary contacts with hydrocarbons, chemicals and explosives.
- ❑ Change oil-soaked clothing. It may cause skin irritation and is a fire hazard.



## **GUIDELINE 24**

### **SMOKING**

- ❑ Smoking should be prohibited and not allowed in offices, working areas, stores and public gatherings.
- ❑ 'No Smoking' signs should be posted in areas where smoking is prohibited.
- ❑ Smoking should be only permitted outside the restricted areas designated as 'Smoking Area" but should be discouraged as a policy matter.



**GUIDELINE 25**  
**HEALTH AND HYGIENE**

The following guidelines must be complied with to maintain healthy and hygienic occupational environment among workforce:

**(Catering & Hygiene)**

- ❑ Dining tables should be covered with metal sheets.
- ❑ Floors, walls, and ceilings should be cleaned at least once a day.
- ❑ Food should be thawed in the refrigerators free of vermin.
- ❑ Water used for cooking should be of same standard as drinking.
- ❑ Food should be cooked in metal cooking pot which be immediately cleaned after every meal.
- ❑ The food once cooked should be kept hot at 63<sup>o</sup> Celsius or above.
- ❑ Dishes and eating utensils should be washed thoroughly with hot water containing detergents.
- ❑ Raw food should be kept separate from the cooked food.
- ❑ The waste and spillage should be cleared immediately.
- ❑ Food should not be stored on the floor, but on suitable shelves.
- ❑ Detergents, soaps, insect killers and other chemical products should be stored in a separate location.
- ❑ Food handlers should have clean, short or netted hair and clean short finger nails, regular bathing habits and clean cloth wearing of closed shoes is mandatory (no sandal or slippers).
- ❑ Food handlers with skin, nose, throat problem or suffering from colds, diarrhoea or vomiting should report immediately to the medical Rep. and should not be allowed to handle until clearance.
- ❑ Hands should be washed with soap after using the toilets or cleaning a spill, or even after smoking etc.



### **(Catering Crew Hygiene)**

- ❑ Catering crew must be free of contagious diseases, cuts, sores, and colds when handling and preparing food.
- ❑ Kitchen staff should get examined often for their hygiene. Food handlers with skin, nose, throat problem or suffering from colds, diarrhoea or vomiting should report immediately to the medical Rep. and should not be allowed to handle until cleared.
- ❑ Food handlers should have clean, short or netted hair and clean short finger nails, regular bathing habits and clean cloth and wearing of closed shoes is mandatory (no sandal or slippers).
- ❑ Kitchen staff should wash their hands, properly scrubbing with soap and water, prior to handling of food, after handling uncooked food and using the toilet.
- ❑ Kitchen staff should keep their nails and hair short.
- ❑ Kitchen staff should report on duty in clean proper clothes (uniform, cook's cap, & hair nets.)
- ❑ Kitchen and dining facilities whether in tents or mobile units should have the same requirements for cleanliness and sanitation.

### **(Hygiene on Living Quarter)**

- ❑ Floors should be kept clean and washed with disinfection at least once a day.
- ❑ Spills should be cleaned immediately.
- ❑ Bed rooms should be tidied - kept neat and clean.
- ❑ Bed sheets and pillow covers should be systematically changed whenever the person occupying the bed is replaced, or at least one a week.
- ❑ Paper towels should be installed in the vicinity of the wash basins and liquid soap should be provided for washing of hands at communal places to avoid multiple contacts and spread of vectors.



## **GUIDELINE 24**

### **INSTRUCTIONS FOR USE OF NITROGEN**

Nitrogen has many uses on process facilities, including the inert-gas blanketing of tanks, equipment purging, and as a carrier for catalyst regeneration. Oxygen contamination of the nitrogen system could render it ineffective as an inert-purge medium, thus creating flammable mixtures. The availability of nitrogen in large volumes in many facilities allows for it to be used as an emergency source of instrument air. But this strategy can have serious consequences. Instrument air systems often vent or leak into confined areas — the presence of nitrogen could create a serious breathing hazard. The following guidelines be considered when using nitrogen to back up the instrument air supply:

- ☠ Do not allow permanent connections between the nitrogen system and either the plant or instrument air systems.
- ☠ Utility nitrogen stations should be clearly marked and have special connectors and hoses which are not common to any other system. Universal air hose connections (crow's foot) should not be used in nitrogen service.
- ☠ Locations where backup nitrogen is being used should be monitored and alarmed for low oxygen concentration; signs and barriers should be installed.
- ☠ Once the problem with the instrument air system has been resolved, the nitrogen to instrument air cross connection must be removed.



## GUIDELINE 27 HEAT STRESS

Any employee experiencing symptoms of any of the following heat-related illness shall be allowed to fully recover in an appropriate recovery area before returning to work. Victims of heat exhaustion or heat stroke shall be immediately evacuated to the nearest medical facility for treatment.

**Heat Cramps** (an early warning sign for heat exhaustion).

*Treatment includes:* Stop all activity; rest in a cool, shaded area; loosen clothing; drink water; and if symptoms persist, seek medical aid.

**Heat Exhaustion** (weakness; dizziness; sweating; rapid pulse; pale or flushed skin)

*Treatment includes:* Move the victim to a cool place; call for medical help; loosen clothes; apply cool compresses; shower with cool water; and drink water or drinks that have electrolytes.

**Heat Stroke** (lack of sweating; high body temperature; chills; strong and rapid pulse; confusion; weakness; nausea; and loss of consciousness).

*Treatment includes:* Treat as a medical emergency and call for a doctor immediately; move to a cool, shaded area; cool the body with water; and have the victim lie flat with feet elevated.

### Location Management

- ☠ When the potential for heat-related illness exists, monitor environmental conditions (i.e., air temperature, humidity) and communicate the current heat stress danger category and necessary control measures to personnel.
- ☠ Develop a work plan to avoid heat-related illness during periods of high heat stress potential. This plan may include:
  - ▣ Scheduling work during the cooler times of the day and work/rest rotations.



- Providing measures (e.g., shading and ventilation) when work in direct sunlight is required.
  - Monitoring employees for symptoms of heat related illness.
  - Communicating to workers the locations of designated break/recovery areas and emergency procedures.
  - Adjusting work/execution plans (e.g., use mechanical/ powered equipment to replace manual labor) as practical.
- ☠ Do not let schedule or productivity demands supersede heat stress awareness or controls.
  - ☠ Conduct periodic (e.g., weekly) safety meetings/talks and distribute educational information on heat stress hazards and precautions.
  - ☠ Provide drinking water stations and designated shaded and cool areas for periodic "cool down" breaks for workers.
  - ☠ Periodically determine the actual heat index at the work site using calibrated weather monitoring equipment when the potential for heat related illness exists.
  - ☠ Communicate the current heat stress danger category and corresponding control measures to employees as conditions change.

### **Employees**

- ☠ Follow instructions for controlling heat stress, including taking periodic "cool down" breaks and drinking enough water.
- ☠ Wear appropriate clothing (e.g., light colored, lightweight, breathable, loose clothing is best).
- ☠ Know and be alert for signs/symptoms of heat-related illnesses.
- ☠ Take appropriate action upon developing symptoms of heat cramps, heat exhaustion, or heat stroke.



### **Control and Prevention of Heat Stress**

During periods of high heat stress potential at the work site, implement measures as applicable to control heat stress. As with any hazard, feasible engineering controls are the primary control measure, followed by administrative (work practice) controls and personal protective equipment controls.

#### **Engineering controls include:**

- ☠ Shaded break/rest areas – at a distance not greater than 100 m (330 ft) from personnel working in direct sunlight.
- ☠ Local ventilation – fans or portable air movers may be used when temperature is less than 37 °C (99 °F).
- ☠ Portable air cooling systems – for cooling confined spaces and similar enclosed work areas.

#### **Administrative controls include:**

- ☠ Scheduling – work during cooler times of the day.
- ☠ Acclimatization – expose new employees to hot environment for progressively longer periods.
- ☠ Water replacement (hydration) – supplies of drinking water located within 100 m (330 ft) walking distance of each worker.
- ☠ Work/rest rotations – rest periods based on actual heat index.
- ☠ Personal monitoring – personnel observe each other for signs of heat related illness.

#### **Personal protective equipment controls include:**

- ☠ Ice cooling garments – ice vests, neck wraps, etc.
- ☠ Clothing – light colored, lightweight, breathable clothing; work plans adjusted when personnel are required to wear flame resistant clothing (FRC).
- ☠ Wetted clothing/towels – water supplies separate from drinking water to cool the body.



## **GUIDELINE 28**

### **RADIATION SAFETY**

#### **Working with Ionizing Radiation Sources**

- ☠ Only perform work involving ionizing radiation if in possession of a valid Radiation Practice License.
- ☠ Perform work under the control of a licensed Officer approved by the Regulator.
- ☠ Perform activities involving radioactive sources with approved work permits and within controlled areas where barricades and warning signs are installed.
- ☠ Complete training in the safe use and handling of ionizing radiation sources.
- ☠ Use PPE and personal monitoring equipment while using/handling ionizing radiation equipment.
- ☠ Periodically calibrate radiation monitoring and survey equipment as per requirements.
- ☠ Dispose of radioactive waste as per regulations and standards.
- ☠ Survey radiation sources before and after their use or movement. Conduct annual surveys on ionizing radiation equipment and sources.
- ☠ Provide security measures to prevent the loss or theft of radiation sources from shielded storage rooms/facilities.
- ☠ Maintain requirements regarding shielding, penetrations, monitoring, safety interlocks, warning signs, etc., for all rooms/facilities housing radiation emitting equipment.
- ☠ Display warning signs (in indigenous language as well) along with pictorial illustration.
- ☠ Limit access to authorized personnel only when operating radiation equipment or during source exposure in rooms/facilities.
- ☠ Immediately stop all radiographic work if unauthorized personnel enter a controlled area.



### **Industrial Radiography (Nondestructive Testing [NDT])**

- ☠ Obtain approval prior to using any industrial radiography techniques not covered by existing requirements.
- ☠ Use engineering controls and PPE to ensure that no individual is exposed to radiation in excess of the prescribed dose limits established by Regulator.
- ☠ Provide appropriate lighting to the work area when radiographic work is performed at night. Flashlights or other hand-held operated lights are not considered sufficient.
- ☠ Ensure all personnel performing radiography nondestructive testing (NDT) activities and radiographic film interpretation (RTFI) are certified as per requirements.
- ☠ Use approved radiation dosimeters and monitoring devices when performing NDT activities.

### **Radiation Source Transport/Storage**

- ☠ Do not transport radiation sources in vehicles at speeds exceeding 90 km/h (55 mph).
- ☠ Ensure vehicles transporting radiation sources have the proper equipment as per requirements.
- ☠ Construct a temporary radioactive source storage facility when sources are used on a daily basis at a job site to minimize transportation risks. Obtain a valid Temporary Radioactive Source Storage Permit for temporary facilities.
- ☠ Maintain a source utilization and tracking log for all on-site storage facilities.



## GUIDELINE 29

### ABRASIVE BLASTING AND COATING

#### Abrasive Blasting Operations

- ☠ In restricted areas, abrasive blasting is considered hot work (requirement is Hot Work Permit).
- ☠ Only qualified and certified individuals shall operate abrasive blasting and coating equipment.
- ☠ Wear a high-efficiency dust filter respirator approved by NIOSH/MSHA when handling abrasive blasting media (i.e., grit).
- ☠ Wear approved hearing protection in areas near abrasive blasting operations where noise levels exceed 85 decibels (dBA).
- ☠ Wear an air-supplied hood (type "CE" supplied-air respirator) approved by NIOSH/MSHA and additional personal protective equipment (PPE), including coveralls, and leather or neoprene gloves and apron when performing abrasive blasting operations.
- ☠ Use only approved abrasive blasting materials. Do not use silica sand or combustible abrasives capable of forming explosive mixtures with air as abrasive blasting materials.
- ☠ Perform mechanical integrity testing (i.e., wall thickness measurement) on any in-service, pressure containing equipment that will undergo abrasive blasting.
- ☠ Do not perform abrasive blasting on tanks/vessels that are receiving or discharging product.
- ☠ Never point an abrasive blasting nozzle at any person or part of your body.
- ☠ Place barricades and warning signs around work areas where abrasive blasting is taking place.

#### Abrasive Blasting Equipment

- ☠ Inspect, test, use, and maintain air compressors supplying breathing air as per OEM's requirements.
- ☠ Include a NIOSH/MSHA (or equivalent organization) approved particulate filter and water/oil traps in the



breathing air delivery system of abrasive blasting equipment.

- ☠ Oil lubricating air compressors that supply breathing air require continuous carbon monoxide (CO) monitoring with an audible alarm.
- ☠ Replace breathing air filters as recommended by the manufacturer, but not less than every three months. Check and drain water/oil traps daily.
- ☠ Use Compressed Gas Association (CGA) Grade 'D' supplied air for hoods or respirators and ensure the delivery system meets the manufacturer's specifications.
- ☠ Test air compressors supplying breathing air as per OEM requirements using an approved third party testing facility to ensure that the air quality supplied by the compressor meets CGA Grade 'D' air quality requirements.
- ☠ Electrically bond the nozzle, hose, blasting equipment (e.g., blast pot), and the material/equipment being cleaned to dissipate static electric charge buildup.
- ☠ Electrically ground the blast pot and material/equipment being cleaned to prevent the buildup of static electricity.
- ☠ Install a safety pin/wire and whip checks to prevent disengagement of all twist lock fittings.
- ☠ Use a constant pressure handle (deadman's switch) that will automatically shut off when pressure is released.



### **GUIDELINE 30**

#### **INSTRUCTIONS FOR ANNUAL TURN AROUND (ATA) OF PROCESSING PLANTS**

In order to execute Annual Turn Around (ATA) safely, following safety instructions must followed before hand:-

- ❑ Updated P&IDs, PFDs, etc. shall be available on site & ER Post.
- ❑ All Producing Wells shall be closed, locked out and tagged out.
- ❑ Complete system shall be depressurized.
- ❑ All gas lines shall be purged with an inert gas (like Nitrogen) and made free from hydrocarbon.
- ❑ All crude oil lines shall also be purged with an inert gas (like Nitrogen) or flushed with clean water.
- ❑ Stock level of oil shall be minimized up to dead level, where possible
- ❑ All oil storage tanks shall be isolated from the system and their in-out valves closed/ locked out/ tagged out.
- ❑ Stock level of LPG shall also be minimized up to dead level.
- ❑ All LPG storage bullets shall also be isolated from the system and their in-out valves closed/ locked out/ tagged out.
- ❑ Oil, sludge and oily water shall be removed from the TPI/ API/ CPI areas to make these free from inflammable material.
- ❑ Bins/ containers placed at the sample points shall be removed away from the plant's hazardous zones.
- ❑ Every oil spill and oily soil shall be removed/ controlled in the plant premises.
- ❑ Housekeeping of plant area shall be maintained. Inflammable material like cotton rags, grass, bushes, paper etc. shall be removed from the plant premises.
- ❑ Hot oil shall be drained and system shall be cooled down.



- ❑ Propane circuit shall be depressurized and purged with an inert gas (like Nitrogen) if welding cutting is required at this circuit.
- ❑ Propane accumulator shall be isolated from the circuit and its in-out valves closed/ locked out/ tagged out if welding cutting is required there.
- ❑ In-out valves of major equipment (like Vessels, Columns, K.O drums, Separators etc.) shall be closed and isolated from the system.
- ❑ All equipment/ units shall be turned off other than the exceptional ones required for power generation. Emergency power generator shall be readily available/ on standby.
- ❑ All electric motor breakers shall be turned off/ tagged out/ locked out or racked out.
- ❑ All slippery areas and oily area shall be cleaned and dried while tripping hazards shall be pre-checked and cleared.
- ❑ Proper scaffolding arrangements shall be predetermined for work at height.
- ❑ All lifting equipment like crane, fork lifter, sling, web sling, shackle, eye bolt etc. shall be inspected prior to use.
- ❑ Trained, qualified and certified workforce shall be hired for the execution of ATA activities.
- ❑ System shall be in place to achieve compliance of PTW and JHAs.
- ❑ Fire suppression systems shall be in perfectly ready mode and area operators shall be vigilant.
- ❑ Emergency response post, fire tender and ambulance shall be ready to combat any emergencies.
- ❑ Each ATA job/ activity shall be carried out under the supervision of an authorized person to ensure the quality of work within the prescribed timeframe.



### **GUIDELINE 31**

#### **INSTRUCTIONS FOR PRODUCTION, TESTING AND WORKOVER**

- ☠ Location Management shall adhere to well testing and workover programs which should be designed to mitigate potential impact on environmental resources and the community.
- ☠ Location Management shall identify and protect aquifers, which are an underground source of drinking water, or other aquifers, which may be used by the community for drinking or agricultural use.
- ☠ Location Management shall not allow any formation fluid (oil, condensate or water) to flow uncontrolled. If during an emergency, however, the formation fluid is released, the flow should be directed to a flare pit, emergency pit or flare stack at a site and safe distance.
- ☠ Location Management shall not release produced water into the environment (through percolation, land application, and discharge to surface water) if such release may adversely affect soils, surface water, groundwater, organisms or wildlife.
- ☠ In wetlands or coastal areas, extra precautions shall be taken to ensure that unburned hydrocarbons are not released into the water. If the test site is in the vicinity of a river, unburned hydrocarbons should not be allowed to flow into the river.
- ☠ Evaporation ponds permitted for storage or disposal of produced water, with the exception of emergency saltwater pits are required to be lined - except where the Management has conclusively demonstrated through an EIA or IEE that the pit cannot cause pollution of surrounding agricultural land nor pollution of surface or subsurface water.
- ☠ Evaporation ponds used for disposal of production water shall be constructed to prevent vertical and horizontal seepage.



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- ☠ Evaporation ponds shall be properly fenced to avoid any incident or injury.
- ☠ Location Management shall ensure that possible presence of H<sub>2</sub>S in produced fluids is properly noted.
- ☠ Location Management shall take additional measures to ensure that minimal or no hazardous materials are used during the well completion and that procedures are in place to prevent spillage of completion fluids (often acids) during the completion operation.
- ☠ Location Management shall implement appropriate zone isolation procedures. Packers, for instance, should be properly set to seal off production horizons from other zones to preclude vertical contamination of other zones including groundwater aquifers.
- ☠ Location Management shall segregate hazardous wastes from non-hazardous wastes. Hazardous wastes must be stored, managed and disposed in a safe manner which will not cause harm to humans, animals, or environmental resources.



## GUIDELINE 32

### INSTRUCTIONS FOR SITE RESTORATION

- ☠ Location Management must restore disturbed areas to approximately pre-existing conditions, subject to agreement with the landowner, DGPC and concerned EPA.
- ☠ All pits/ ponds (especially that contain hazardous wastewater) must be kept adequately fenced to restrict access by unauthorized persons until restoration process is started.
- ☠ Within 12 months after drilling, unlined drilling pits should be closed by trench burial method.
- ☠ Within 6 months after drilling, lined pits containing hazardous materials should be closed through encapsulation with a geomembrane cap. Pits not containing hazardous wastes may be closed by mixing and filling.
- ☠ Other types of pits (such as flare and workover pits) should be closed within 30 days after use.
- ☠ Laboratory results be benchmarked against the requirements; QC Checklist be filled accordingly.

**RACI Chart**

Task/ Deliverable	C&ESS	Drilling	Production/ P&P	HSEQ	CSR
Initiation/ Custodianship	I	R&A	R&A	C	I
Budget Allocation/ A.F.E.	R&A	R&A	R&A	I	I
Assessment/ Categorization	I	I	I	R&A	I
T.O.R./ I.T.B.	R&A	R&A	R&A	C	I
Technical Evaluation	R&A	R&A	R&A	C	I
Job Execution/ Coordination	R&A	R&A	R&A	C	I
QC/Lab. Analysis/Progress Reporting	R&A	R&A	R&A	C	I
Conflict Resolution	R&A	I	I	I	R&A
Invoice Verification	R&A	R&A	R&A		
N.O.C. from Landowner(s)	I	I	I	I	R&A
N.O.C. from Regulatory Body(ies)	I	R&A	R&A	C	I

In case of Nonhazardous Pits

In case of Hazardous Pits

In case of Both Pits



**Note:**

**R = Responsible:** Doing The Decision; This Departmental role is responsible for getting the decision and starting the task or deliverable.

**A = Accountable:** Owning The Task; This Departmental role is responsible to ensure execution and completion of the task or deliverable.

**C = Consulted:** Assisting, as subject matter expert; This Departmental role is responsible to provide information useful to completing the task or deliverable.

**I = Informed:** Keeping Aware; This Departmental role is just kept up-to-date on the task or deliverable (as it can be affected by the outcome).



### GUIDELINE 33

#### INSTRUCTIONS FOR OPEN AUCTION

While opting for an Open Auction of critical items, Press Tender would be advertised as per company policy based on the a) the justification explicitly showing ineffectuality of the items and b) proper value determination of the items by a Committee. This would be mandatory for the following category of items:

- ☠ **Operational:** Worn assemblies and spares of engines, pumps, generators, pipes of different sizes, welding plants, rig mast structures, production tubing and other valued electrical and mechanical assets.
- ☠ **Support:** Unserviceable support vehicles including Ambulance, Dozers, Trailers, Bowzers, Fork Lifters, and Cranes.
- ☠ **Product related:** Used Chemicals/ Oil and Sludge collected from the separators/ pipelines/ tanks.



**GUIDELINE 34**  
**OFFICE SAFETY**

Following safety precautions are recommended when working in office areas. Conduct quarterly inspections of offices as per the organization's facility inspection schedule to ensure a safe working environment.

**Workstations**

A workstation consists of the equipment and furniture associated with a typical office area/control room (i.e., desk, chair, and computer components).

- ☠ Maintain a neutral posture and sit upright when at your workstation. Sit as far back in your chair as possible and make sure the chair is adjusted to provide adequate support to your back.
- ☠ Keep elbows in and vertically under your shoulders at a 90 degree angle. Ensure your forearms are level (horizontal) when using the keyboard.
- ☠ Keep your wrists in a straight neutral position. Use wrist supports made of a padded material.
- ☠ Avoid extended reaches and ensure the chair height allows your feet to rest flat on the floor or on a footrest.
- ☠ Place the computer's monitor 50-70 cm (20-28 inches, about one arm distance) away from your face.
- ☠ Position the monitor at eye level or slightly lower, so the center of the screen is approximately 15-25 degrees below your line of vision.
- ☠ Use a headset or speakerphone if you use the telephone for extended periods of time.
- ☠ Take regular breaks when working at a computer for long periods of time.

**Office Areas**

- ☠ Arrange office furnishings in a manner that provides unobstructed areas for movement.
- ☠ Prevent slips, trips, and falls in the office area by clearly marking any difference in floor level, securing



throw rugs and mats to prevent slipping hazards, and cleaning up fluid spills.

- ☠ Never climb on desks, chairs, cabinets, shelves, or boxes. Use an approved ladder.
- ☠ Do not use a ladder in front of a door unless the door is locked and barricaded, or a standby man is positioned on the other side of the door.
- ☠ Take care when sitting in a chair with rollers. Make sure it does not roll out from under you when you sit down.
- ☠ Ensure that all chair feet/castors remain firmly on the ground when seated. Repair or report any chair damage that could be hazardous.
- ☠ Ensure that electrical cords and phone cords do not cross walkways or otherwise pose a tripping hazard. If you cannot move a cord, have a new outlet installed or secure the cord to the floor with cord covering strips. Do not tape cords down or run them underneath carpet.
- ☠ Do not roll chairs over electrical cords.
- ☠ When using file cabinets, open only one drawer at a time to keep the cabinet from toppling. Close drawers when they are not in use.
- ☠ Do not place heavy objects on top of cabinets. Be aware that anything on top of a cabinet may fall off if a drawer is suddenly opened.
- ☠ Do not store hazardous materials or chemicals in the office area.
- ☠ Do not place items on shelves within 45 cm (18 inches) of the ceiling. This space will allow ceiling sprinklers (if present) to function properly in a fire.
- ☠ Close hand-operated paper cutters after each use and activate the guard.
- ☠ Take care when working with copy machines. If you have to open the machine for maintenance, repair, or troubleshooting, remember that some parts may be hot.



- ☠ Unplug paper shredders before conducting maintenance, repair, or troubleshooting.
- ☠ Unplug defective machines and have them repaired immediately. Do not use any machine that smokes, sparks, or appears defective in any way.
- ☠ Ensure that glass doors have some type of marking to keep people from walking through them.

### **Energy Savings in Office Areas**

- ☠ Educate and encourage employees to be energy-conscious. Promote good energy practices so that workforce should work with management to facilitate energy savings ideas and strategies - optimizing energy use and costs minimizes overhead and operation costs. Few examples include:
  - Turn off computers, monitors, printers and copiers when not in use.
  - Ensure built-in power management system for office equipment is active to save energy during periods of inactivity.
  - Ensure screensaver is compatible with the computer's power management features and allows system to enter power saver mode.
  - Using a laptop computer instead of a desktop system can save 80-90% in electrical cost.
  - Replace lights with compact LED lights.
  - Install occupancy sensors to automatically turn off lights.
  - Regularly change HVAC filters, tune-up HVAC units and install programmable thermostats. Use outside air and water side-economizers for free cooling when outside air temperatures and conditions permit (during spring and fall).
  - When purchasing office equipment, look for ENERGY STAR so that energy saving of 50% or more could be achieved.



## GUIDELINE 35

### FIRE SAFETY

#### [LIFESAVING GOLDEN RULE]

#### **Fire Protection Response Procedures in Case of a Fire**

- ☠ Call for help/sound an alarm.
- ☠ Operate fire extinguishers and equipment only if you are trained in their use.
- ☠ Ensure that all personnel are evacuated as per location's emergency response plan.
- ☠ Isolate all fuel sources, sewers and threatened facilities and close doors; do not attempt to extinguish gas fires for which you are not familiar.
- ☠ Do not fight fires beyond the incipient (initial) stage or beyond your level of training.
- ☠ Locate the firefighting equipment and approach the fire from the upwind side.
- ☠ Never operate an extinguisher in such a manner that any part of your body is located directly above the fill cap.
- ☠ Check/ test the extinguisher before attempting to extinguish the fire.
- ☠ After the fire is extinguished, stand by to make sure the fire does not start again (reignites).

#### **Fire Prevention Guidelines**

- ☠ Post conspicuous signs/ labels in all hazardous areas and on flammable and combustible materials.
- ☠ Check electrical equipment regularly for defects.
- ☠ Report and repair all hydrocarbon liquid spills or gas leaks/ oozing immediately.
- ☠ Do not smoke or use mobile phones or other electrical devices (not classified as intrinsically safe) while filling bowser and refueling equipment.
- ☠ Segregate welding equipment, heating appliances, and other open flames or hot surfaces from flammable and combustible materials.
- ☠ An inert purge gas be applied into a closed system (e.g. a container/ process vessel/ blinded pipeline portion) to prevent the formation of an ignitable atmosphere before welding or other hot job.



- ☠ Minimize the storage of Class A fire materials (e.g., paper and wood) and chemical drums/ containers in the operations/ process and electrical areas.
- ☠ Obtain authorization from Location Management for any open fires and/or open burning of materials.
- ☠ When transferring hydrocarbons (flammable liquids) from a line/ vessel to another container or filling/ decanting of bowser, make sure the source container/ vessel/ tank and the receiving container/ vessel/ tank are electrically bonded to prevent ignition due to static electricity.
- ☠ Always fill portable gasoline containers on the ground and never place gasoline containers inside vehicle passenger compartments.
- ☠ Immediately remove ignition sources (e.g., shut down engines) if there is a hydrocarbon release.
- ☠ Use noncombustible or flameproof welding screens around/under cutting, welding, or burning operations that are next to (or above) hydrocarbon operations or flammable/combustible materials.
- ☠ Inspect and test all fire detection (smoke detectors, alarms) and fire protection (fire extinguishers, fire monitors) equipment as per monitoring plans.
- ☠ Do not use gasoline as a cleaning agent.
- ☠ Do not use plastic containers for collecting hydrocarbon samples.



**ANNEXURE A**

**MINIMUM APPROACH DISTANCE**

The closest distances an employee is permitted to approach an environmentally sensitive area or an energized or a grounded object in terms of safety are mentioned below:

***From Environmental Perspective***

<b>Activity</b>	<b>Recommended Safe Distance</b>
New access tracks	50m from all surface water sources; 100m from cultural sites (including graveyard and shrines); 100m from villages
Campsite	500m from communities, cultural sites (including graveyard and shrines) and surface water bodies
Soak pits (sanitary pits and biodegradable garbage pits)	300m from all surface/ground water sources
Burn pit	500m from communities
Installation of new tube wells	500m from existing wells
Up holes	30m from water wells; 50m from houses; 100m from canals; 50m from reptiles' hole; 50m from birds' nests
Exploration & production facilities should be installed	300m from protected areas; 200m from culturally sensitive sites
Drawing ground water from the wells or springs	At least 50m from sources of contamination.



**From Safety Perspective**

<b>Activity</b>	<b>Recommended Safe Distance</b>	
Distance from which moving equipment (e.g. crane boom) must not be operated within an organized power line	Power line voltage – nominal kV, alternating current Up to 50 More than 50 to 200 More than 200 to 350 More than 350 to 500 Erect an elevated warning line, barricade, or line of signs, in view of the operator.	Distance (feet) 10 15 20 25
Minimum horizontal working distances to overhead power lines	Minimum 10m at both sides	
Personnel to be kept clear of civil works machinery whilst it is in operation	At minimum distance of 5m	
Distance between crane boom and Riggers	Barricaded around swing radius. (Keep visual contact with helpers at all time + Install audible signals on cranes)	
Between Product Storage Tanks (Crude Oil/ Condensate/ Gasoline, LNG and LPG )	25m, 35m and 45m respectively (in wind speed of 4 m/s)	
Explosives (for shot holes) should not be used down hole within;	100m of any building, pipeline, wellhead, and water bore or pastoral fixture	
Explosives (magazine) to be stored	More than 20 feet of a flammable material, stove, furnace, open fire or flame	
Oxygen and Fuel cylinders to be stored with each other or be separated by a known combustible barrier (30 minute fire rated)	6.1m (20 feet) apart or by a 1.5m (5 feet) high	



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Vibrators and other surface energy sources to be operated	More than 20m of any gas or oil pipeline or building
Up holes used for a down hole geophone and weight drop as an energy source are drilled	No closer than 20m from any pipeline or well
Work permit required for Excavation	If excavation required below 4 feet depth
Work permit required for Work At Height	6 feet height or above
Safety harness should be worn for work	6 feet height or above (if guard rails not available)
Use of Scaffold	For working at 1.5m height or above
Work permit required for Hot Work Operations	On or near operational process areas or within 50 feet of flammable/ combustible materials, fumes, battery storage or charging areas (Fire hazard must be removed, covered with a fire-resistant/ insulating material or otherwise protected.) Within 100 feet of explosives or powder magazine or explosive storage area
Distance between ladder and wall	1:4 rule or 75 degree angle from wall (structure)
Fire extinguishers/ hydrants must be present	25 to 75 feet from flammable materials/ substances
Distance between two workers in a workplace/ workshop	10 feet
Minimum width required for a walk way	27 inches or three planks (The height of top rail from platform= 42 inches)
First aid box in a workplace	6 to 8 feet from the nearest worker



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Distance between fire water pump and fire water reservoir in a workplace	20 to 30m
Distance among vehicles and workers in a workplace	Workplace is to provide separate pedestrian and vehicle traffic routes
Flow line	Laid to a distance of 90m cross-wind or down-wind from the well
Bleed-off line to be directed to a flare pit	At least 90m from the drilling well
Distance of installation or operation of flame type equipment	Not to be less than 90m from a well-head tank
Distance of heater or treater	Not to be less than 90m from wellhead
Perforating operations shall not be performed while any transmission set (radio/telephone) is in operation	Within 90m of the well and or perforation truck
All open fires shall be extinguished & no one shall be allowed to smoke	90m from the well
All energized electric installations & wiring should be flameproof & properly insulated	90m around the well
Flare pit or stack	Not less than 90m horizontally cross-wind or down-wind from the wellhead
Displaying of warning notices in hazardous areas	90m radius
Provision of hydrants with fog nozzles & adequate lengths of hose pipes	At a distance of not less than 90m from each vulnerable point
Air or Gas drilling: Installation of one	15m from well floor



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remote control valve in air or gas supply line	
Electrical equipment/ fittings installed or operated shall be of flame proof or intrinsically safe construction	Within a radius of 15 meters of Zone 0 (Class 1 Div 1)
Maintenance apparatus and all sources of ignition shall be removed while noxious and flammable gas is present (detected)	Within 25m
Covering all sewers in hydrocarbon facilities from the hot work area (i.e. gas welding, cutting, brazing, or electric arc welding)	within 23m (75 ft)
Items not to be placed on shelves of the ceiling where fire sprinklers are installed	within 45cm (18 inches)
Ensure welding cables remain continuous of the electrode holder during electric arc welding operations	within 3m (10 ft)

Note: The above list is not exhaustive/ final.



## ANNEXURE B

### STANDARDIZED COLOR CODING

#### PIPELINE IDENTIFICATION BAND SYSTEM AND LABELING SYSTEM

- ▣ This shall be complied where the following apply:
  - ▣ Pipe contents are hazardous, or could generate hazardous conditions.
  - ▣ The pipe serves a safety purpose, as part of hazard prevention or emergency response.
  - ▣ Flow must be redirected, shut off, or adjusted to allow for maintenance or other expected work.
  - ▣ The pipe or its contents could affect the procedures followed during an emergency.
- ▣ Standardization shall be accomplished in all facilities as follows:-

#### The Band System:

- ▣ All process equipment and pipe work apart from Fire Fighting System shall be finished in either Light Grey or White along its entire length as the decorative color (the base color or ground color).
- ▣ The fluid contents of all flow-lines shall be identified by tapes which are appropriately colored; the nature of the pipe contents shall be identified by means of a Color Code Identification Band System (CCIB).
- ▣ Ground colors shall be provided on the full pipe section; whereas color band width to be 25 mm up to 25 mm.
- ▣ When double color bands exist on the pipeline, then a proportional width of 4:1 to the next color band is provided.
- ▣ These color bands are provided at suitable locations such as:
  - ▣ At the beginning and termination points
  - ▣ At 25m intervals (up to 50m in case of headers)
  - ▣ At change in flow direction points and flow diversion locations.



- At locations where the pipe enters the plant or exits from the boundary.
- Color Code Identification Band System (CCIB) is given below:

<u>Type of Fluid</u>	<u>Identification Band Color</u>
<b>Water (Raw; Potable; Storm; Treated; Produced)</b>	<b>Green</b>
<b>Steam</b>	<b>Crimson Red</b>
<b>Firefighting</b>	<b>Signal Red</b>
<b>Oils (Combustible Liquids)</b>	<b>Dark Brown</b>
<b>Chemicals</b>	<b>Orange</b>
<b>Gases (Gaseous or Liquefied)</b>	<b>Yellow</b>
<b>Acids &amp; Alkalis</b>	<b>Purple</b>
<b>Air (Utility; Service, Instrument)</b>	<b>Light Blue</b>
<b>Process Effluents (Drain; Vent; Flare)</b>	<b>Black</b>

- The additional use of Colored Labels giving the full or abbreviated product description, temperature, pressure, and other details necessary to identify any potential hazard, together with the appropriate visual aids and hazard pictorial symbols, shall be applied where deemed appropriate.
- In addition to being Color Coded, each process sub-system, pipeline and valve shall be individually identified by marking them in accordance with the Equipment Identification and Tag Numbering System.
- The line number and the flow direction shall be stenciled on each pipe section and pipeline together with the CCIB, to provide the pipe work with unique traceability.

### **The Labeling System**

- The labels shall be placed on pipes:
  - Adjacent to all valves and flanges
  - Adjacent to all changes in pipe direction
  - On both sides of wall, floor or ceiling penetrations
  - Every 50 feet on straight runs of pipe (or every 25 feet in congested areas)
- A color code based on the type of hazard posed by a pipe's contents. The labeling color code shall be:



- ▣ Water: **White** text on green text box
- ▣ Steam: **White** text on crimson text box
- ▣ Fire quenching fluids: **White** text on red text box
- ▣ Combustible fluids: **White** text on brown text box
- ▣ Toxic and corrosive fluids: **Black** text on orange text box
- ▣ Flammable fluids: **Black** text on yellow text box
- ▣ Acidic fluids: **White** text on purple text box
- ▣ Compressed air: **White** text on blue text box
- ▣ Process effluents: **White** text on black text box

### COVERALL AND HARD HAT/ SAFETY HELMET

<u>Color of Coverall</u>	<u>Recommended Categories for Use</u>
Grayish Blue	OGDCL Officers
Red	Firefighting Crew
Dark Blue	OGDCL staff members; laborers (other than Officers)
Not specified	Contractors shall comply as per their own company's policy

Note:- All Coverall Uniforms shall be Fire Retardant.

<u>Color of Safety Helmet</u>	<u>Recommended Categories for Use (for working in PPE required areas)</u>
White	OGDCL Officers (Location ICs, Sectional ICs, Engineers, etc.)
Yellow	OGDCL staff members; laborers (other than Officers)
Green	HSE Reps. (Engineers/ Officers)
Red	Firefighting Crew
Blue	Employees of Contractors / Sub-contractors working at site
Brown	Welders or workers taking up high heat or high voltage jobs
Grey	All types of Guests/ Visitors

Note:- In addition to color coding, the selection of the helmets shall be made with the intention a) to reduce the force of impact of falling objects, b) to reduce the force of impact resulting from a blow which may be received off center or to the top of the head and c) to reduce the danger of contact with exposed high-voltage electrical conductors.



## MAINTENANCE OF LIFTING GEARS

- Lifting equipment comprises lifting appliances (equipment performing the lifting), lifting accessories (devices that connect the load to the lifting appliance 'GEARS') and lifted equipment (e.g. containers, baskets, etc). All shall be marked with the Working Load Limit (WLL) and Safe Working Load (SWL).
- An equipment register, including maintenance records and evidence of certification to be available with Operator.
- Following are some of the items used as gears in lifting activities;

Wire rope slings	Chains and chain slings	Man-made fibre slings	Shackles
Beam- and Plate clamps	Eye bolts & swivel rings	Hoist rings	Turnbuckles
Wedge sockets	Lifting harnesses	Drill pipe elevators	Casing elevators
Bail arms	Spreader beams	Hooks	Load cells
Pad eyes and bolts	Rigging screw	Pallet hook	

- Color coding shall be an add-on for visual inspection and confirm the following aspects;
  - a) an inspection has been carried out;
  - b) whether or not inspection is current; and
  - c) to determine the inspection results by being able to link back from the physical evidence to the records.
  - d) Location ICs shall ensure that all portable, circulating & fixed lifting equipment and accessories for lifting, after thorough examination, are color coded to give visual indication of their certification and fitness status:-



Color Code	Period
Green	Lifting accessories, which have been inspected and found fit for purpose should be color-coded for a maximum six months.
Yellow	Lifting accessories, which inspection is due after lapse of 06 months shall be stored separately and clearly marked/ color coded and returned for re-inspection, certification and color coding.
Red	Crimson red color to denote equipment "unsuitable for the job" shall be applied. The crimson red color code shall also be used for discarded or rejected lifting gears that need to be kept in material storage for non-prescribed period of time.

### ASSURED GROUNDING

- ▣ All cords and current carrying conductors used with the portable power tools shall be protected by either a Ground Fault Circuit Interrupter (GFCI) or an Assured Grounding Program.
- ▣ Following Assured Grounding Color Code Calendar shall be used (each new year):

January	February	March
April	May	June
July	August	September
October	November	December

Note:- The colors in the form of "taped bands" shall be pasted on the wire near the plug.



## LOCKOUT

- ▣ Lockout and Tagout (LOTO) devices shall be singularly identified; shall be the only device(s) used for controlling energy; and shall not be used for other purposes.
- ▣ Tags shall not be required if locks are otherwise “indelibly” marked so as to identify the person(s) to whom the lock belongs.
- ▣ For each Section/ Department, Locks shall be unique-color-coded to assist in identifying users.

*Note: The authorized person applying a lock shall keep the key for that lock in his possession until the lock is removed. No employee should be able to open a lock attached by someone else.*

## WASTE DRUMS/CONTAINERS/BINS

<u>Wastes Type</u>	<u>Bin Color</u>
Hazardous	<b>Red</b>
Food/ Paper/ Wood (Organic)	<b>Green</b>
Plastic	<b>Yellow</b>

## WORK PERMITS

<u>Permit</u>	<u>Background Colour</u>
Cold Work Permit	<b>Blue Colour</b>
Sour/Hot Work permit	<b>Red Colour</b>
Electrical Work Permit	<b>Green Colour</b>
Confined Space/Vessel Entry Work Permit	<b>Grey Colour</b>
Radiography Work Permit	<b>Yellow Colour</b>
Excavation & Civil Work Permit	<b>Brown Colour</b>
Working at Height Permit	<b>Pink Colour</b>
Vehicle Entry Permit	<b>Purple Colour</b>



## **COLOR CODING FOR HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)**

The four bars shall be color-coded, using the modern color bar symbols and the number ratings as follows:

- 0 = Insignificant hazard;
- 1 = Slight hazard;
- 2 = Moderate hazard;
- 3 = High hazard; &
- 4 = Extreme hazard

<u>Type of Hazard</u>	<u>HMIS Color Bar</u>
<b>Health</b>	<b>Blue</b>
<b>Flammability</b>	<b>Red</b>
<b>Physical Hazard</b>	<b>Orange</b>
<b>Personal Protection</b>	<b>White</b>



## ANNEXURE C

### HAZARDOUS AREA CLASSIFICATION

The classification of areas shall be made an essential design consideration: A thorough analysis shall be undertaken by the responsible designers, chemical or electrical engineers to a) acquire such equipment which is to not create sources of ignition capable of igniting these mixtures and b) determine the correct hazardous locations classification. Process areas at the design phase shall be divided into Zones or Divisions as mentioned below according to the likelihood of a potentially explosive atmosphere being present:

Zone Classification	Definition Of Zone Or Division	Division Classification
Zone 0 (gases)	An area in which an explosive mixture is <u>continuously present</u> or present for long periods <b>Typically 1000 hr/year</b>	<b>Class 1 Division 1 (gases)</b>
Zone 1 (gases)	An area in which an explosive mixture is <u>likely to occur in normal operation</u> <b>Typically 10-1000 hr/year</b>	<b>Class 1 Division 1 (gases)</b>
Zone 2 (gases)	An area in which an explosive mixture is not likely to occur in normal operation but in accidental events or <u>abnormal operation</u> of equipment <b>Typically 1-10 hr/year</b>	<b>Class 1 Division 2 (gases)</b>

Note: *Intrinsically Safe/ explosion proof equipment, apparatus and gadgets shall be used in Zone 0&1.*



**ANNEXURE D**

**EXPLOSION PROOF PROTECTION UNDER ATEX DIRECTIVE**

Ex Code	Description	Standard	Area	Use
<b>Flameproof</b>	<b>d</b> Equipment construction is such that it can withstand an internal explosion and provide relief of the external pressure via flamegap(s) such as the labyrinth created by threaded fittings or machined flanges. The escaping (hot) gases must sufficiently cool down along the escape path that by the time they reach the outside of the enclosure not to be a source of ignition of the outside, potentially ignitable surroundings.	IEC/EN 60079-1	Zone 1 if gas group & temp. class correct	Motors, lighting, junction boxes, electronics
<b>Increased Safety</b>	<b>e</b> Equipment is very robust and components are made to a high quality	IEC/EN 60079-7	Zone 2 or Zone 1	Motors, lighting, junction boxes



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Oil Filled	o	Equipment components are completely submerged in oil	IEC/EN 60079-6	Zone 2 or Zone 1	Switchgear
Sand/Powder/Quartz Filled	q	Equipment components are completely covered with a layer of Sand, powder or quartz	IEC/EN 60079-5	Zone 2 or Zone 1	Electronics, telephones, chokes
Encapsulated	m	Equipment components of the equipment are usually encased in a resin type material	IEC/EN 60079-18	Zone 1 (Ex mb) or Zone 0 (Ex ma)	Electronics (no heat)
Pressurised/purged	p	Equipment is pressurised to a positive pressure relative to the surrounding atmosphere with air or an inert gas, thus the surrounding ignitable atmosphere can not come in contact with energized parts of the apparatus. The overpressure is monitored, maintained and controlled.	IEC/EN 60079-2	Zone 1 (px or py), or zone 2 (pz)	Analysers, motors, control boxes, computers



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<b>Intrinsically safe</b>	<b>i</b>	<p>Any arcs or sparks in this equipment has insufficient energy (heat) to ignite a vapour</p> <p>Equipment can be installed in ANY housing provided to IP54.</p> <p>A 'Zener Barrier', opto-isolator or galvanic unit may be used to assist with certification.</p> <p>A special standard for instrumentation is IEC/EN 60079-27, describing requirements for Fieldbus Intrinsically Safe Concept (FISCO) (zone 0, 1 or 2)</p>	<p>IEC/EN 60079-25 IEC/EN 60079-11 IEC/EN60079-27</p>	<p>'a': Zone 0 &amp; 'b': Zone 1 'c': zone 2</p>	<p>Instrumentation, measurement, control</p>
<b>Non Incendive</b>	<b>n</b>	<p>Equipment is non-incendive or non-sparking.</p> <p>A special standard for instrumentation is IEC/EN 60079-27, describing requirements for Fieldbus Non-Incendive Concept (FNICO) (zone 2)</p>	<p>IEC/EN 60079-15 IEC/EN 60079-27</p>	<p>Zone 2</p>	<p>Motors, lighting, junction boxes, electronic equipment</p>



## ANNEXURE E

### TYPES OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Category A:** The Basic PPE shall include a) Coverall/ Dangri, b) Warm Jacket/ Leather Jacket, c) Safety Shoes, d) Safety Glasses, e) Hard Hat, f) Ear Muffs and g) Cotton Gloves.

**Category B:** The Specific PPE shall include a) Gloves (Leather, Chemical Resistant, and Latex), b) Face Shields (Welding Shields and Goggles), c) Flame Resistant Clothes, d) Long Safety Shoes, e) Gas Mask, f) Chemical Apron and f) Safety Harness.

**Category C:** The Emergency PPE shall include complete Turnout Gear / Fire Kit (Fire Suit), SCBA/30 min., Air-Purifying Respirator (APR), and Safety Vests / Clothing with Reflective Material designed for high nighttime visibility.



**ANNEXURE F**

**LOWER EXPLOSIVE OR FLAMMABLE LIMIT (LEL/LFL) AND  
UPPER EXPLOSIVE OR FLAMMABLE LIMIT (UEL/UFL) CHART**

Material	LEL (%/Vol)	UEL (%/Vol)	TLV/TWA (ppm)	IDLH (ppm)	Density (Air = 1.0)
Acetone	2.5	12.8	750	2,500	2.0
Acetylene	2.5	100.0	-A-	-A-	.9
Ammonia	15.0	28.0	25	300	0.6
Benzene	1.2	7.8	1.0	500	2.6
Butane	1.6	8.4	800	-U-	2.0
n-Butyl Acetate	1.7	7.6	150	1,700	4.0
Diborane	0.8	88.0	0.1	15	1.0
Ethane	3.0	12.5	-A-	-A-	1.0
Ethanol	3.3	19.0	1,000	-U-	1.6
Ethyl Acetate	2.0	11.5	400	2,000	3.0
Ethyl Ether	1.9	36.0	400	1,900	2.6
Ethylene Oxide	3.0	100.0	1	-C-	1.5
Gasoline (100 Octane)	1.4	7.6	300	-U-	3-4.0
Heptane	1.05	6.7	400	750	3.5
Hexane	1.1	7.5	50	1,100	3.0
Hydrogen	4.0	75.0	-A-	-A-	0.1
Isopropyl Alcohol	2.0	12.0	400	2,000	2.1
Methane	5.0	15.0	-A-	-A-	0.6
Methanol	6.0	36.0	200	6,000	1.1
Methyl Ethyl Ketone	1.4	11.4	200	3,000	2.5
Pentane	1.5	7.8	600	15,000	2.5
Propane	2.1	9.5	1,000	2,100	1.6
Propylene Oxide	2.3	36.0	20	400	2.0
Styrene	0.9	6.8	50	700	3.6
Toluene	1.1	7.1	50	500	3.1
Turpentine	0.8	?	100	800	4.7
Vinyl Acetate	2.6	13.4	10	-U-	3.0
Vinyl Chloride	3.6	33.0	1.0	-C-	2.2
Xylene	0.9	6.7	100	900	3.7

LEL	Lower Explosive Limit
UEL	Upper Explosive Limit
PPM	Parts Per Million
TLV/TWA	Threshold Limit Value/Time Weighted Average
IDLH	Immediately Dangerous to Life or Health
Density	< 1.0 = lighter than air > 1.0 = heavier than air
A	Asphyxiant
C	Carcinogen
U	Data Not Available



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Material	TLV/TWA (ppm)	IDLH	LEL (ppm)	LEL (%/Vol)	Density (Air=1)
Acetone	750	2,500	25,000	2.5	2.0
Ammonia	25	300	160,000	16.0	0.6
Benzene	1.0	-C-	12,000	1.2	2.6
Butane	800	-U-	16,000	1.6	2.0
n-Butyl Acetate	150	1,700	17,000	1.7	4.0
Carbon Dioxide	5,000	40,000	N/C	N/C	1.5
Carbon Monoxide	25	1,200	125,000	12.5	1.0
Chlorine	0.5	10	N/C	N/C	2.5
Ethylene Oxide	1	-C-	30,000	3.0	1.5
Ethyl Ether	400	19,000	19,000	1.9	2.6
Gasoline	300	-U-	14,000	1.4	3-4.0
Heptane	400	750	10,500	1.05	3.5
Hexane	50	1,100	11,000	1.0	3.0
Hydrogen Cyanide	10	50	56,000	5.6	0.9
Hydrogen Sulfide	10	100	40,000	4.0	1.2
Isopropyl Alcohol	400	2,000	20,000	2.0	2.1
Methyl Acetate	200	3,100	31,000	3.1	2.6
Methanol	200	6,000	60,000	6.0	1.1
Methyl Chloride	50	2,000	81,000	8.1	1.8
Methyl Ethyl Ketone	200	3,000	14,000	1.4	2.5
Methyl Methacrylate	100	1,000	17,000	1.7	3.5
Nitric Oxide	25	100	N/C	N/C	1.0
Nitrogen Dioxide	3	20	N/C	N/C	1.6
Pentane	600	15,000	15,000	1.5	2.5
n-Propyl Acetate	200	1,700	17,000	1.7	3.5
Styrene	50	700	9,000	.9	3.6
Sulfur Dioxide	2	100	N/C	N/C	2.2
1,1,1-Trichloroethane	350	700	75,000	7.5	4.6
Toluene	50	500	11,000	1.1	3.2
Trichloroethylene	50	1,000	80,000	8.0	4.5
Turpentine	100	800	8,000	0.8	4.7
Vinyl Chloride	1.0	-C-	36,000	3.6	2.2
Xylene	100	900	9,000	.9	3.7

LEL	Lower Explosive Limit	UEL	Upper Explosive Limit
PPM	Parts Per Million	TLV/TWA	Threshold Limit Value/Time Weighted Average
IDLH	Immediately Dangerous to Life or Health	Density	< 1.0 = lighter than air > 1.0 = heavier than air
C	Carcinogen	N/C	Not Combustible



## ANNEXURE G

### **NATIONAL ENVIRONMENTAL QUALITY STANDARDS (NEQS) (SELF MONITORING AND REPORTING BY INDUSTRY) RULES 2001, SRO 528(1)/2001**

- 1. Quarterly basis, monitoring of Effluents for the given parameters and reporting to provincial EPA:**
  - (i) Flow
  - (ii) pH = 6 – 9
  - (iii) Temperature Increase = < 3 C
  - (iv) BOD5 = 80 mg/l
  - (v) COD = 150 mg/l
  - (vi) TSS = 200 mg/l
  - (vii) TDS = 3500 mg/l
  - (viii) Oil/Grease = 10 mg/l
  - (ix) Phenol = 0.1 mg/l
  - (x) Chloride = 1000 mg/l
  
- 2. Quarterly basis, monitoring of Emissions for the given parameters and reporting to provincial EPA:**
  - (i) CO = 800 mg/Nm<sup>3</sup>
  - (ii) Hydrogen Sulfide = 10 mg/Nm<sup>3</sup>
  - (iii) PM10 = 300 mg/Nm<sup>3</sup>
  - (iv) SO<sub>x</sub> = 400 mg/Nm<sup>3</sup>

(Based on one percent sulphur content in fuel oil.)

  - (v) NO<sub>x</sub> = 130 nanogram per joule of heat input
  
- 3. Annual basis, monitoring of Diesel Vehicle Exhausts:**
  - (i) CO = 4.0 g/kWh [ECE R-49] for Trucks and Buses + Large good vehicles + Older Vehicles
  - (ii) HC = 1.1 g/kWh [ECE R-49] for Trucks and Buses
  - (iii) HC = 7.0 g/kWh [ECE R-49] for Large good vehicles and Older Vehicles
  - (iv) NO<sub>x</sub> = 7.0 g/kWh [ECE R-49] for Trucks and Buses
  - (v) NO<sub>x</sub> = 1.1 g/kWh [ECE R-49] for Large good vehicles and Older Vehicles
  - (vi) PM = 0.15 g/kWh [ECE R-49] for Trucks and Buses + Large good vehicles + Older Vehicles



#### 4. Annual basis, monitoring ambient air quality (due to flare/ vent):

Sulphur Dioxide (SO <sub>2</sub> )	Annual Average* = 80 ug/m <sup>3</sup>	Ultraviolet Fluorescence method
	24 hours** = 120 ug/m <sup>3</sup>	
Oxides of Nitrogen as (NO)	Annual Average* = 40 ug/m <sup>3</sup>	Gas Phase Chemiluminescence
	24 hours** = 40 ug/m <sup>3</sup>	
Oxides of Nitrogen as (NO <sub>2</sub> )	Annual Average* = 40 ug/m <sup>3</sup>	Gas Phase Chemiluminescence
	24 hours** = 80 ug/m <sup>3</sup>	
O <sub>3</sub>	1 hour = 180 ug/m <sup>3</sup>	Non dispersive UV absorption method
Suspended Particulate Matter (SPM)	Annual Average* = 400ug/m <sup>3</sup>	High Volume Sampling, (Average flow rate not less than 1.1 m <sup>3</sup> /minute)
	24 hours** = 550ug/m <sup>3</sup>	
Respirable Particulate Matter.PM <sub>10</sub>	Annual Average* = 200ug/m <sup>3</sup>	B Ray absorption method
	24 hours** = 250ug/m <sup>3</sup>	
Respirable Particulate Matter. PM <sub>2.5</sub>	Annual Average* = 25 ug/m <sup>3</sup>	B Ray absorption Method
	24 hours** = 40 ug/m <sup>3</sup>	
Lead (Pb)	Annual Average* = 1.5 ug/m <sup>3</sup>	ASS Method after sampling using EPM 2000 or equivalent Filter Paper
	24 hours** = 2 ug/m <sup>3</sup>	
Carbon Monoxide (CO)	8hours** = 5 mg/m <sup>3</sup>	Non Dispersive Infra Red (NDIR) method
	1 hour** = 10 mg/m <sup>3</sup>	

\* Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

\*\* 24 hourly /8 hourly values should be met 98% of the time in a year. 2% of the time, it may exceed but not on two consecutive days.



### 5. Quarterly basis, monitoring noise levels:

Noise –dB(A) Leq* 55 (Day Time); 45 (Night Time)	Residential Camp Area
Noise –dB(A) Leq* 75 (Day Time); 65 (Night Time)	Engine Hall, Plant Premises

- Day time hours: 6.00 a.m to 10.00 p.m.
- Night time hours: 10.00 p.m. to 6.00 a.m.
- Silence zone: Zone which are declared as such by the competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.
- Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.

\*dB(A) Leq: Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

### 6. National Standards for Drinking Water Quality

#	Properties/ Parameters	Standard Values
<b>Bacterial</b>		
1.	All water intended for drinking (E.Coli or Thermotolerant Coliform bacteria)	Must not be detectable in any 100 ml sample
2.	Treated water entering the distribution system (E.Coli or thermotolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample
3.	Treated water in the distribution system (E.coli or thermotolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample. In case of large supplies, where sufficient samples are examined, must not be present in 95% of the samples taken throughout any 12-month period.



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<b>Physical</b>		
4.	Colour	≤ 15 TCU
5.	Taste	Non objectionable/ Acceptable
6.	Odour	Non objectionable/ Acceptable
7.	Turbidity	< 5 NTU
8.	Total Hardness as CaCO <sub>3</sub>	< 500 mg/l
9.	TDS	< 1000
10.	pH	6.5-8.5
<b>Radioactive</b>		
11.	Alpha Emitters bq/L or pCi	0.1
12.	Beta emitters	1
<b>Chemical</b>		
	<i>Essential Inorganics</i>	<i>mg/Litre</i>
13.	Aluminum (Al) mg/l	≤0.2
14.	Antimony (Sb)	≤0.005
15.	Arsenic (As)	≤0.05
16.	Barium (Ba)	0.7
17.	Boron (B)	0.3
18.	Cadmium (Cd)	0.01
19.	Chloride (Cl)	<250
20.	Chromium (Cr)	≤0.05
21.	Copper (Cu)	2
<b>Toxic</b>		
	<i>Toxic Inorganics</i>	<i>mg/Litre</i>
22.	Cyanide (CN)	≤0.05
23.	Fluoride (F)*	≤1.5
24.	Lead (Pb)	≤0.05
25.	Manganese (Mn)	≤0.5
26.	Mercury (Hg)	≤0.001
27.	Nickel (Ni)	≤0.02
28.	Nitrate (NO <sub>3</sub> )*	≤50
29.	Nitrite (NO <sub>2</sub> )*	≤3
30.	Selenium (Se)	0.01
31.	Residual chlorine	0.2 – 0.5 at consumer end 0.5-1.5 at source
32.	Zinc (Zn)	5.0



## 7. Light Intensity

To assess whether lighting is sufficient in workplace, following light intensity ranges are used. Employees should understand the effects of lighting on their health and safety. In particular, they need to understand visual fatigue: its causes, prevention, symptoms, and recovery techniques.

Task/ Area	Range of Luminance (Lux)
Emergency lighting (at floor or tread levels) in exits, exit routes, stairs, and underground walkways	At least 10 (on average)
Simple visual tasks e.g. lobby area; washrooms; loading into trucks	30 – 100
Medium visual tasks e.g. bookkeeping; filing; material receiving and packing areas	300 – 1000
More visually demanding tasks e.g. QC/ inspection; proofreading; workshops/ machine work	3000 – 10000



**ANNEXURE H**  
**EMERGENCY LEVELS**  
(CONSEQUENCE SEVERITY)

Following are the probable emergency scenarios-consequence analysis of OGDCL office buildings, Islamabad and field locations:

Scenarios	Consequences severity wrt Emergency Level
i. Fire / Explosion / Blowout  ii. Roadside Accident  iii. Oil Spillage	<b>Level-5 (Catastrophic)</b> ..... Severity = 5 ∞ Multiple Fatalities ∞ Massive Effect on Environment; Persistent Severe Environmental Damage or Severe Nuisance extending over a large area of commercial, communal or recreation use; Continuous excursions beyond allowable or regulatory limits ∞ Loss of > 1000 Million PKR ∞ Reputation issue (International Concern)
iv. Gas Leakage  v. Boiling Liquid Expanding Vapor Explosion (BLEVE)  vi. Natural Disaster (Heavy Rains, Floods, Earthquake, etc.)	<b>Level-4 (Critical)</b> ..... Severity = 4 ∞ Single Fatality ∞ Major Effect on Environment; Severe environmental damage; the company is required to take Extensive measures to restore the damaged environment; Intermittent excursions beyond allowable or regulatory limits ∞ Loss of 100-1000 Million PKR ∞ Reputation issue (National Concern)
vii. Terrorist Attack / Bomb Threat  viii. Civil Unrest (Local Strike)	<b>Level-3 (Major)</b> ..... Severity = 3 ∞ Multiple Injury Cases esp. Lost Time Injury(ies) ∞ Local Effect on Environment; Limited Discharges affecting the neighborhood or damaging local environment; Excursions beyond allowable or regulatory limits ∞ Loss of 50-100 Million PKR ∞ Reputation issue (Provincial / Regional Concern)
ix. Others	<b>Level-2 (Marginal)</b> ..... Severity = 2 ∞ Medical Treatment Case(s)/ Restricted Workday Injury(ies) ∞ Minor Effect on Environment; Discharge or Contamination with no lasting effect; Rare excursions beyond allowable or regulatory limits ∞ Loss of 10-50 Million PKR ∞ No substantial reputation issue (Local Concern)
	<b>Level-1 (Negligible)</b> ..... Severity = 1 ∞ First Aid Case/ Near Hit ∞ Slight Effect of Environment; Slight Damage within the premises of the facility ∞ Loss of <10 Million PKR ∞ No reputation issue

EMT/ LMT shall only be activated when an emergency severity level 3, 4 or 5 occurs at any OGDCL Facility.



**ANNEXURE I**

**INCIDENT PROBABILITY TABLE**

(LIKELIHOOD THAT EXPOSURE WOULD RESULT INTO LOSS)

	<b>IN TERMS OF FREQUENCY</b>	<b>IN TERMS OF EFFECTIVENESS OF CONTROLS/BARRIERS</b>
<b>Highly Likely (5)</b>	Incident has occurred SEVERAL TIMES PER YEAR within E&P oil and gas industry	Or NO operational control/barrier is in place
<b>Very Likely (4)</b>	Incident occurred SEVERAL TIMES DURING LAST MANY YEARS within E&P oil and gas industry	Or INSUFFICIENT operational controls/barriers are IN PLACE
<b>Likely (3)</b>	Incident has occurred FEW TIMES DURING LAST MANY YEARS within E&P oil and gas industry	Or operational controls/barriers are IN PLACE and are NOT ROUTINELY REVIEWED
<b>Unlikely (2)</b>	Incident has ONCE OR TWICE DURING LAST MANY YEARS occurred within E&P oil and gas industry	Or operational controls/barriers are IN PLACE and ARE REVIEWED as per plans
<b>Very Unlikely (1)</b>	NEVER heard of in E&P oil and gas industry	Or operational controls/barriers are EFFECTIVE to WITHSTAND their intended purpose



**ANNEXURE J**

**5X5 RISK TREATMENT MATRIX**

Consequence (C) Severity (Impact)	Incident Probability (P) (Chance of Happening)				
	Very Unlikely	Unlikely	Likely	Very Likely	Highly Likely
Catastrophic	1	2	3	4	5
Critical	5	10	15	20	25
	4	8	12	16	20
Major	3	6	9	12	15
	2	4	6	8	10
Marginal	1	2	3	4	5
	1	2	3	4	5

Risk Rating	Risk Treatment	Action and Timescale
Low [1-6]	Nil for ALARP	No action is required.
Medium [7-12]	Nil for ALARP	No additional controls/barriers are required. Consideration may be given to a more cost-effective solution or improvement that imposes no additional costs. Monitoring is required to ensure that the desired controls are maintained.
High [13-20]	Controlling the significant risk	Urgent action should be taken and considerable resources be allocated to reduce the risk to ALARP through interim controls/barriers and strategic decision making/ objectives & targets by putting in place actions to mitigate or minimize the risk. When considering interim controls/barriers, Hazards Control Hierarchy shall apply.
Intolerable [21-25]	Avoiding the significant risk	Any planned activity should NOT be commenced whereas an ongoing activity should be immediately STOPPED until the risk has been reduced. The ultimate decision to RESUME the activity shall be conditional with the approval of top management.
	Transferring the significant risk	The entire activity may be outsourced; OGDCL, however, to retain governance responsibility for the monitoring of such outsourcing arrangements to include the arrangements for risk management.



## ANNEXURE K

### EMERGENCY STATES (CONDITIONS/ SITUATIONS)

Standardized siren codes and H<sub>2</sub>S emergency beacon lights & alarms shall be followed to deal with the emergency state/ conditions/ situations especially at production fields/ drilling rigs as mentioned below:

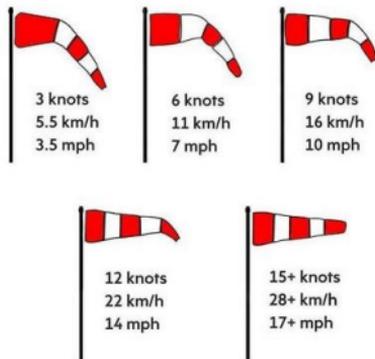
NO EMERGENCY DECLARATION	DECLARE EMERGENCY THROUGH SIREN AND LIGHTS	DECLARE EMERGENCY THROUGH SIREN AND LIGHTS AND DECLARE THROUGH SIREN, LIGHTS AND PUBLIC ADDRESS (PA)
<p>For basic level emergency conditions, there is no need to gather at Muster Point as it may not cause the normal operations to be shutdown. There is no immediate potential threat to the safety of personnel, assets, environment and operations. <u>Emergency equipment available on site can control this type of emergency situation.</u></p>	<p>Gather at respective Muster Point(s) in case of emergency level/ severity 2, 3, 4 or 5 incident as per the nature of incident and declare emergency through siren and lights as it may cause the normal operations/ activities to be temporary suspended, partial or complete shutdown. This emergency results an immediate potential threat to the safety of personnel, assets, environment, and operations for which <u>internal support services may be sufficient.</u></p>	<p>Rush outside from the Emergency Exit Gate(s) in case of emergency level/ severity 2, 3, 4 or 5 incident as per the nature of incident and declare emergency through siren and lights and declare through siren, lights and public address as it may result in serious injury/ fatality, significant fire/ explosion, major equipment damage, gas / oil release, loss of controlled substance to the environment for which <u>external support services may be required.</u></p>



### Standardized Siren Codes

Calling for <b>Blowout / Fire</b> & Evacuation →	A flashing <b>RED</b> beacon along with intermittent tones of 15 seconds each with 5 seconds pause, repeated thrice
Calling for <b>Toxic Gas Leakage</b> & Evacuation →	A flashing <b>BLUE</b> beacon along with intermittent tones of 30 seconds each with 5 seconds pause, repeated five times
Calling <b>Methane, Propane, Butane, etc. Release/ Explosion</b> & Evacuation →	A flashing <b>YELLOW</b> beacon along with intermittent tones of 60 seconds each with 5 seconds pause, repeated thrice
All Clear Alarm →	Continuous tone for 120 seconds

Note 1: In the event of the emergency siren sounding, ALL PERMITS become INVALID and all WORK being carried out under them shall CEASE. Personnel within permanently occupied buildings / offices / rooms should seek direction from the Fire Wardens. Vehicles must be parked away from access ways, ignition switched off with keys left in the ignition and remain standby for the period of the emergency. Driver and passengers must exit the vehicle and proceed to the nearest safe Muster Point. Personnel within vessels and tanks shall move outside the vessel or tank, climb to ground level and then proceed to the designated Muster Point.



Note 2: During an emergency, the affected work must cease and not re-start until such time as the work areas affected have been risk reassessed and the Area Manager / Location IC has verified that the effective controls (to prevent recurrence) are in place.



## ANNEXURE L

### PROCESS, HYDRAULIC, AND PNEUMATIC ENERGY ISOLATION

There are four primary methods for isolating process lines and equipment to prevent the release of energy or materials. The isolation methods are arranged below in general order of protection provided from lowest to highest, but the specific isolation method is determined by the tasks to be performed and the associated material/stored energy.

**Single block valve:** Use of a single block valve is the minimum isolation procedure for certain routine maintenance operations where no open flame work or toxic material is involved. This isolation method shall not be used when piping or equipment containing hazardous materials is to be opened for confined space entry or hot work activities.

**Double block and bleed:** Double block and bleed (DB&B) is a method of isolating process piping where two block valves in series are closed, locked (chained), and tagged with a bleed or vent valve in the line between the two closed valves that is locked and tagged open. This isolation method shall not be used when piping or equipment containing hazardous materials is to be opened for confined space entry or hot work activities.

**Blinding:** Blinding is the installation of a solid metal plate between two pipe flanges or at the end of a disconnected pipe to prevent any materials from being released. It involves inserting a slip blind or blind flange at a flanged joint or swinging (rolling) a spectacle blind if provided by design. The blind point(s) must have a completed hold tag.

**Disconnection of piping:** Disconnection of piping is the physical disconnection of the piping where allowed by flanges. Steps must be taken to ensure no hazardous materials can leak or be discharged from the open ends of piping (e.g., blinding). The disconnection point(s) must have a completed hold tag.



## **ANNEXURE M**

### **ELECTRICAL ENERGY ISOLATION METHODS**

- ☠ Accomplish electrical isolation using a device that physically prevents the transmission or release of energy like a manually operated circuit breaker or a disconnect switch.
- ☠ Control circuit type devices such as push buttons and selector switches are not energy isolating devices.
- ☠ Isolation may be accomplished by removal of fuses, disconnection of electrical cables, or physical removal of a component of the system supplying energy to the equipment.
- ☠ Isolation is completed only when no associated control device has the capability of energizing the equipment.
- ☠ Identify physical isolation points accordingly with a hold tag.



**ANNEXURE N**  
**MAXIMUM ALLOWABLE SLOPES**  
**FOR HEIGHT (H) LESS THAN 6 M (20 FT)**

Soil Type	Cross Section
Stable Rock — Natural solid mineral matter.	
Type A Soil — A cohesive (tight) soil, such as clay or rock. Previously disturbed Type A soil becomes Type B or Type C soil.	
Type B Soil — A less cohesive soil such as a mix of sand, rocks, and clay. Previously disturbed Type B soil becomes Type C soil.	
Type C Soil — The least cohesive soil, such as gravel, sand, muddy or freely seeping soils, and submerged rock that is not stable.	



**ANNEXURE O**  
**FULL BODY HARNESS**



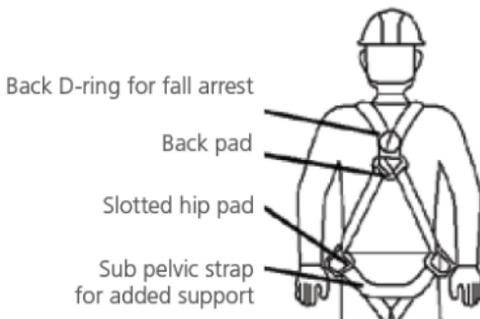
Chest strap with pass-through adjuster buckle

Identification and wearer instruction label

Side D-rings for restraint or positioning (if present)

Leg strap adjuster buckles

Leg strap



Back D-ring for fall arrest

Back pad

Slotted hip pad

Sub pelvic strap for added support



**ANNEXURE P**  
**HEAT INDEX**

Danger Category	Heat Index	Heat Stress Illness/ Symptoms	Work:Rest Periods (Minutes)	Min. Water Needed *
IV. Extreme Danger **	52+	Heat stroke imminent.	20:10	1 cup every 10 minutes
III. Danger	39–51	Heat cramps, heat exhaustion or heat stroke likely with prolonged exposure and physical activity.	30:10	1 cup every 15 minutes
II. Extreme Caution	30–38	Heat cramps, heat exhaustion or heat stroke possible with prolonged exposure and physical activity.	50:10	1 cup every 20 minutes
I. Caution	25–29	Fatigue possible with prolonged exposure and/ or physical activity.	Normal/ Scheduled	1 cup every 20 minutes

\* 1 cup = 250 ml

\*\* See Guideline 27 (Heat Stress)



**ANNEXURE Q**

**GLOBALLY HARMONIZED SYSTEM (GHS) FOR CLASSIFYING HAZARDOUS CHEMICALS**



**Explosive**

Explosives  
Self-reactive substances  
Organic peroxides



**Flammable**

Flammable gases, aerosols, liquids, and solids  
Pyrophoric liquids or solids  
Self-heating substances  
Self-reactive substances  
Substances that emit a flammable gas upon contact with water  
Organic peroxides



**Corrosive**

Skin corrosion/burns  
Eye damage  
Corrosive to metals



**Oxidizer**

Oxidizing gases, liquids, and solids



### **Compressed gas**

Gases under pressure



### **Irritant**

Irritant (skin and eye)  
Skin sensitizer  
Acute toxins  
Narcotic effects  
Respiratory tract irritants  
Hazardous to ozone layer (non-mandatory)



### **Toxic Substance**

Acutely toxic substances that may be fatal or toxic if inhaled, ingested, or absorbed through the skin



### **Environmental Hazard**

Acute aquatic toxins  
Chronic aquatic toxins



### **Health Hazard**

Respiratory sensitizers  
Carcinogens  
Mutagens  
Reproductive toxins  
Target organ toxins, single exposure or repeated exposure  
Aspiration toxins



## ANNEXURE R

### SHAPE AND COLOR OF SIGN TYPES

# SHAPE & COLOUR

ISO 7010 SPECIFIES FIVE COMBINATIONS OF SHAPE AND COLOUR TO DISTINGUISH BETWEEN THE TYPE OF INFORMATION PRESENTED

#### SHAPE & COLOUR OF SIGN TYPES

##### SIGN TYPE

Prohibition Sign	Mandatory Sign	Warning Sign	Safe Condition Sign	Fire Safety Sign
------------------	----------------	--------------	---------------------	------------------

##### MEANING

Prohibition	Must Do	Warn of Hazard	Safety Equipment & Exits	Fire Protection
-------------	---------	----------------	--------------------------	-----------------

##### COLOUR (PER ISO 7010)

Red	Blue	Yellow	Green	Red
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##### SHAPES

Circle with Diagonal Line	Circle	Equilateral triangle with corners	Square or Rectangular	Square
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## ANNEXURE S

### DIAGNOSIS OF BURNS

Burn severity is dictated by % **Total Body Surface Area** (TBSA):

- ∞ Burns >20-25% TBSA require IV fluid resuscitation
- ∞ Burns >30-40% TBSA may be fatal without treatment
- ∞ "Rule of Nines" is used as a rough indicator of % TBSA

Head and neck	9%
Anterior trunk	18%
Posterior trunk	18%
Arms, including hands	9% each
Legs, including feet	18% each
Genitalia	1%

#### Superficial Burns

---

##### First-Degree Burns

- ∞ Damage above basal layer of epidermis
- ∞ Dry, red, painful ("sunburn")

##### Second-Degree Burns

- ∞ Damage into dermis
- ∞ Skin adnexa (hair follicles, oil glands, etc.) remain
- ∞ Heal by re-epithelialization from skin adnexa
- ∞ The deeper the second-degree burn, the slower the healing (fewer adnexa for re-epithelialization)
- ∞ Moist, red, blanching, blisters, extremely painful
- ∞ Superficial burns heal by re-epithelialization and usually do not scar if healed within 2 weeks

#### Deep Burns

---

##### Deep Second-Degree Burns (deep partial-thickness)

- ∞ Damage to deeper dermis
  - ∞ Less moist, less blanching, less pain
- Heal by scar deposition, contraction and limited re-epithelialization

##### Third-Degree Burns (full-thickness)

- ∞ Entire thickness of skin destroyed (into fat)
- ∞ Any color (white, black, red, brown), dry, less painful (dermal plexus of nerves destroyed)
- ∞ Heal by contraction and scar deposition (no epithelium left in middle of wound)

##### Fourth-Degree Burns

- ∞ Burn into muscle, tendon, bone
- ∞ Need specialized care (grafts will not work)
- ∞ Deep burns usually need skin grafts to optimize results and lead to hypertrophic (raised) scars if not grafted



## ANNEXURE T

### CONTENTS OF FIRST AID KIT

(ANSI/ISEA Z308.1-2015 STANDARD)

#### Minimum Fill in Class-A First Aid Kits Requirement

- 16 Adhesive Bandages, 1"x3"
- 1 Adhesive Tape 2.5 yd
- 10 Antibiotic Treatment Application, 1/57 oz
- 10 Antiseptic Applications 1/57 oz
- 1 Breathing Barrier
- 1 Burn Dressing, gel soaked, 4"x4"
- 10 Burn Treatment, 1/32 oz
- 1 Cold Pack
- 2 Eye Covering
- 1 Eye Wash, 1 oz. (29.6 ml)
- 1 First Aid Guide
- 6 Hand Sanitizer, 0.9g
- 2 Pair Exam Gloves
- 1 Roller Bandage, 2"x4 yds
- 1 Scissors
- 2 Sterile Pad, 3"x3"
- 2 Trauma Pad, 5"x9"
- 1 Triangular Bandage 40"x40"x56"

#### Minimum Fill in Class-B First Aid Kits Requirement

- 50 Adhesive Bandages, 1"x3"
- 2 Adhesive Tape 2.5 yd
- 25 Antibiotic Treatment Application, 1/57 oz
- 50 Antiseptic Applications 1/57 oz
- 1 Breathing Barrier
- 2 Burn Dressing, gel soaked, 4"x4"
- 25 Burn Treatment, 1/32 oz
- 2 Cold Pack
- 2 Eye Covering
- 1 Eye Wash, 4 oz. (118.3 ml)
- 1 First Aid Guide
- 10 Hand Sanitizer, 0.9g
- 4 Pair Exam Gloves
- 2 Roller Bandage, 2"x4 yds
- 1 Roller Bandage, 4"x4 yds
- 1 Scissors
- 1 Splint - min 4"x24"
- 4 Sterile Pad, 3"x3"
- 1 Tourniquet
- 4 Trauma Pad, 5"x9"
- 2 Triangular Bandage 40"x40"x56"

**Class-A First Aid Kits** designed to deal with most common workplace injuries, such as minor cuts, abrasions and sprains.

**Class B First Aid Kits** include a broader range and quantity of supplies to deal with injuries in more complex or high-risk environments.



OGDCL Safety Handbook  
For Oil & Gas Development and Production Leases

**ANNEXURE U**  
**HSE TOP CARD**



**OBSERVATION CHECKLIST**  
MARK IF ANY UNSAFE

**مشاہدہ پوزل کی فہرست**  
✓ فرمو کوئی تیکہ نہ کریں ✓

UNSAFE	ACTIONS	SAFE	مشاہدہ	افعال	فرمودہ
<b>REACTIONS OF PEOPLE</b> All Safe					
<input type="checkbox"/>	Adjusting Personal Protective Equipment	<input type="checkbox"/>	<input type="checkbox"/>	حفاظتی اوزار کی ترمیم	<input type="checkbox"/>
<input type="checkbox"/>	Changing Position	<input type="checkbox"/>	<input type="checkbox"/>	جگہ تبدیل کرنا	<input type="checkbox"/>
<input type="checkbox"/>	Rearranging Job	<input type="checkbox"/>	<input type="checkbox"/>	کام دوبارہ ترتیب دینا	<input type="checkbox"/>
<input type="checkbox"/>	Stopping Job	<input type="checkbox"/>	<input type="checkbox"/>	کام روکنا	<input type="checkbox"/>
<input type="checkbox"/>	Attaching Grounds	<input type="checkbox"/>	<input type="checkbox"/>	ارضہ کو زمین سے جوڑنا	<input type="checkbox"/>
<input type="checkbox"/>	Performing Lockouts	<input type="checkbox"/>	<input type="checkbox"/>	ٹاسک کے دوران قفل لگانا	<input type="checkbox"/>
<b>PERSONAL PROTECTIVE EQUIPMENT</b> All Safe					
<input type="checkbox"/>	Head	<input type="checkbox"/>	<input type="checkbox"/>	سر پر کھوپڑی پہننا	<input type="checkbox"/>
<input type="checkbox"/>	Eyes and Face	<input type="checkbox"/>	<input type="checkbox"/>	آنکھوں اور منہ پر گھاس	<input type="checkbox"/>
<input type="checkbox"/>	Ears	<input type="checkbox"/>	<input type="checkbox"/>	کان پر کمان	<input type="checkbox"/>
<input type="checkbox"/>	Respiratory System	<input type="checkbox"/>	<input type="checkbox"/>	سانس کا نظام	<input type="checkbox"/>
<input type="checkbox"/>	Arms and Hands	<input type="checkbox"/>	<input type="checkbox"/>	ہاتھ اور بازو	<input type="checkbox"/>
<input type="checkbox"/>	Trunk	<input type="checkbox"/>	<input type="checkbox"/>	چتر	<input type="checkbox"/>
<input type="checkbox"/>	Legs and Feet	<input type="checkbox"/>	<input type="checkbox"/>	پاؤں اور پاؤں	<input type="checkbox"/>
<b>POSTURES OF PEOPLE (Body Curves)</b> All Safe					
<input type="checkbox"/>	Striking Against Objects	<input type="checkbox"/>	<input type="checkbox"/>	دوسروں سے ٹکرائنا	<input type="checkbox"/>
<input type="checkbox"/>	Struck By Objects	<input type="checkbox"/>	<input type="checkbox"/>	دوسروں سے ٹکرائنا	<input type="checkbox"/>
<input type="checkbox"/>	Caught In, On, or between Objects	<input type="checkbox"/>	<input type="checkbox"/>	دوسروں کے درمیان پھنسنا	<input type="checkbox"/>
<input type="checkbox"/>	Falling	<input type="checkbox"/>	<input type="checkbox"/>	گرنے کا خطرہ	<input type="checkbox"/>
<input type="checkbox"/>	Contacting Temperature Extremes	<input type="checkbox"/>	<input type="checkbox"/>	زیادہ گرم یا سرد چیزوں سے ٹکرائنا	<input type="checkbox"/>
<input type="checkbox"/>	Contacting Electric Current	<input type="checkbox"/>	<input type="checkbox"/>	برقی تاروں سے ٹکرائنا	<input type="checkbox"/>
<input type="checkbox"/>	Inhaling a Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	خطرناک مادوں کی سانس لینا	<input type="checkbox"/>
<input type="checkbox"/>	Absorbing a Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	خطرناک مادوں کو جذب کرنا	<input type="checkbox"/>
<input type="checkbox"/>	Swallowing a Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	خطرناک مادوں کو گھونٹنا	<input type="checkbox"/>
<input type="checkbox"/>	Oversertion	<input type="checkbox"/>	<input type="checkbox"/>	حد سے زیادہ کام کرنا	<input type="checkbox"/>
<input type="checkbox"/>	Repetitive Motions	<input type="checkbox"/>	<input type="checkbox"/>	تکرار شدہ حرکیات	<input type="checkbox"/>
<input type="checkbox"/>	Awkward Position/Static Postures	<input type="checkbox"/>	<input type="checkbox"/>	غیر مناسب یا ساکن پوزیشن	<input type="checkbox"/>
<b>TOOLS AND EQUIPMENT</b> All Safe					
<input type="checkbox"/>	Wrong for the Job	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے غلط اوزار	<input type="checkbox"/>
<input type="checkbox"/>	Used Incorrectly	<input type="checkbox"/>	<input type="checkbox"/>	غلط طریقے سے استعمال	<input type="checkbox"/>
<input type="checkbox"/>	In Unsafe Condition	<input type="checkbox"/>	<input type="checkbox"/>	غیر محفوظ حالت میں	<input type="checkbox"/>
<b>PROCEDURES AND ORDERLINESS</b> All Safe					
<input type="checkbox"/>	Procedures Inadequate	<input type="checkbox"/>	<input type="checkbox"/>	نقص پورے طریقے	<input type="checkbox"/>
<input type="checkbox"/>	Procedures Not Known/Understand	<input type="checkbox"/>	<input type="checkbox"/>	طریقے کا علم نہیں یا سمجھنا نہیں	<input type="checkbox"/>
<input type="checkbox"/>	Procedures Not Followed	<input type="checkbox"/>	<input type="checkbox"/>	طریقے کی نافرمانی کرنا	<input type="checkbox"/>
<input type="checkbox"/>	Orderliness Standards Inadequate	<input type="checkbox"/>	<input type="checkbox"/>	نفاذ شدہ معیاروں کی کمی	<input type="checkbox"/>
<input type="checkbox"/>	Orderliness Standards Not Known/Understand	<input type="checkbox"/>	<input type="checkbox"/>	نفاذ شدہ معیاروں کی کمی یا سمجھنا نہیں	<input type="checkbox"/>
<input type="checkbox"/>	Orderliness Standards Not Followed	<input type="checkbox"/>	<input type="checkbox"/>	نفاذ شدہ معیاروں کی نافرمانی کرنا	<input type="checkbox"/>

**ELIMINATE UNSAFE CONDITIONS... PREVENT INJURIES**  
**OBSERVATION CHECKLIST**  
MARK IF ANY UNSAFE

✓ MARK IF ANY UNSAFE ✓ MARK IF ANY SAFE ✓

UNSAFE	CONDITIONS	SAFE	مشاہدہ	کیفیت	فرمودہ
<b>Tools and Equipment</b> All Safe					
<input type="checkbox"/>	Are They Right for the Job	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے مناسب اوزار	<input type="checkbox"/>
<input type="checkbox"/>	In Safe Condition	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے محفوظ حالت میں	<input type="checkbox"/>
<b>Structures and Work Area</b> All Safe					
<input type="checkbox"/>	Are They Clean	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے صاف	<input type="checkbox"/>
<input type="checkbox"/>	Orderly	<input type="checkbox"/>	<input type="checkbox"/>	نفاذ شدہ معیاروں	<input type="checkbox"/>
<input type="checkbox"/>	Right for the Job	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے مناسب	<input type="checkbox"/>
<input type="checkbox"/>	In Safe Condition	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے محفوظ حالت میں	<input type="checkbox"/>
<b>Environment</b> All Safe					
<input type="checkbox"/>	Is It Clean	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے صاف	<input type="checkbox"/>
<input type="checkbox"/>	Orderly	<input type="checkbox"/>	<input type="checkbox"/>	نفاذ شدہ معیاروں	<input type="checkbox"/>
<input type="checkbox"/>	In Safe Condition	<input type="checkbox"/>	<input type="checkbox"/>	کام کے لیے محفوظ حالت میں	<input type="checkbox"/>
<b>Orderliness</b> All Safe					
<input type="checkbox"/>	Standards Available	<input type="checkbox"/>	<input type="checkbox"/>	معیار دستیاب	<input type="checkbox"/>
<input type="checkbox"/>	Adequate	<input type="checkbox"/>	<input type="checkbox"/>	کافی	<input type="checkbox"/>

- SAFE ACTS / CONDITIONS OBSERVED
- ACTIONS TAKEN TO ENCOURAGE CONTINUED SAFE PERFORMANCE

مشاہدہ کی حفاظت اور افعال کی کیفیت کا ریکارڈ  
مستند حفاظت اور ریکارڈ کیلئے افعال کی مسلسل ترقی

- UNSAFE ACTS / CONDITIONS OBSERVED
- IMMEDIATE CORRECTIVE ACTION
- ACTION TO PREVENT RECURRENCE

غیر مناسب افعال کی کیفیت کا ریکارڈ  
مستند کی ترمیم اور ترمیم  
دوبارہ ایسی حالتوں کے پیشگیری

Observer's Signature: \_\_\_\_\_  
Working Area: \_\_\_\_\_ Date: \_\_\_\_\_



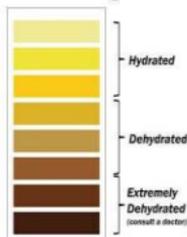


Oil & Gas Development Company Ltd.

## HSE INDUCTION FOR FIELD VISITORS

[to be placed or posted in every guest room]

1. Please note that the major hazards of this field/ location are of physical, chemical, and biological nature.
2. Therefore, visitors are expected to comply with all SAFETY/ ENVIRONMENT/ EMERGENCY signs and use of PPE where required.
3. In case of any emergency, inform Duty Officer by dialing 'xxx'.
4. Actions in the event of Fire or Fire Alarm:
  - If fire is detected, inform Duty officer.
  - If fire alarm sounds; Switch off any electrical/ gas appliance in use; Close doors/ windows.
  - Evacuate through the nearest Fire Exit and proceed to Muster Point.
  - Do not attempt to gather your personal belongings.
  - Do not go to the places other than the Muster Point.
  - Return to the office/ plant/ camp when allowed by Security Administrator.
5. Only use the designated areas for smoking.
6. Visitor's responsibilities towards Environment:
  - Do not litter; Use the designated waste bins.
  - Switch off the lights, fan, air conditioner, and heater when not needed.
  - Report any spark in the switch boards and water leakage in the toilets.
  - Do not use tap water for drinking.
7. Please avoid wearing open shoes or sandals while going out of the camp/ field area, since presence of snakes or poisonous insects cannot be ruled out. In case of snake/ insect bite, please call medical emergency at xxx. Necessary medicines are available at field.
8. Illegal drugs, weapons and explosives are prohibited within office/ plant/ camp premises.
9. While using toilets, you may consult the following Dehydration Chart to check your dehydration levels through urine color:





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