

HSE Pledge Handbook For Contractors & Service Companies



Occupational Health, Safety, Environment & QA/ QC Department Oil & Gas Development Company Limited PAKISTAN

Occupational Health, Safety, and Environment

Policy Statement and Commitment

As a responsible Corporate Citizen, OGDCL attaches greater significance to HSE system with a view to promoting a culture and attitude of compliance for the safety & wellbeing of our manpower, community and the environment. We resolutely believe that responsibility for health, safety, and environment cannot be delegated, it is a shared responsibility across our company.

We believe in good HSE performance that can ultimately contribute to business success. By supplying energy, we fundamentally support economic development and help to improve quality of life of people. Our activities also generate jobs, investment, infrastructure and revenues for governments and local communities. In carrying out all our activities, hence we ensure welfare of the indigenous communities, protection of ecosystems and safety of our workforce.

As we continue our exploration and production activities basing our growth on a sound foundation of technical and financial prudence, we are supporting health, safety, and environment initiatives by:

Best Practices & Culture	We shall promote a positive culture based on improving HSE performance.
Legal & D Regulation Compliance	We shall commit to HSE excellence in all activities wherever we operate and comply with relevant laws and regulations, and adhere to applicable standards and procedures.
Safe D Workplace	We shall endeavor to take every reasonable and practicable step to eliminating vulnerabilities (hazards), practices and behaviors that could cause accidents, injuries or illness and damage to nature & properties.
Ethical D Responsibility	We shall take resolute measures to reinforce that all employees share an ethical responsibility in embracing no smoking and no drugs policy.



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Environment	٥	We shall take proactive steps and strive towards conservation of the environment, implementing controls to eliminate pollution and environmental harm.
Resource &	٠	We shall provide training and
Engagement		resources for workforce to
J • J • J • J		maintain safe systems of work.
Emergency	٥	We shall ensure that Location Emergency Response Plans are in place to deal with and recover from emergencies and shall notify timely all relevant stakeholders during the emergencies.
Continuous	٠	We shall Integrate HSE
Improvement		management into all aspects of the organization by leveraging on people, process and technology.
Lines of Responsibility	٥	We shall employ contractors and service companies who aspire to the high HSE standards at all times, and recognize that HSE is everyone's responsibility.
Results	0	We shall continue to address the Impact (Risk)s of our operations by focusing on the Leading Indicators. We shall report publicly and annually on HSE performance, measured against objectives and targets.

We strive to be good Corporate Citizen in every community in which we operate. Through observance and encouragement of this policy, we aim to assist in protecting the environment and the overall wellbeing of all of our stakeholders, specifically, our employees, clients, shareholders, contractors, subcontractors, service companies and communities.

Managing Director



OGDCL – Integrated HSE Management System

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HSE Protocol For Management of Contractors and Service Companies

1.	HSE Policy Contractors and Service Companies shall be held responsible, as a minimum, for compliance with the OGDCL's HSE Policy, in addition to all governmental regulations applicable to the scope of work being performed.		
2.	HSE Field Team Contractors and Service Companies shall be solely responsible for means and methods and for jobsite HSE by assigning appropriate strength of qualified Location HSE Coordinators, Supervisors and Medical Staff with specific duties at the project site, full time, from the first day.		
3.	HSE Roles & Responsibilities Contractors and Service Companies shall ensure that all personnel assigned on the project can safely perform the essential functions of their job assignment. Contractor shall ensure that personnel maintain the appropriate standards of HSE in connection with the work that is being performed.		
4.	HSE Planning Contractors and Service Companies shall submit, before the start of project, the detailed documents as follows: i. Project HSE Risk Assessment Plan ii. Project Health Monitoring Plan iii. Project Safety Monitoring Plan iv. Project Environmental Monitoring Plan v. Project Emergency Preparedness and Response Plan vi. Project Waste Management & Disposal Plan		
5.	Toolbox Talk Program Contractors and Service Companies shall develop and ensure project-wide Toolbox Talk Program as a series of numbered discussion topics on Safety, Health and Environmental matters as daily HSE briefings by its operational teams.		
6.	Work Permit Contracts and Service Companies shall		



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	strictly follow the Work-to-Permit System and shall provide plan of activities in advance, submit JHAs where required and engage only certified staff for the hot jobs.
7.	Safety Critical Equipment Contractors and Service Companies shall ensure that the equipment (especially to be used on site for lifting and hoisting purposes) is certified from the third party and operators have proper permits / licenses.
8.	PPE Contractor shall acquire and maintain adequate PPE and other/related safety gadgets of an approved type as required for the performance of the work to be safely performed
9.	Hazard Communication Contractors and Service Companies shall ensure proper labeling at all the pertinent safety risk areas with appropriate warning signs and instructions. It shall also be ensured that all original containers of hazardous chemicals or materials entering the project site to be properly labeled with the hazard warnings and related information.
10.	Incident Reporting Contractors and Service Companies shall immediately report to OGDCL representative all significant and important incidents involving fatality, injury, illness, environmental impacts, near hits, and/or hazardous situations.
11.	Accident Investigation Contractors and Service Companies shall investigate and report all accidents regardless of their nature so that the cause and means of prevention can be determined to prevent a reoccurrence.
12.	Environmental Procedures Contractors and Service Companies shall immediately clean up the trash, spills, food waste, etc. and spills of chemicals, oils, whereas potentially hazardous wastes to be immediately reported to OGDCL representative.
13.	Waste Management Contractors and Service Companies shall place designated drums, containers, bins, etc. with specific labels as Collection Method for each waste-type and further ensure safe disposal of the hazardous waste.
14.	ERP Contractors and Service Companies shall provide orientation on Emergency

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	Preparedness and Response Procedure to its project team and ensure that its personnel are well aware of what procedures are in practice and who is to notify in the event of any emergency.
15.	HSE Performance Reports Contractors and Service Companies shall submit to OGDCL representative an HSE Performance Review Report on weekly / fortnight basis.
16.	Workforce's Record Contractors and Service Companies shall issue security pass for the staff engaged and provide a) copy of attested identity cards, b) employment cards, c) HSE training cards and c) health assessment cards of its project's approved staff to OGDCL.
17.	Surveillance Audits OGDCL's representative shall visit the project site on sporadic basis to monitor the actual level of compliance on the HSE matters.







Your Personal Responsibility

- Be trained and competent for the job
- Be ready to work: alert, rested, good attitude
- Dress properly: no tank tops/ sleeveless shirts/shorts
- Wear Personal Protective Equipment: head/eye/ears/hands/feet
- Conduct work professionally: no practical jokes/horseplay or harassment of any type
- Do not bring on OGDCL premises illegal drugs/paraphernalia, controlled substances, pornography, and weapons/firearms
- Comply with no smoking policy
- Discuss with your supervisor any prescription or over the counter drugs you are taking that might affect your work



12 Life Saving Golden Rules

The Life Saving Rules set out simple and clear "dos" and "don'ts" covering activities with the highest potential safety risk. These rules are created from industry lessons and have been put in place to ensure consistent behaviors are followed to prevent the kind of incidents that could result in a serious injury or a fatality. These rules affirm OGDCL's commitment to a <u>Safety First Culture</u>.









Work with a valid Work

Permit when required.

A Work Permit describes what you must do to stay safe.

- Understand the Work Permit and follow it.
- ✓ Confirm that the Work permit is valid.
- Confirm with the Supervisor or the Person in Charge of the work that it is safe to start work.



If you are the Supervisor or the Person in Charge of the work

- Confirm if a Work Permit is required for this work.
- Confirm that the workplace has been inspected before work starts.
- Explain how the Work Permit is signed.
- ✓ Confirm the Work Permit is signed.
- Confirm that it is safe to start work.
- Get a new Work Permit when the work or the situation changes.
- Confirm that the work is completed.





WHEN REQUIRED

Conduct Gas Test

whenever required.

The air should be tested to prevent explosions and/or make sure the workers and people on-site can breathe the air safely.

- Confirm with the Supervisor or the Person in Charge of the work that the air is tested.
- Confirm with the Supervisor or the Person in Charge of the work that it is safe to start work.
- Stop work if you smell gas.



If you are a Gas Tester

You should:

- Understand which tests the Work Permit requires and how often.
- Use certified equipment for the tests.

If you are the Supervisor or Person in Charge of the work

- Confirm that gas testing is carried out as per Work Permit.
- Request more gas tests if necessary to keep the workers safe.
- ✓ Confirm that it is safe to start work.





Verify Isolation before work begins and use the specified life protecting equipment.

Isolation separates the worker and keeps them safe from the many dangers that can exist at any given job site. There is always a risk around any electricity, pressure, toxic materials, poisonous gas, chemicals, hot liquids, or radiation.

Specified life-protecting equipment (such as breathing apparatus, electrical arc flash protection, or chemical resistant suits) helps to protect from danger.



You should:

- Understand the isolations that protect you from danger.
- Confirm with the Supervisor or the Person in Charge of the work that isolations are in place.
- Confirm with the Supervisor or the Person in Charge of the work that it is safe to start work.

If you are the Supervisor or Person in Charge of the work

- Confirm isolation is in place, for example, lock switches, separate pipes with spades, or lock access doors.
- Confirm no stored energy or other dangers remain.
- Confirm that it is safe to start work.





Obtain authorization before entering a confined space.

A confined space, such as a vessel, tank or pipe, can contain explosive gas, poisonous air or other dangers such as lack of oxygen, things that can fall on you or you can fall from. Authorized access keeps everyone safe.

- Confirm with the Supervisor or the Person in Charge of the work that it is safe to start work.
- Confirm with the Attendant that you can enter a confined space.
- Follow the requirements of the Work Permit.



If you are the Attendant

You should:

- Approve and control access to a confined space.
- Have means of communication with people in the confined space.

If you are the Supervisor or the Person in Charge of the work

You should:

- Confirm that the requirements of the Work Permit are in place.
- Confirm that a qualified Attendant is always present when people are in a confined space.
- Confirm that gas testing is carried out as per Work Permit.
- Confirm that it is safe to start work.



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Obtain authorization before overriding or disabling safety critical equipment.

Obviously, safety-critical equipment must work correctly to keep workers safe.

Some examples of safety-critical equipment include isolation devices/emergency shutdown valves, lock out/tag out devices, trip systems, relief valves, fire and gas alarm systems, certain level controls, alarms, crane computers and In-Vehicle Monitoring Systems.



You should:

 Obtain authorization from the Supervisor or the Person in Charge before overriding or disabling safety-critical equipment.

If you are the Supervisor or the Person in Charge

- Point out the safety-critical equipment in your work place.
- Confirm the authorization comes from the right level.





Protect yourself against a fall when working at height.

Always use fall protection equipment when working outside a protective environment where you can fall over 1.8 meters (6 feet) to keep you safe.

A protective environment includes approved scaffolds, stairs with handrails and man lifts.



You should:

- Have authorization to work at height outside a protective environment.
- Be aware of what fall protection equipment to use and how to use it.
- Check equipment before using it.
- Always tie off when working at height outside of a protective environment.

If you are the Supervisor or the Person in Charge of the work

You should:

 Confirm that it is safe to start work at height.





Do not walk under a

suspended load.

Working or walking immediately under a suspended load is unsafe as the load can fall on you.

A suspended load is an object that is temporarily lifted and hangs above the ground.

(Rig floors are excluded from this rule).



You should:

- Never cross a barrier controlling an area with a suspended load without authorization.
- Follow the instructions of the Flagman or the Person in Charge of the lift.

If you are the Person in Charge of the lift

- Mark the unsafe area and put barriers in place.
- Ensure that nobody walks under a suspended load.





Do not smoke outside of

designated smoking areas.

Smoking or use of matches or cigarette lighters could set on fire flammable materials.

Designated smoking areas, such as a smoking hut or a smoking room, will keep you safe from causing fire and explosion.

You should:

- Know where the designated smoking areas are.
- Intervene if you see someone smoking outside a designated area.

If you are the Supervisor or Person in Charge

- Inform people about designated smoking areas.
- Ensure that designated smoking areas are clearly marked.



No alcohol or drugs while working or driving.

Using alcohol and illegal drugs or other substances will reduce ability to do job safely.

You should:

- Always inform the Supervisor or the Person in Charge if you are taking medicine that may have an effect on your performance.
- If in doubt always check with the Supervisor or the Person in Charge who may seek medical advice.
- Not use, keep, sell or distribute illegal drugs.
- Intervene if you see a case of alcohol or drugs abuse.

If you are the Supervisor or Person in Charge

You should:

Only assign work to people who are fit to work.





While driving, do not use your phone and do not exceed speed limit.

Over-speeding or using your phone while driving increases the risk of losing control of your vehicle.

If you are a Driver

- Not use a mobile phone or pager, send or read a text message, or use a hands-free mobile phone device.
- Stay at or below the maximum allowable speed for the road you are driving on as indicated by road signs or Journey Management instructions.
- Stay at or below the maximum allowable speed limit for the vehicle you are driving.
- Adjust your speed to the prevailing conditions.



If you are a Passenger

- Intervene if a Driver is using a phone in a moving vehicle.
- Intervene if a Driver is exceeding the maximum allowable speed.





Wear your seatbelt.

A seatbelt protects you from injury in the event of an incident while driving and keeps you safe. No matter how small of a distance or how slow the speed, seatbelts should always been used, whether in (rental) cars, taxis, (mini) buses, trucks, cranes, or forklift trucks, and the situation involves persons in moving vehicles when engaged with OGDCL.

*The only exceptions include vehicles where only lap seatbelts are available or in public transport where seatbelts are not available.

You (Drivers and Passengers) should:

- ✓ Always use a 3-point seatbelt.
- ✓ Check that your seatbelt works properly.
- Keep your seatbelt properly fastened while in a moving vehicle.
- Check that everyone in the vehicle is wearing a seatbelt before starting to drive.
- Intervene when your fellow passengers are not wearing seatbelts properly.





Follow the prescribed

Journey Management Plan.

A Journey Management Plan is a plan for you as a Driver that will help you to travel and arrive safely.

*Journey Management Plans are required for any travel time that is over 4.5 hours.

If you are a Driver you should:

- Confirm if a Journey Management Plan is required before starting the journey.
- Discuss the Journey Management Plan with the authorized person.
- Understand the Journey Management Plan before starting the journey.
- Comply with the duty, driving and rest hours specified in the Journey Management Plan.
- Follow the route specified in the Journey Management Plan.
- Always tell the authorized person immediately if changes occur.



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If you are the Supervisor or Person in Charge

You should routinely:

- Check that the Journey Management Plan is in place and being followed.
- Check that the Driver understands and complies with the Journey Management Plan.



Consequences of Rule-breaking

Incidents and rule-breaking will be <u>investigated</u> thoroughly.

If the violator is aware of the rule or required procedure through training, experience or communication, and did not comply with that rule or procedure, the <u>maximum appropriate action</u> will be applied.

Failure to comply with any Life-Saving Rule will result in punitive action. For employees of contractors or subcontractors, this means removal from site and disqualification from future work.

In addition, if a supervisor sets the conditions for rule breaking or fails to follow through if one is broken, maximum appropriate action will apply.



Personal Workplace Hazard Control

BEFORE starting any work, COMPLETE the following:

- 1. Identify hazards/activities in the workplace.
- 2. Perform risk assessment.
- 3. Ensure controls are in place.
- Obtain all required work permits (if applicable).
- 5. Use proper job procedures.
- Stop the job immediately if hazards are not under control.

Workplace Hazards and Hazardous Activities

Special attention is required to protect you and co-workers from major hazards and certain hazardous activities in the workplace. STOP work immediately IF CONTROLS ARE "NOT" IN PLACE for the following:

- 1. Driving
- 2. Lifting and Hoisting
- 3. Dropped Objects
- 4. Pressure
- 5. Falls from Heights and Open Holes
- 6. Electricity
- 7. Confined Space
- 8. Compressed Gases



1. Driving

Understanding the Hazard:

- Driving is the single most dangerous activity!
- Approximately one third of FATALITIES are caused by roadside/ transport accidents in oil & gas industry.
- Driving includes the safe operation of all trucks, cars, cranes, and ATVs.

Driving facts:

Distance traveled:

100kph = 91 ft per second

Braking:

278 feet = approx. braking distance at 100kph

(under normal conditions)

Causes of Driving Incidents:

- Loss of vehicle control
- Impaired driver
- Distracted driver
- Driver fatigue
- Over-speeding
- Night-driving
- Rough weather



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Controls to the Driving Hazard

Complete required driver training.
I Determine if trip is necessary.
Select safest route/time of travel.
Notify supervisor pre-/post-trip (if
required).
Be well rested and alert (no
drugs/alcohol) - Fit for Duty.
Select proper vehicle for trip.
Complete pre-trip inspection (tire
air pressure, fuel supply, mirrors
adjusted, etc.)
Ensure emergency/safety
equipment is available as needed.
I Fasten seatbelts (all occupants).
Obey speed limits.
I Turn off cell phones while driving.
Ensure all loads are secured.
I Take frequent planned breaks.



2. Lifting and Hoisting

Understanding the Hazard:

Lifting and Hoisting activities, if not controlled, are extremely dangerous. A large number of Contractors' related serious incidents involve Lifting and Hoisting activities.

Put a "10-feet rule" in place. No worker is allowed to be within a 10-feet radius of the suspended load in case of equipment malfunction/accidental drop. If a load is suspended more than 15 feet, increase the radius.

Equipment includes:

Cranes (winch truck, gin pole truck, boom crane, overhead), aerial platforms, powered industrial trucks, hoists, jacks, winches, beam clamps, fixed lifting points, slings (wire rope, chain, synthetic), lifting devices, spreader bars, clamps, hooks, shackles, eyebolts, turnbuckles, sockets, rigging blocks, cargo containers, racks, frames, pallets, and personnel work baskets.

Causes of Lifting and Hoisting incidents:

- Failure to follow procedures
- Equipment failure
- Improperly secured loads
- Exceeding equipment capacity
- Inadequate lift plan/or communication
- Inadequate inspection procedures
- Side loading of equipment
- High winds, high waves, low temperature
- Improper hand placement
- Improper use/lack of tag lines



Controls for Lifting and Hoisting

Comply with all work procedures.
 Validate work controls are in place.

Ensure testing, inspection, and certification of lifting equipment is complete.

☑ Use a Certified Crane Operator.

Ensure all riggers have

completed rigger training class.

Use the Local Lifting Focal Point.

Ensure Manlift/Forklift Operators

have completed approved training.

Prohibit personnel from standing under overhead loads.

Establish and erect buffer zones and barricades.

Signaling.

☑ Use tag lines to control loads.

Consider completing behavioral-

based safety observation.



3. Dropped Objects

Understanding the Hazard:

Dropped Objects are a leading cause of fatalities in the Oil and Gas industry.

An 8-pound wrench dropped 200 feet would hit with a force of 2,833 pounds per square inch.

Examples of potentially fatal situations:





Causes of Dropped Objects

- Failure to follow procedures
- Inadequate maintenance of overhead equipment
- Inadequate design of overhead equipment
- Inadequately secured equipment/tools
- Inadequate training
- Poor housekeeping of overhead work areas
- Improper storage of overhead equipment/ tools



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Controls to the Dropped Objects Hazard

Ensure employees are trained.

Ensure procedures are followed correctly.

Comply with checklist for

handling equipment (e.g. tubular).

Ensure forklifts that handle

tubular have a pipe clamp device.

Set buffer zones/barricades during overhead or suspended loads work.

Use tethered tools during overhead work.

Conduct all required dropped object inspections.

Prohibit personnel from standing

under overhead loads.

Do not use the following:

"Homemade" lifting devices

• Wooden handle hammers (when working at heights)

• Wire/welding rods/tie raps (use

engineered split pins and safety pins)



4. Pressure

Understanding the Hazard:

- The release of pressure is extremely dangerous and can be fatal!
- Never open a piece of equipment that contains any pressure.
- Ensure that both sides of all piping connections are the same diameter, make, and thread type. Many fatalities have occurred due to using mismatched connections.
- For hammer unions, validate correct diameter with Go/No-Go rings.

Example 1:

This is enough energy to be deadly if standing in the line of fire.



Example 2:





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Causes of Pressure Incidents:

- Failure to follow procedures
- Use of mismatched connections (diameter, make, and threads do not match)
- Use of defective/damaged/improper hoses and tubing
- Failure to depressurize equipment before starting work
- Failure to isolate pressure [Lock Out Tag Out (LOTO)]
- Failure of valves, flanges, and fittings
- Relying solely on malfunctioning gauges/instrumentation to determine if pressure is present
- Transferring contents of high pressure to
 low pressure system or container



Controls to the Pressure Hazard

E Follow proper work procedures.
Use proper equipment (size, type).
Install physical barriers and buffer
zones.
I Ensure pressure gages, relief
valves, alarms, and shutoffs are
working properly.
Ensure proper communication
prior to opening valve(s).
Ensure temporary piping is
secured.
Install Warning signs if applicable.
Ensure trained and competent
workers.
☑ Identify potential job hazards.
Complete permits, checklists, and
inspections.
☑ Validate work controls are in place.
Identify and mitigate line-of-fire
hazards.
Go/no-Go Rings.
Prevent the release of energy: use
Lock Out Tag Out (LOTO).
Consider completing behavioral-
based safety observation.
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5. Falls from Heights and Open Holes

Understanding the Hazard:

Falls are the number two cause of fatalities during construction activities. (Driving incidents are the number one cause.)

Falls can be:

- From heights
- Into open holes
- Into equipment or machinery

Causes of Falls:

- Failure to wear fall protection equipment
- Slips on stairs and ladders
- Inadequate barricades around deck openings or edges
- Failure to keep paths clear of obstacles or clutter
- Missing handrails
- Uneven work surfaces



Controls for Fall Hazard

Comply with all work procedures.
☑ Validate work controls are in place.
Install handrails, guardrails, gates,
and ladder cages where needed.
Work from temporary scaffolding
that is properly secured.
☑ Use barricades around open
holes.
S Use personal fall protection
equipment when working at heights of
6 ft (1.8 m) or greater.
Maintain three point contact
(hands and feet) on all stairs and
ladders.
Keep aisles and walkways clear.
☑ Use only trained personnel that
are competent in fall protection
procedures.
Inspect fall protection equipment
prior to using.
Ensure rescue procedures are in
place.
Consider completing behavioral-
based safety observation.



6. Electricity

Understanding the Hazard:

Direct contact with 40 Volts or greater can be fatal!

Voltages at our locations range from: Several millivolts to 10 KV.

Causes of Electrical Incidents:

- Driving trucks with oversized loads into electrial overhead power lines
- Striking overhead electrical power lines or power poles with equipment (e.g., cranes, gin pole truck, ladders, antennas, etc.)
- Failure to use Lock Out/Tag Out procedures
- Improper electrical maintenance activities
- Failing to identify energized lines during maintenance
- Failing to identify energized lines during excavation activities



Controls for the Electricity Hazard

Comply with all work procedures.

☑ Validate work controls are in place.

Ensure proper Lock Out/Tag Out

procedures are followed.

Maintain required distance from overhead electrical lines.

☑ Plan travel routes to ensure

avoidance of overhead electrical lines.

Ensure proper PPE is used.

☑ Verify the location of underground electrical lines before digging.

Ensure the proper grounding of equipment.

Ensure the minimum spacing

requirements for electrical equipment are maintained.

Use only competent Electricians.

Ensure electrical Code

requirements are followed.

Consider completing behavioral-

based safety observation.



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7. Confined Space

Understanding the Hazard:

Entering confined spaces for inspection and maintenance could be fatal. Most deaths associated with confined space entry are due to atmospheric hazards. Because the spaces are so small, these atmospheres can quickly overcome a worker. These sudden and unexpected hazards can interfere with evacuation. The main atmospheric hazards are:

- Toxic gases and vapors
- Flammable gases and vapors
- Oxygen rich or oxygen deficient atmospheres

Examples:

Tanks; silos, mud pits; stacks; excavated areas; vessels; cellars; vaults, drains, ponds, etc.

Causes of Confined Space Incidents:

- Not providing workforce with proper and sufficient confined space training.
- Lack of proper equipment to workers performing confined space work and rescue operations.
- Lack of supervision and proper overseeing of those performing a confined space operation.
- Lack of complete standard operating procedures to ensure complete safety.



Controls for the Confined Space Hazard

Comply with all work procedures.

☑ Validate work controls are in place.

Ensure measuring the four gases.

I Provide ventilation equipment for spaces that do not have adequate air supply. Air can be pumped into the space.

Maintain authentic communication with the attendant (buddy system).

E Provide necessary PPE including a harness for emergency retrieval and respirator (depending on the work and atmospheres).

Practical rescue plan must be in place.

Use intrinsically-safe lighting equipment (headlamps and portable lighting units).

X Avoid blocking off access to a confined space. Manage the entrance of a space while a person is already inside. But when a space is evacuated or left uncontrolled,

barriers are necessary.

Use only competent workers.

Consider completing behavioral-

based safety observation.



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8. Compressed Gases

Understanding the Hazard:

- The release of compressed gas is extremely dangerous and can be fatal!
- Each type of compressed gas has its own hazards; most are asphyxiation, flammable, explosive, toxic, or a combination of these types.

Examples:

Gases used for burning, welding, breathing air, fire protection, analyzer carrier gas, purging, etc.

Causes of Compressed Gases Incidents:

- Not providing workforce with proper and sufficient training on compressed gases.
- Lack of proper equipment to workers involved in the handling of compressed gases.
- Not reading the labels on the cylinder and the Material Safety Data Sheet (MSDS) for safety information.
- Relying only on the visual inspection to determine the mechanical integrity of a compressed gas cylinder.



Controls to the Compressed Gases Hazard

 Comply with all work procedures.
 All compressed gas cylinders should be properly marked to identify the contents. (Make sure to mark all empty cylinders as MT.) Never rely on the color of the cylinder for identification.

Wear the appropriate protective clothing when working around compressed gas.

Store compressed gas containers (upright and secured with a chain or cable) in a fire-resistant, wellventilated area that is both cool and dry, at least 20 feet from combustible materials.

Never roll or drag cylinders; Use wheeled carts to move larger cylinders.

Open valves by hand, rather than with a tool (unless a specific tool is recommended by the supplier). Don't tamper with safety devices.

Never mix gases in a cylinder or try to refill a cylinder (contact the supplier).

If a cylinder leaks or a valve is broken, tag the cylinder and contact a trained maintenance person.

Consider completing behavioralbased safety observation.



Consequence Matrix

~	> Potential Impact			
Actual Severity	Human Environment		Asset/ Financ ial	Reputa tion
Catastrophic (5)	Multiple Fatalities	Massive Effect 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	International Concern
Critical (4)	Single Fatality	Major Effect 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	National Concern
Major (3)	Multiple Injury Cases esp. Lost Time Injury(ies)	Local Effect Limited Discharges affecting the neighborhood or damaging local environment. Excursions beyond allowable or regulatory limits.	Loss of 50-100 Million PKR	Provincial / Regional Concern
Marginal (2)	Medical Treatment Case(s)/ Restricted Workday Injury(ies)	Minor Effect Discharge or Contamination with no lasting effect. Rare excursions beyond allowable or regulatory limits.	Loss of 10-50 Million PKR	Local Concern
Negligible (1)	First Aid Case/ Near Hit	Slight Effect Slight Damage within the premises of the facility	Loss of <10 Million PKR	Awareness, No Concern



Probability Matrix

Incident Probability

	(likelihood that exposure would result into loss)
5	Likely (Incident has occurred several times per year at Location)
4	Probable (Incident occurred several times per year somewhere in OGDCL)
3	Occasional (Incident has occurred in OGDCL only in recent years)
2	Remote (Incident has occurred within E&P oil and gas industry)
1	Improbable (Never heard of in E&P oil and gas industry)

Risk Matrix (Consequence x Probability)



Risk Level	Action and Timescale
Low [1-7]	No action is required
	No addifional controls 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 mainteniated.
High [15-25]	Work should not be started until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk to ALARP (Medium or low) through objectives & targets and startegic Decision Making. Where the risk involves work in progress, urgent action should be taken.



Job Hazard or Vulnerability Analysis (JHA or JVA)

A JHA or JVA is a process to:

- Document each step of a job
- Identify existing/potential hazards & risks of each step
- Determine best means to eliminate or control the hazards/risks
- Document worker's responsibilities
- Communicate to all workers the following:

0	Job Tasks
0	Job Hazards
0	Job Controls
0	Individual Responsibilities



JHA Checklist

lasi	K	
1.	X	Specific tasks listed
2.	X	Individuals assigned tasks
3.	X	Contingency Plan completed
Haz	ards	
4.	X	Energy sources identified (Decision Point/Major Hazards)
5.	X	Job specific layout
6.	X	Climatic Conditions considered
7.	X	Other activities identified
8.	X	Loss of containment
Con	trols	
9.	X	Engineering Controls
10.	X	Intervention Controls
11.	X	Procedures
12.	X	Permits/Approvals
13.	X	HSE Walkthrough
14.	X	Behavioral-Based Safety
		Observations
15.	X	Training
16.	X	Fit for Duty
17.	X	Job Supervision
18.	X	Safety Pause
19.	X	Safety Watch/ Monitor/ Rep.
20.	X	Feedback at end of day
21.	X	HSE Alerts (Reports)
22.	X	Compliance
23.	X	Management of Change (MoC)
24.	X	PPE



Elaboration of JHA Checklist:

- 1. Steps required to complete a job.
- 2. Individual(s) assigned responsibility for task.

3. What are the actions during an emergency event? Who is in charge; is there a roster of all personnel; has the muster point been communicated to all employees?

4. Decision Point: Motion, Chemical, Radiation, Electrical,

Gravity, Heat/Cold, Biological, and Pressure.

Major Hazards: Driving, Lifting/Hoisting, Dropped Objects,

Pressure, Fall from Heights/ Open holes, Electrical.

 Spacing/job site congestion, barriers/caution tape, buffer zones.

6. Adverse weather - snow, rain, wind, visibility, dark,

lightning, noise, mud, ice, hot, cold.

7. Other contractors on location:

simultaneous operations (SIMOPS).

- 8. Spills prevention considerations.
- 9. Eliminate/modify equipment.
- 10. Stop work program.
- 11. Written procedures.
- 12. Authorization/permission to perform task.
- 13. Complete all checklists and inspections.
- 14. Observation of safe/unsafe work or behaviors.
- 15. Trained workers.
- 16. Rested, alert, good attitude, no drugs alcohol.
- 17. Who is Person in Charge?

18. Scheduled "stop work" to determine if safety can be improved.

- 19. Safety Watch/ Monitor/ Rep. identified.
- 20. Review of JHA process.
- 21. Previous occurrences noted and discussed.
- 22. Compliance with standards, procedures, guidelines.
- 23. Has any change occurred?
- 24. Personal Protection Equipment (PPE) used.



Environmental

ISO 14001 – is an international standard for environmental management.

OGDCL facilities are ISO 14001 compliant or certified. Contractors should follow OGDCL environmental rules and strive for continuous environmental performance improvement.

Spills – spill control and prevention shall be part of all contractors work practices. You are required to report all spills (oil, chemical, etc.) to OGDCL Supervisor / HSE Rep.

Waste Management – all waste (emissions, effluents and solid) shall be identified, segregated, measured and disposed of properly. Waste management should be part of job planning. Designated drums, containers, bins, etc. with specific labels shall be placed as Collection Method for the Waste Generating Areas.

Color coding of drums, containers, bins, etc. for various types of wastes is to be as follows:

Waste Type	Bin Color
Hazardous Waste	Red Color
Food/Paper/Wood Waste (Organic Waste)	Green Color
Plastic Waste	Yellow Color

Contractor must define roles & responsibilities for the collection and safe disposal of waste (hazardous as well as non-hazardous) not only from the workplace but also from the residential (camp) area.



Occupational Health

Hazard Communication (HazCom) / MSDS Program

The purpose of this program is to ensure that all known potential hazards at the workplace are communicated to all employees.

Compliance includes:

- Container labeling
- Maintaining MSDS
- Workplace chemical inventory
- Employee info and training concerning the hazards and controls for safe chemical and product handling

Specific Workplace Hazards (Sources):

- Drilling, Production and Process related Fluids & Chemicals
- Hydrogen Sulphide
- Naturally Occurring Radioactive Material (NORM)
- Asbestos
- Man-Made Mineral Fibers
- Lead
- Noise
- Diesel Particulate Matter
- Temperature Extremes
- Fatigue



Q & A

Q. What are the hazards associated with asbestos? A. Asbestos may be present in insulation, brake pads, and in structural materials (i.e. floor tiles, ceiling panels, roofing). It can be a hazard if not handled properly. Only trained personnel shall handle asbestos.

Q. What is Confined Space Entry?

A. Confined Space Entry is entry into a space that:

- is large enough and so configured that a person can bodily enter and perform assigned work; and
- has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits); and
- is not designed for continuous occupancy.

Q. When do I have to wear Fall Protection equipment?

A. Fall Protection is required when working at heights of 6 ft (1.8 m) or greater above work surface.

Q. What is Fitness to Work Policy?

A. An employee can only be on duty for 12 hours during a day. Management approval is required to work additional hours.

Q. What hazards are associated with food handling? A. Food/drink preparation and storage/consumption practices should prevent contamination with workplace chemicals and hazards. Proper storage, preparation, and eating areas are essential to control hazards.

Q. What is Permit to Work (PTW) process?

A. The Work Permit provides proper communication, planning, documentation, and approval for the dayto-day permitted work activities at all work locations by incorporating these in all tasks: A work permit; Hazard Identification; Risk Assessment; Job Hazard //ulnerability Analysis (JHA/JVA); Toolbox Talk; Safety Watch; Shared Learning Opportunities.

Q. What is Hot Work?

A. <u>Hot Work Category 1</u> is work that produces a spark or flame, thus creating an ignition source (e.g., welding, grinding, and flame cutting outside the Safe Welding Area; soldering with flame or electrical soldering gun; shrink wrapping using a heat source;



welding inside confined space once declared hydrocarbon free).

Hot Work Category 2 is work within a potential source of ignition (e.g., use of the following in a hydrocarbon environment: portable electronic devices, electric power tools, stud/ rivet guns).

Q. Where can I smoke?

A. You can only smoke in site-specific Designated Smoking areas. Inquire with OGDCL HSE Rep..

Q. What is OGDCL's Incident Notification policy? A. All incidents shall be reported to OGDCL Supervisor/ HSE Rep. immediately. Record the specific location, date and time, and a description of the event using **Preliminary Incident Report**.

Q. What is Journey Management?

A. Safe Journey Management is a detailed OGDCL protocol that aims to minimize exposure to road transport related risks and to ensure that proper controls are in place for each journey.

Q. What are the hazards associated with Lead?

A. Lead is typically found in paints and coatings. The hazard is primarily ingestion or inhalation. Exposure can occur when welding, cutting, sandblasting, and burning painted or coated surfaces. Proper controls shall be in place to perform these activities.

Q. What is Lock Out/Tag Out (LOTO)?

A. LOTO refers to specific practices and procedures to safeguard employees from the unexpected energization or startup of machinery and equipment, or the releases of hazardous energy during service or maintenance activities. The Lock Out device prevents machines from starting or energy (i.e. electricity or pressure) releases to occur. Tag Out refers to putting warning tags on equipment to warn and prevent employees from energizing equipment.

Q. What are Man-Made Mineral Fibers (MMMF)?

A. MMMF's include fiberglass, mineral wool, refractory ceramic fiber and is used in heat and acoustical insulation. It is primarily an inhalation hazard. Only trained personnel should handle MMMF.

Q. What are mismatched unions?

A. Threaded pipe connections are assembled by hitting the connectors with a hammer. Mismatching can occur if the threads on the connections are not the same diameters. Always validate diameter in the field with Go/No-Go Rings.

Q. What is a Go/No-Go Ring?

A. A cylindrical ring in which the inside diameter is used for checking the external diameter of a threaded pipe connection. Field use is essential to validate the proper pipe connection.

Q. What is NORM?

A. Naturally Occurring Radioactive Material is present in the earth and can be found sometimes as scale that sticks to the walls of piping and equipment that comes in contact with produced water. NORM is primarily an inhalation and ingestion hazard.

Q. What is Personal Protective Equipment (PPE)? <u>Category A:</u> 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.

<u>Category B</u>: 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. <u>Category C:</u> 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.

Q. What is the Radiography Safety?

A. Radiography is of vital importance in nondestructive testing. Radiography ensures the integrity of equipment and structures such as vessels, pipes, welded joints, castings and other devices. The integrity of this equipment affects not only the safety and quality of the products used by workers, but also the safety and quality of the environment for workers and the public at large. Following is the safety checklist linked up with the Radiography Work Permit:

- Are radiography sources adequate for the job?
- Are all radiographers qualified "Registered"?
- Are all radiographers wearing film badges?
- Is audible warning system available?
- Is radiation survey meter/dosimeter calibrated?
- Is adequate lighting in place?
- Has the radiation zone been posted?
- Have radiation zone been barricaded/ cordoned off?



Q. What is Hazardous Materials Identification System (HMIS)?

A. Hazardous Materials Identification System (HMIS) is a voluntary hazard-rating-scheme to communicate in-plant chemical hazard information through the use of colors, numbers and letters of the alphabet. The four bars are color-coded, using the modern color bar symbols and the number ratings as follows (within a diamond shape safety sign/alert):

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

Type of Hazard	HMIS Color Bar
Health	Blue
Flammability	Red
Physical Hazard	Orange
Personal Protection	White

Q. What are the examples of ignition sources in perspective of internal combustion engines?

A. Internal combustion engines, whether fueled by gasoline, diesel, propane, natural gas, or other fuels, can act as ignition sources. Examples include:

- Stationary engines such as compressors, generators and pumps.
- Mobile equipment or transports such as vans, trucks, forklifts, cranes, well servicing equipment, drilling rigs, excavators, portable generators and welding trucks.
- · Contractor vehicles and motorized equipment.
- Emergency response vehicles such as fire engines and ambulances.
- Vehicle-mounted engines on vacuum trucks, tanker trucks and waste haulers.
- Small portable engines such as mowers, blowers, generators, compressors, welders and pumps. This includes hand tools unrelated to a process, such as chain saws, brought in by contractors.

Q. How can you prevent engines from becoming ignition sources?

A. Preventive measures as mentioned below:

- By installing automatic over-speed shutdown devices on permanently-mounted engines.
- By installing intake flame arrestors and exhaust system spark arrest systems on permanently mounted engines.
- By installing flammable gas and vapor detectors in processing areas.



- By installing shutdown systems (positive air shutoff for diesel or ignition kill for gasoline), intake flame arrestor, exhaust system spark arrest, or other appropriate protective systems for mobile internal combustion engines.
- Using a safe work permit system to control mobile combustion engine access into areas that could contain flammable vapors and gases.
- Using a safe work permit system to control the use of open flames and spark-producing operations and equipment (e.g., welding, grinding, brazing, etc.)

Q. What are recommended safe distances/ clearances from which (moving/ elevated) equipment must not be operated within a power line?

Activity	Safe Distance		
	Rig Status	Line Voltage	Minimum Clearance, ft.
Recommended Minimum Clearances Between Power Lines and Derricks, Masts, or Guylines	Operating rigs	All	10 ft plus 4 in. for each additional 10 kV over 50 kV
	In transit (lowered mast)	less than or equal to 50 kV	4 ft (1.2 m)
		greater than 50 kV	4 ft plus 4 in. for every additional 10 kV
Distance from which moving equipment	Power line voltage – nominal kV, alternating current		Distance (feet)
(e.g. crafte boom) must not be operated within an organized power line	Up to 50 More than 50 to 200 More than 200 to 350 More than 350 to 500 Erect an elevated warning or line of signs, in view of th		10 15 20 25 line, barricade, he operator.



API Classification Response According To Areas Of Potential And/Or Actual Exposure To H₂S:

No Hazard Condition	Any well that will not penetrate a known Hydrogen Sulfide formation would be categorized as a "No Hazard Area". Special Hydrogen Sulfide equipment is not required.
API Condition I - Low Hazard	Work locations where almospheric concentrations of H₂S are less than 10ppm. Recommended for Area: P Hydrogen Sulfide warning sign with GREEN FLAG warning device present. P Keep all safety equipment in adequate working order. P Store the equipment in accessible locations.
API Condition II - Medium Hazard	 Work locations where atmospheric concentrations of H₂S are greater than 10ppm and less than 30ppm. Recommended for Area: I Legible Hydrogen Sulfide warning sign with YELLOW FLAG warning device present. I Keep a safe distance from dangerous locations if not working to decrease danger. Pay attention to audible and visual alarm systems. Follow the guidance of the operator representative. Keep all safety equipment in adequate working order. Store the equipment in accessible locations. A properly calibrated, metered hydrogen sulfide detection instrument.



Work locations where atmospheric concentrations of H₂S are greater than 30ppm. Recommended for Area: Dest legible Hydrogen Sulfide warning sign with RED FLAG warning device. Depart signs 500 feet from the location on each road leading to the location, warning of the hydrogen sulfide hazard. D Check all Hydrogen Sulfide safety equipment to ensure readiness before each tour change. Establish a means of communication or instruction for emergency procedures and maintain them on location, along with contact information of persons to be informed in case of emergencies. Ensure usability of two exits at each location. Do not permit employees on location without hydrogen Sulfide safety training. (Employees Condition III – High may be permitted on location for specific Hydrogen Sulfide training purposes that does not include general rig training.) De Pay attention to audible and visual alarm systems. D Store the equipment in accessible locations. D Two Hydrogen Sulfide detectors should be present (one should be a properly calibrated, metered detection instrument, and the other should be a pump type with detector tubes. The maximum The maximum permissible exposure limit (PEL) is 20 ppm. Respiratory protection would be required if periodic testing indicates employee H₂S exposures to at PEL. concentrations above the Ref. OSHA Standard Respiratory Protection, [29 CFR 1910.134]. D Oxygen resuscitator. D Three wind socks and streamers. D Two NIOSH/MSHA 30-minute. Self-Contained Breathing Apparatus (SCBA) for emergency escape the from contaminated area only.



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Emergency Response:

Basic Level Emergency	It is an emergency state in which an incident occurs which may not cause the normal operations to be shutdown. There is no immediate potential threat to the safety of personnel, assets, environment, and operations. Emergency equipment available on site can control this type of emergency situation. <u>For e.g.</u> • An injury or illness without Lost Workday Injury (LWI); • Minor fire; • Minor fire; • Minor fire; • Electrical shock; • Person becomes unconscious in confined space. Note: For Basic Level Emergency condition, there is no need to cather at muster point
Level – 1 Emergency	 It is an emergency state in which an incident or series of Incidents which may cause the normal operations / activities to be temporary suspended or shut down. This emergency results an immediate potential threat to the safety of personnel, assets, environment, and operations. This type of emergency can be control by Emergency Team Member. The following conditions define as Level-1 Emergency (but not limited to): An injury or illness which result Lost Workday Injury (LWI); Moderate fire; Moderate spill; Small contained fire or explosion; Electric shock/ electrocution; Toxic/ H2S leakage; Note: Gather at respective muster point in case of
Level-2 Emergency	 Level-1 Emergency. An emergency state in which an incident or series of incident may result in serious injury/ fatality, significant fire/ explosion, major equipment damage, gas / oil release, loss of controlled substance to the environment for which external support services may be required. The following condition defines as Level-2 Emergency (but not limited to): An injury or illness that may result in Lost Workday Injury (LWI) or poses a health threat to personnel; Property or Equipment damaged due to the significant fire or explosion; Excessive H₂S emission; Major chemical / oil spills; Bornb threat; Note: Rush outside the plant boundary through emergency exit gate in case of Level-2 Emergency.



HSE Pledge Handbook Acknowledgment:

1 (on behalf of my company) hereby acknowledge that:

(1) I have received a copy of and read this handbook.

(2) I understand the handbook and its pledge.

(3) I agree to work under all provisions contained in this handbook.

(4) I am physically capable of performing the job.

(5) I understand that the requirements in this book

will be strictly enforced!

Consequences for violations (up to and including termination from OGDCL premises / panel) will be enforced.

Signature:	
0	

Name: ____

Contractor/Service Company:

Date:_____

Note:- This form shall be filed at the Office of Location Management (PC/ OM/ FM/ PM) in the presence of OGDCL HSE Rep..



HSE Induction For Field Visitors:

- Visitors are expected to comply with all SAFETY/ ENVIRONMENT/ EMERGENCY signs and use of PPE where required.
- In case of any emergency, inform Duty Officer by dialing '_____'.
- 3. 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.
- 4. Only use the designated areas for smoking.
- 5. 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.
- 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 ______. Necessary medicines are available at field.
- 7. Illegal drugs, weapons and explosives are prohibited within office/ plant/ camp premises.
- While using toilets, you may consult the following Dehydration Chart to check your dehydration levels through urine color:





Important Contact Numbers:

#	Designation	Contact Number			
		Office	Residential	Cell	



Notes:



DISCLAIMER

REMEMBER

"Everyone Has An Obligation To STOP Work That Is Unsafe."



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