Reference Standards

ISO14001:2015 &
ISO45001:2018

Clause 8.1: Operational Planning and Control.
Clause 8.3: Outsourcing.
Clause 8.4: Procurement.
Clause 8.5: Contractors.
Clause 8.2/8.6: Emergency Preparedness and Response.

OHSAS18001:2007

Clause 4.4.6: Operational Control.
Clause 4.4.7: Emergency Preparedness and Response.

Preamble

Terms & Definitions

Context

Leadership

Planning

Support

Operation

Performance Evaluation

Improvement

This Section's Objectives

- Establish & enable HSE MS processes related to pollution and accident prevention and control how they operate
- Establish & enable hydrogen sulfide emergency preparedness and response framework

Associated Documents

- Operational Controls – Plans; Procedures
- Operational Controls – Work Instructions
- Operational Controls –Maintenance Programs
- Operational Controls – Calibration Plans
- Cold Work Permit
- Sour/Hot Work Permit
- Electrical Work Permit
- Confined Space/Vessel Entry Work Permit
- Radiography Work Permit
- Excavation & Civil Work Permit
- Working at Height Permit
- Vehicle Entry Permit
- Lock-out Tag-out (LOTO) Sheet
- Power Isolation Slip
- Permit Log
- Onsite Waste Management Plan
- Section Waste Register
- Waste Consignment Note
- Waste Disposal Log
- Journey Management Plan
- Vehicle Inspection Checklist
- PPE Need Assessment Matrix
- Well(site) Handing Over Taking Over Checklist
- QC Checklist (Treatment & Restoration)

Applicable Documents

- OGDCL Safety Handbook For Oil & Gas Exploration Leases (Seismic Surveys)
- OGDCL Safety Handbook For Oil & Gas Well Drilling and Servicing Operations
- OGDCL Safety Handbook For Oil & Gas Development and Production Leases
- HSE Pledge Handbook For Contractors & Service Companies

Operational Planning and Control
OGM/P-HSE-7.1

Permit to Work System
OGM/P-HSE-7.2

Handling, Segregation and Disposal of Waste
OGM/P-HSE-7.3

Journey Management
OGM/P-HSE-7.4

Framework For Hydrogen Sulfide Management Framework
OGM/P-HSE-7.5

Management of Project Contractors & Service Companies
OGM/P-HSE-7.6

Use of Personal Protective Equipment
OGM/P-HSE-7.7

Framework for Site Restoration
OGM/P-HSE-7.8

7.1 Operational Planning and Control

OGM/P-HSE-7.1(06) Revision Number 6

ORIGINAL ISSUE: JUNE-25, 2007
THIS REVISION : MARCH-02, 2018 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Added: Life cycle perspective of has been considered in the establishment of operational controls in line with impact control hierarchy and communication (information) to mitigate impacts.
2	Added: Factors have been considered while determining the type and extent of operational controls related to external providers, including contractors and service companies.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Approved by
Operational Control Procedures	Concerned Section IC	Location IC	Area Manager/ Concerned GM
Operational Control Work Instructions	Concerned Section Rep.	Concerned Section IC	Location IC
Operational Control Maintenance Plans	Concerned Section IC	Location IC	Area Manager/ Concerned GM
Operational Control Calibration Plans	Concerned Section Rep.	Concerned Section IC	Location IC

- Consistent with a life cycle perspective, the management shall:
  - apply impact control hierarchy with the aid of any tool like Layers Of Protection Analysis (LOPA) for assessing the "adequacy of protection layers". The methodology helps to identify safeguards that meet the Independent Protection Layer (IPL) criteria,
  - establish controls as appropriate to ensure that its HSE requirement(s) are addressed in the design, processes, production, and dispatch of the products, considering each stage of its life cycle;
  - determine its HSE requirement(s) for the procurement of material, equipment and services as appropriate;
  - communicate its relevant HSE requirement(s) to external providers, including contractors and service companies;
  - consider the need to provide information about potential significant HSE impacts associated with the transportation or dispatch, use, end-of-life treatment and final disposal of materials, equipment, and products.

- When a process is outsourced, or when services are supplied by (an) external provider(s), the management's ability to exert control or influence may vary from direct control to limited or no influence. When determining the type and extent of operational controls related to external providers, including contractors and service companies, the management shall consider one or more factors such as vulnerabilities, threats & opportunities and associated impacts related to the outsourced process or services and the compliance obligations. Subsequently the operational controls can be agreed upon during the signing of contract / agreement.

- The documented information to the extent necessary to have confidence that the processes have been carried out as planned shall be maintained as follows:-

Coverage & Scope → / ↓ Job/ Activity	Handling, Segregation and Disposal of Waste	Permit to Work System	Emergency Preparedness & Response	Specific SOPs (Pre-Startup, Shutdown, etc.)	*Specific Work Instructions	Specific Maintenance Programs (In-house)	Specific Calibration Plans (External)
Main Functions							
Specific Seismic Job, Drilling Activity, Production Activity, Process/ Sub-Process	☑	☑	☑	☑	☑	☑	☑
Corollary Functions/ Activities							
Chemical (Material) Handling	☑	☑	☑	☑	☑	--	--
Excavation Work	☑	☑	☑	☑	☑	--	--
Working in Confined Space	☑	☑	☑	☑	☑	--	--
Work At Height	☑	☑	☑	☑	☑	--	--
Explosives Handling	☑	☑	☑	☑	☑	--	--
Controls for Mechanical Integrity	☑	☑	☑	☑	☑	☑	☑
Noise/ Vibration Controls	☑	☑	☑	☑	☑	☑	☑
Lifting and Hoisting Controls	☑	☑	☑	☑	☑	☑	☑
Electrical & Instrumentation Controls	☑	☑	☑	☑	☑	☑	☑
Power Management	☑	☑	☑	☑	☑	☑	☑
Water Management	☑	☑	☑	☑	☑	☑	--
Energy (Emissions/Flare/Vent) Mgt.	☑	☑	☑	☑	☑	☑	☑
Effluents Management	☑	☑	☑	☑	☑	☑	--
Journey Management	☑	☑	☑	☑	☑	--	--

- **SOPs** shall be established by all Sections/ Departments where their absence could lead to deviation from HSE policy, objectives, or targets; or could cause significant HSE impact.
- **Work Instructions** shall be established by all Sections/ Departments to stipulate the operational criteria for carrying out operations having significant HSE aspects and impacts.
- **Maintenance Programs** shall be developed by concerned Sections/ Departments and implemented for equipment, machines and systems to ensure smooth, safe, energy-efficient and reliable operations.

- **Calibration Plans** shall be developed by concerned Sections/ Departments and implemented for equipment, machines and systems associated with significant HSE aspects and impacts (&emergencies).
- It is noteworthy to mention that 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 **Personal Protective Equipment** (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.

7.2 Permit to Work (PTW) System

OGM/P-HSE-7.2(06A) Revision Number 6A

ORIGINAL ISSUE: JUNE – 25, 2007
THIS REVISION : JULY – 13, 2018 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Added: *By signing a permit, HSE Representative shall endorse that Permit Issuing Authority and Permit Receiving Authority both have taken all applicable safety measures against the Checklist prior to execution of safety critical job.*

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 019 Cold Work Permit	Issuing Authority	Receiving Authority, Job Performer	Receiving Authority
OGF – HSE – 020 Hot / Sour Jobs Work Permit	Issuing Authority	Receiving Authority, HSE, Job Performer	Receiving Authority
OGF – HSE – 021 Electrical Work Permit	Issuing Authority	Receiving Authority, Job Performer	Receiving Authority
OGF – HSE – 022 Confined Space / Vessel Entry Work Permit	Issuing Authority	Receiving Authority, HSE, Job Performer	Receiving Authority
OGF – HSE – 023 Radiography Work Permit	Issuing Authority	Receiving Authority, Job Performer	Receiving Authority
OGF – HSE – 024 Excavation & Civil works Work Permit	Issuing Authority	Receiving Authority, Job Performer	Receiving Authority
OGF – HSE – 025 Work at Height Work Permit	Issuing Authority	Receiving Authority, HSE, Job Performer	Receiving Authority
OGF – HSE – 026 Vehicle Entry Permit	Section / Department Rep.	IC Shift	Location IC
OGF – HSE – 027 Lock-out Tag-out (LOTO) Record	Electrical	Electrical	Electrical
OGF – HSE – 028 Power Isolation Slip	IC Shift	IC Shift	IC Shift
OGF – HSE – 029 Work Permit Log	Issuing Authority	Issuing Authority	Issuing Authority

7.2.1 General

- PTW System shall provide a system for the control of potentially hazardous jobs in order to ensure that various types of maintenance and inspection work are carried out in a safe manner and without impacts to the personnel and equipment.
- PTW System shall ensure proper understanding of the details of the job to be performed, vulnerabilities involved and various precautionary measures to be taken, before commencing the job, during the execution of the job and on the completion of the job.
- PTW System shall be applicable to all types of maintenance, repairs, modifications, construction, dismantling or radiography work carried out by the employees of the company as well as by any contractors and service companies.

7.2.2 Types of Work Permits

- Following types of work permits shall generally be in use;

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

7.2.3 Role of Permit Issuing Authority & Receiving Authority

- Concerned Dept. Head / Location IC in consultation with Location HSE Representative will decide the nominees suitable for issuing and receiving work permits on the basis of training, skills, roles/ responsibilities and a comprehensive evaluation of individuals' competency and understanding of workplace. The authorization of various types of permits to be decided after evaluation by the concerned Dept. Head / Location IC and Location HSE Representative.
- A consolidated "List of Authorized Permit Issuing Authorities and Receiving Authorities" for various types of permits (duly signed by Location IC) shall be maintained by Location HSE Section.
- Before issuing the work permit, **Issuing Authority** will:
  - Ensures that the scope of work is clearly defined.
  - Determine the type(s) of permit(s) to be issued relevant to task.
  - Ensure fulfillment of mandatory requirement of job hazard analysis.
  - Physically inspect or delegate any competent person (in situation where his present responsibility does not allow leaving office) for inspection of site along with permit receiver to evaluate the physical conditions and control measures.
  - Discuss mutually with the Receiving Authority on vulnerabilities involved in carrying out proposed activity and other activities in parallel in the area / close vicinity.
  - Ensure that the necessary tags, lockouts, isolation procedure are fully implemented as required.
- The **Receiving Authority** will:
  - Carryout impact assessment for the identification of impacts associated in proposed activity and that control measures are adequately implemented and recorded.
  - Ensure that the trained and experienced personnel perform the task.
  - Communicate the existing vulnerabilities involved in proposed activity to all concerned staff in safe accomplishment of activity.
  - Ensure that all workers for this particular job understand the safe procedure for carrying out the job.
  - Ensure that the work site is left in safe condition upon completion of work. Carryout all housekeeping prior to handing over the site / permit closure.

- In case the activity is performed by the Contractor or Service Company, then he will:
  - Ensure that his representative at Location understands the PTW requirements.
  - Ensure that formal job hazard analysis has been completed with assistance from OGDCL representative.
  - Provide appropriate training to his staff on safe execution of work and that mandatory PPE are fully enforced at worksite.
  - Act as Issuing Authority where long-term construction/ project activities are planned.
- By signing a permit, HSE Representative shall endorse that Permit Issuing Authority and Permit Receiving Authority both have taken all applicable safety measures against the Checklist prior to execution of safety critical job.
- No maintenance, repairs, modifications, excavation, construction, radiography or confined space entry shall be carried out without a valid work permit by the employees of the company or by any contractors and service companies.
- If during the course of its work, a confined space is encountered that has not been previously identified, the space must be immediately brought to the attention of the HSE representative, and entry to be delayed until HSE representative has examined the space.
- Where applicable, locks and tags (standardized) shall be used to control the start-up of equipment that is being serviced or maintained. At no time any locks or tags to be overridden that are encountered during the performance of work.

7.2.4 Hierarchy Of Controls & Types Of Lock Out / Tag Out Devices

- The hierarchy of controls & types of lock out/ tag out devices is given below:

Type of control	Device type	Comments
Engineering	Physical Restraint Devices	-Used in conjunction with clasps, locks and tags. -Used to protect personnel and machinery in conjunction with tags.
Engineering	Isolation Clasp	-Used in conjunction with multiple locks and tags. -Each lock on a clasp represents an individual associated with the task.
Engineering	Isolation Padlocks	-Used to protect personnel and machinery in conjunction with tags. -May only be removed by the personnel or function that placed and signed the tag.
Administrative	Danger Tag (Red White and Black Tag)	-Used to protect personnel from machinery which is not in service. -May only be removed by the personnel who placed and signed the tag. -May be removed once equipment is deemed safe or the individual has completed his task. -Multiple tags must be used, one for each individual isolation. -Tagged equipment must not be used.
Administrative	Caution Tag (Yellow and Black Tag)	-Used for out of service machinery. -May be removed by appropriate service people, personnel, or supervisor after consultation and once equipment is deemed safe for repair and testing purposes. -May be used by any person to indicate a fault in machinery. -If out of service equipment is to be worked on, Lock Out / Tag Out shall be used in place of caution tag.

- Location management in conjunction with the Sectional ICs shall be responsible for implementing and maintaining Lock-out/ Tag-out (LOTO) system. Whereas, Location HSE Section shall train the personnel on the use of LOTO.

7.2.5 Rules for Permit To Work (PTW) System:

a) **Site Inspection:** The Issuing Authority shall ensure that site is visited by him or suitable delegate along with the Receiving Authority to determine the conditions and identifying vulnerabilities involved in proposed activity. The physical condition of equipment e.g., welding machine, tools etc. shall also be checked by the permit issuer or his delegate for appropriateness. If condition of surrounding work area are satisfactory and vulnerabilities are evaluated and controlled then the permit issuer shall issue the permit and if surrounding conditions of work area are not satisfactory for the work to proceed the work permit will not be issued until certain mitigation measures are taken.

b) **Gas Test (LEL, O_2, CO & H_2S):** Gas test, if required as per the condition of the applicable work permit shall be conducted by the Issuing Authority / his delegate in presence of Receiving Authority prior to issuing the Work Permit, for likely presence of flammable / toxic gases / oxygen level at work site. **Permit will be issued only if the results of gas test are satisfactory.** Periodic testing during job execution is mandatory on frequency of 2 hours by Issuing Authority/ his delegate. However the duration may be reduced to a suitable frequency say 1 hr. by the Issuing Authority keeping in view the criticality of job. The frequency of gas testing for such activities must be specified while issuing permit and recorded on permit document. Calibration of gas testing equipment to be ensured prior to use by trained staff.

c) **Pre Job Safety Meeting For Hazard Awareness / Communication:** It is the responsibility of Issuing Authority to brief the Receiving Authority the specific conditions existing in the work area, related vulnerabilities, special precaution required for the job, PPE requirement etc. The Receiving Authority will communicate the same to all workers involved in the job by conducting a separate briefing / toolbox talk prior to job execution.

d) **Permit Distribution and Display:** The Receiving Authority is responsible for ensuring that the display of permit at prominent location at the worksite (and in the Motor Control Center (MCC) in case of electrical isolation), and will remain there until completion of job. In case of extension / closure the receiver brings the copy of permit to issuer for extension / closure as per prevailing condition mentioned in this procedure.

e) **Work Supervision:** Receiving Authority is responsible for ensuring that the workers comply with work permit system requirements during the entire activity. The Receiving Authority or his representative must remain at worksite till completion of job in all activities performed by company staff. In contractor executed activities, contractor's or service company's supervisor must remain at site to ensure full compliance of permit system.

f) **Work Monitoring:** Concerned Dept. Head / Location IC, Issuing Authority, Location HSE Representative or any delegate (defined in the permit) may frequently visit the work area to monitor the conditions. For critical jobs visit frequency may be fixed to monitor the conditions or any suitable person may be deputed to remain at site all time till completion of job.

g) **Simultaneous Activities:** Simultaneous activities are required to be identified at the time of issuing work permit, recorded in permit checklist and the same to be communicated to Receiving Authority for his information and necessary precautions during work execution. The Issuing Authority may designate a competent person to ensure that the interfaces between working parties are properly managed as per authorization on work permits.

h) **Work Permit Validity:** Work permit is valid only for the time specified on the permit for which it is issued. Incomplete jobs within specified time period the

permit requires revalidation / reissuance by the Issuing Authority. **The maximum validity of a permit is One Shift, after which the permit is revalidated upon detailed inspection / checks.** A permit is revalidated only once for another shift, after which the permit requires reissuance through reassessment / check for work area conditions.

i) **Blanket Work Permit**: For any **Cold Work** and **Line Break Job** which is likely to continue more than 2 work shifts where project activities of similar nature are planned during ATA jobs and instances allowing work on a grouping of closely interrelated or similar pieces of equipment (e.g., groups of exchangers, pumps, vessels and connecting piping, etc.), blanket safe work permitting of crafts can be done with prior agreement and a Blanket Permit may be issued by concerned Dept. Head / Location IC after carrying out assessment / checks and other requirements of PTW system. The validity of permit is up to a maximum of 7 days and a new permit is to be issued afterwards. Concerned Dept. Head / Location IC may delegate responsibilities for the monitoring during execution of job to any suitable nominee in order validate the work permit requirements. The responsibility for conducting safety briefing, impact assessments lies with the Receiving Authority and that is timely informed to Issuing Authority/ his delegate for his information and record. Concerned Dept. Head/ Location IC may be approached for advice on critical jobs requiring decision making and approvals.

j) **Work Delay / Stoppage:** If the work is delayed or stopped for over 2 hours for any reason other than safety consideration, the permit receiver must return the permit to Issuing Authority. Before restarting the job the Issuing Authority shall recheck the condition contained in initial permit and validate the initial permit.

k) **Work Suspension:** The work in progress under the PTW System may be stopped / suspended by the Issuing Authority / Concerned Dept. Head / Location IC/ Location HSE Representative under following circumstances but not limited to:
   - Upon observance of any major HSE Non-conformance
   - In event of Emergency
   - For operational reasons to prevent interaction with another activity
   - Awaiting receipt of materials etc.

l) **Handing Back:** Once the job is completed and the area is cleared, the work permit requires handing back. The Receiving Authority will return the hard copy of permit to Issuing Authority after signing it and providing status of job i.e. Complete / Incomplete. The Issuing Authority will then initiate the removal of isolation (if any), verify the work site condition returned to normal and close the permit. The Issuing Authority may carry out the test run of equipment prior to closing the work permit.

   The work permit copies will then be exchanged i.e. the card copy will go to Issuing Authority and top page copy to be handed over to Receiving Authority receiver for record. The Issuing Authority will ensure on day to day basis that the relevant record of permits is maintained.

m) **Permit to Work Documentation:** Permit to work documentation shall be subjected to a documentation control process including:
   - Unique reference numbers with traceability within each Dept. / Location
   - Version control
   - Work Permit Log
   - Controlled storage of closed out permits and associated documentation

   The open & closed permits to be properly segregated in Control Room with record maintained in Work Permit Log on daily basis. The closed permits and supporting certificates / documentation are then maintained in proper file folders. Each Dept. / Location will define the retention period for permit records based on the frequency of issuance.

   Note: *Maintenance Work Order (MWO) is raised by operations department for corrective/ breakdown maintenance. The MWO unique reference number may be reflected in permit for traceability.*

n) Change of Circumstances/ Scope:

When circumstances/ scope is changed, work is stopped. Following are some of the conditions:

- *Change of Work Scope/ Circumstances:* Where the work scope or circumstances change e.g. boundaries of intended job exceeding agreed scope etc., work shall immediately cease and the situation referred back to the Issuing Authority for review and advice. A revised JHA may be carried out to evaluate the change and its impacts.
- *Emergency Situation:* In emergency situation, permit shall be suspended until the facility has returned to its normal status. The permit shall be revalidated or reissued prior to work commencement.

o) Training and Competence:

Personnel involved in issuing & receiving work permit are formally trained and competent on work permit system. The issuer and receiver should be aware of the following, but not limited to:

- Work permit conditions e.g. validity, requirement specific to type of permit, precautions measures etc.
- Responsibilities of issuing and receiving authority
- Documentation requirement
- Emergency procedures

7.3 Handling, Segregation and Disposal of Waste

OGM/P-HSE-7.3(06) Revision Number 6

ORIGINAL ISSUE: JUNE – 25, 2007
THIS REVISION : MARCH – 02, 2018 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Nil

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 030 Onsite Waste Management Plan	Location HSE IC	Location HSE MRC	Location IC
OGF – HSE – 031 Section Waste Register	Concerned Section Rep.	Concerned Section IC	Concerned Section IC
OGF – HSE – 032 Waste Consignment Note	Concerned Section IC	Material Store IC	Concerned Section IC Material Store IC
OGF – HSE – 033 Waste Disposal Log	Material Store Rep.	Material Store IC	Material Store IC

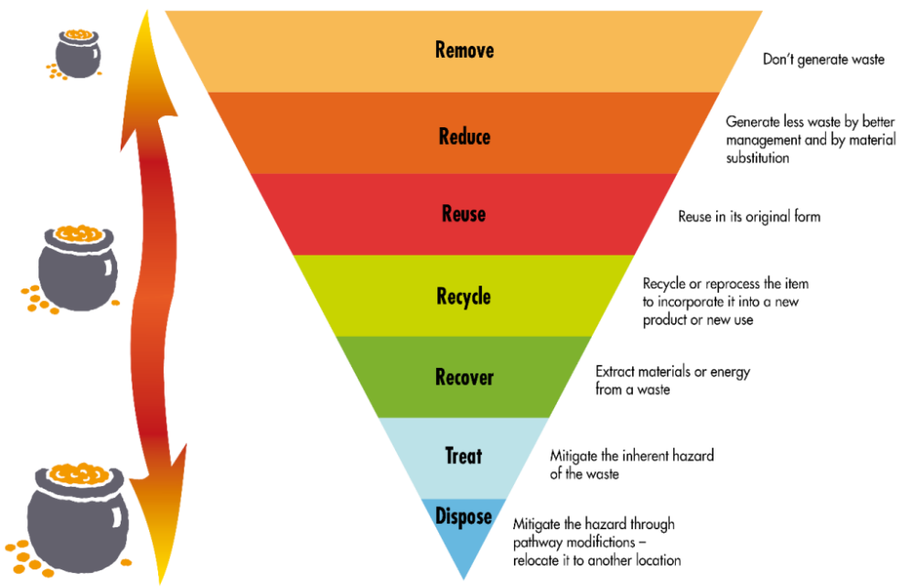
7.3.1 Waste Management Planning

- Waste is classified as Hazardous and Nonhazardous by identifying the physical, chemical and toxicological properties. This information may be found via Material Safety Data Sheets (MSDS), manufacturer's information, process knowledge, historic information or lab analysis. A system to categorize wastes streams according to their health and environmental vulnerabilities is then be developed.
- Location HSE Section shall develop an **On-Site Waste Management Plan** based on this procedure.
- To properly address each segregated wastes, the most suitable Disposal Method; Frequency of Disposal; and Disposal Responsibility shall be determined by documenting where the acceptability of each disposal option for the different ecological domains shall be determined by virtue of evaluation which shall include: environmental considerations; location; engineering limitations; regulatory restrictions; operating feasibility; economics; potential long-term liability; etc.
- 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**

7.3.2 Waste Management Methods

- OGDCL understands the capabilities and limitations of different Waste Management Options for the various types of wastes generated in order to make cost-effective Waste Management Decisions that are protective of human health and the environment. As a general matter, OGDCL has a Waste Management Hierarchy (as recommended by EPA), with a preference for reuse and recycling options.



- **Source Reduction Methods:** Source reduction means eliminating or decreasing, to the extent practical, the volume or relative toxicity of wastes generated by using alternate materials, processes or procedures. Since the opportunities to achieve significant wastes volume reductions for some wastes are limited as their volumes are primarily a function of activity level and age or state of reservoir depletion. For example, the proportion of discharged produced water typically increases as the reservoir is depleted. Also, the volume of drilling mud generated is generally a function of the number of wells

drilled and their depth. Nevertheless, OGDCL makes use of opportunities for source reduction and efforts are made to exploit them. For example, use of proper solids control equipment reduces the volume of mud discharged.

- OGDCL also believes in process modification which is possible through more effective use of mechanical components, such as more effective drill bits, rather than chemical additions. Gravel packs and screens significantly reduce the volume of formation solids/ sludge produced. Improved controls aid OGDCL to minimize mud changes, engine oil changes and solvent usage.
- Substitution of products that result in the generation of less toxic wastes is preferred. For example, biocides, corrosion inhibitors, coagulants, cleaners, solvents, dispersants, emulsion breakers, scale inhibitors, viscosifiers and weighting agents are selected with potential environmental impacts and disposal needs in mind. Some examples are the selection of mud and additives that do not contain significant levels of biologically available heavy metals or toxic compounds, and the use of mineral oils in place of diesel oil for stuck drill pipe.
- Other efforts include efficient planning so that all commercial chemical products are used on the site or returned unused to the vendors; consideration of bulk chemical purchases to eliminate drums; and use of drains and sumps to collect and segregate spills.

Typical examples of cost-effective waste management options are tabulated below:

WASTE	WASTE CLASSIFICATION	WASTE MANAGEMENT OPTIONS							REMARKS
		REUSE	RECYCLE	DEEP WELL/ LINED PIT	SURFACE TREATMENT/ LANDFILL	INCINERATION	RETURN TO VENDOR	OTHER (MENTION)	
Adsorbent & Desiccants (Like MG-3, MG-5, Activated Carbon, Ceramic Balls, Silica gel etc.)	Hazardous					Yes			
Batteries (Dry and wet batteries; one time use or rechargeable)	Hazardous		Yes						1. Battery acid to be neutralized before offsite departure 2. To be returned to vendor
Batteries Cell	Hazardous					Yes			
Catalysts	Hazardous					Yes			
Chemical Waste (expired chemicals, laboratory chemicals,	Hazardous					Yes			To be returned to vendor where possible

cleaning chemicals etc.)									
Clinical Waste	Hazardous					Yes			Legal requirements to be complied with
Construction & Demolish waste	Non-Hazardous				Yes				
Contaminated Debris & Soil	Hazardous					Yes			
Dip Slides	Hazardous					Yes			
Drilling Pit Waste	Hazardous		Yes	Yes					In Case OBM bioremediation shall be considered.
Empty Chemical Drums (Plastic + Metal)	Hazardous		Yes						-Drums to be punctured before handing over to waste contractor
Electronic Waste	Hazardous						Yes		
Filter Backwash Liquids	Hazardous			Yes					
Filters (lube oil, air, fuel & raw gas, chemical treatment and water filter etc.)	Hazardous					Yes			
Food Waste	Non-Hazardous				Yes				
Garbage - Domestic Waste	Non-Hazardous				Yes				
Gas Cylinders	Non-Hazardous							Yes	Cylinders to be punctured before handing over to scrap recycler
Glass waste-Window panes, Bottles, Jars	Non-Hazardous		Yes						To be incinerated in case of contamination with hazardous substance

Glass waste-Tube Rods, Lamps , Bulbs and Energy Savers	Hazardous		Yes						
Hydrotest Fluids	Hazardous				Yes				
Insulation	Hazardous					Yes			
Paint Associated Waste	Hazardous					Yes			
Paper and Cardboard Waste	Non-Hazardous		Yes						
Pressurized Containers	Hazardous		Yes						To be punctured before disposal
Printer Cartridges	Hazardous						Yes		Return to Vendor
Produced Sand	Non-Hazardous				Yes				
Produced Water	Hazardous			Yes					
Radioactive Waste	Hazardous							Yes	To be disposed through Pakistan Atomic Energy Commission according to legal requirements
Rags - Oily	Hazardous					Yes			
Rainwater Drainage	Non-Hazardous				Yes				
Refractory Materials	Hazardous					Yes			
Rubber & Plastic Waste	Non-Hazardous		Yes						
Scrap Metal	Non-Hazardous		Yes						Contaminated metal to be decontaminated before disposal
Sludge - Tank & Vessel Bottoms	Hazardous					Yes			
Sludge - Water Treatment	Hazardous				Yes				
Tetra packs	Non-Hazardous		Yes						
Waste Oil - Diesel and condensate	Hazardous		Yes						
Waste Oil - Lubricating oils	Hazardous		Yes						
Well Workover Fluids	Hazardous			Yes					

7.3.3 Modus Operandi

#	Activities	Responsible Person	Related Document
1	Proper placement of generated wastes in a designated place / (wastes drum / bin).	Actual Waste Generating Section	Recording of wastes into the Section's Waste Register
2	Inform to Camp Maintenance Section / Housekeeping Supervisor in case of Common Scrap Item Inform to Material Management Section in case of Valued /	Actual Waste Generating Section	Recording of wastes into the Section's Waste Register

	Hazardous Salvage Waste.		
3	Segregation and shifting of Valued / Hazardous Salvage Waste into the Designated Salvage Waste Yard.	Actual Waste Generating Section	Waste Consignment Note
4	Weighing of wastes / note down its quantity and other necessary information.	Housekeeping Supervisor (for Common Scrap Waste)	Common Scrap Waste Disposal Log (by Housekeeping Supervisor)
		Material Management Section (for Valued / Hazardous Salvage Waste)	Waste Consignment Note
5	Placement of Valued / Hazardous Waste into the designated section of Salvage Waste Yard.	Material Management Section	Approved Waste Segregation / Placement Plan (developed by Material Management Section)
6	Disposal of Common Scrap Waste as per the Onsite Waste Management Plan.	Local Waste Picker through Field Level Committee	Common Scrap Waste Disposal Log (by Housekeeping Supervisor)
7	Disposal of Valued / Hazardous Salvage Waste as per the Onsite Waste Management Plan.	Auction → Material Management	Salvage Waste Disposal Log (by Material Management Section / HSE)
		Approved 3rd party contractor → HSE	
8	Checking compliance.	HSE Audit Team	HSE Inspection Report / Audit Report/ Disposal Certificates

7.3.4 Safe Disposal of Waste

- Transfer waste from Designated Scrap Yard to Contractor's Waste Yard should be using preferably Contractor's own vehicle (or approved subcontracted vehicles), licensed for this purpose. Modes of transport and routes from the waste generation site to the Contractor Waste Yard should be selected to reduce risks of release.
- All waste consignments leaving the Contractor Waste Yard to licensed and approved Waste Treatment & Disposal Facility shall be tracked using Waste Treatment Certificates. The treatment certificates should contain the following information:
  - Waste type(s) and sources
  - Consignment reference number
  - Form (e.g. solid, liquid, sludge)
  - Treatment / disposal method
  - Quantities and units collected
  - Date and time of collection and disposal
  - Flue gas / ash analysis where applicable
  - The Waste Management Contractors shall provide treatment and disposal certificates to respective sites.
- Waste disposal record (evidence like Lab. Reports and Waste Treatment Certificates) shall be maintained by Location Material Management (original) and HSE Department / Section (copy).

7.4 Journey Management

OGM/P-HSE-7.4(03) Revision Number 3

ORIGINAL ISSUE: JUNE–25, 2007
THIS REVISION : FEBRUARY–09, 2021 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Added: Journey management purpose, scope, and responsibility.
2	Modified: Journey planning, journey execution, incident/ emergency handling during a journey and drivers qualification, competence, fitness & monitoring.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF/TPT-001 Journey Management Plan	InCharge Transport (TPT)	Security Rep. HSE Rep.	IC Admin./ Location IC
OGC/TPT-001 Vehicle Inspection Checklist	Daily: Driver	Daily: TPT Rep.	Daily: TPT Rep.
	Yearly: Maint. Rep.	Yearly: InCharge TPT	Yearly: InCharge Maint.

1.0 Purpose

- The purpose of this procedure is to ensure that safe travelling conditions are provided to OGDCL employees, contractors and visitors by mitigating the hazards and associated risks regarding the work related road travel.

2.0 Scope

- A routine or non-routine journey for the purpose of this procedure is a work related road travel that is covered by the list below:
  - ✪ Movement between an oil & gas installation* to other oil & gas installation.
  - ✪ Movement between an office building** to other office building.
  - ✪ Movement between an oil & gas installation to an office building.
  - ✪ Inter or Intra field/ block/ lease/ concession movement.
  - ✪ Movement for any business matter out of oil & gas installation/ field/ block/ lease/ concession/ city (e.g. meeting, fact-finding/ inquiry, audit/ inspection, conference/ workshop/ training, etc.).
  - ✪ Movement for general matters (e.g. surveillance, operational or mess purchasing, pick & drop (on-duty/ days-off/ shift-duty), etc.)
  - ✪ Movement in remote locations that lacks proper infrastructure and emergency support (e.g. seismic parties, drilling rigs, EFPs, FGCPs, etc.).
  - ✪ Movement during any emergency/ operational breakdown at wellsite, pipeline, metering station, or other connected unit/ sub-unit.
  - ✪ Movement for any support services to district management, local community, etc.
  - ✪ Movement of foreign technical teams, consultants & delegations.
  - ✪ Movement in the security sensitive areas (as notified from time to time by Security Deptt.)

**Oil & gas installation = OGDCL Field/ Rig/ Party/ Stores/ Logistics Base/ G&R Lab.*
***Office building = OGDCL Head office, Regional offices, Medical centers, Training center.*

3.0 Responsibility

- Implementation of this procedure at an oil & gas installation → Respective Location InCharge through *nominated* InCharge Transport (TPT)
- Implementation of this procedure at an office building → Respective InCharge Admin. through *designated* InCharge Transport (TPT)

4.0 Journey Planning

- A journey shall require prior approval of respective HOD/ Location InCharge.
- HOD/ Location InCharge shall consider all viable options e.g., tele or video conferencing before endorsing a *Travel Requisition* to avoid unnecessary journeys.
- InCharge Transport (TPT) shall ensure that journeys are planned and carried out in ways that minimize exposure to hazards and associated risks using *Journey Management Plan*.
- For all routine journeys, *Journey Management Plan* shall be readily available in vehicles with *predetermined risks* especially considering below 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.

- Following operational controls shall be ensured according to the identified hazards and underlying risks:
  - safety & security briefing.
  - security escort*** (frontier corps/ rangers/ guards).
  - communication system (cellular phone; radio set, etc.).
  - route (gps) maps (especially for non-routine journeys).
  - first aid kit.
  - fire extinguisher.
  - flashlight/ torch.
  - warning triangle.
  - vehicular checks (as per Checklist attached).
  - special requirements (e.g. under-run protection; rollover protection devices).
  - others (like reversing alarm system for heavy vehicles).
- While assigning duties, InCharge Transport (TPT) shall ensure following about driver(s):
  - physical & mental fitness.
  - good energy levels/ food intake.
  - not overloaded/ fatigued with any recent hours of work.
  - slept sufficiently before the trip & owing natural alertness cycle.
- InCharge Transport (TPT) shall plan a journey considering human risk factor by opting daytime driving and avoiding bad weather.
- No journey shall be allowed from sunset to sunrise (If inevitable, driving at these sensitive times shall be made conditional with respective HOD's permission).
- HOD (Security) and Security Rep./ Regional Security Officer (RSO) must be intimated regarding night time travels so that exclusive security measures like security escort be arranged and the concerned Law Enforcement Agencies (LEAs) be informed accordingly.
- In case of low visibility particularly during foggy, rainy or stormy conditions, journey shall not be allowed (If inevitable, driving under these circumstances shall be made conditional with respective HOD's permission).
- For the security sensitive journeys, intermediate radio contact feedback stations shall be configured by Security Deptt. to monitor the ongoing safety of the convoy and a Journey Coordinator be appointed.
- However, Location InCharge/ InCharge Admin./ InCharge Transport (TPT) shall ensure that vehicle(s) have base communication systems configured so that the vehicle(s)/ convoy remain in communication with the destination point uninterruptedly.

*** *Security Escort*

- ✪ *Frontier Corps (FC) Baluchistan shall provide escort for the journeys in Baluchistan Province.*
- ✪ *Frontier Corps (FC) Khyber Pakhtunkhwa shall provide escort for the journeys in sensitive areas of Khyber Pakhtunkhwa Province.*
- ✪ *In case of expatriates' movement, journeys shall be carried out in bullet proof vehicles with the escort of Frontier Corps (FC)/ Rangers and Police.*

5.0 Journey Execution

- A formal pre-trip briefing shall be held with driver(s) which includes discussion of route, identified hazards/ risks and operational controls.
- Drivers shall always carry out a basic physical check of their vehicles before a journey using the following table:

P	Petrol: Is there enough fuel for the planned journey?
O	Oil: oil level ok? And no obvious leaks?
W	Water: If water-cooled, is the radiator level correct? Is there enough water in the washer reservoir and do the wiper blades effectively clean the windscreen?
E	Electrics: Are all the lights working and does the battery start the engine with ease?
R	Rubber: Are all tyres in good condition with sufficient depth of tread and correctly inflated?

Note:- Vehicles must be inspected on the prescribed Checklist on daily basis for physical inspection and annual basis as vehicle fitness check and record of these inspections be retained for a minimum period of 01 year.

- Drivers shall not move their vehicles until occupants are wearing seat belts.

- Drivers shall not operate a vehicle while under influence of alcohol, drugs, or medication that could impair their ability to safely drive.
- 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.
- In addition, driving must be stopped and a break taken when a driver is fatigued/ not feeling well and InCharge Transport (TPT) be informed.
- Drivers must comply with the applicable legal and regulatory requirements for driving and never exceed the posted speed limits or drive at an unsafe speed for the prevailing road conditions (Maximum speed limit within OGDCL's fenced-installations shall be 15 km/hr).
- While driving, drivers shall not use cellular phones or operate navigation system/ multimedia/ electronic devices and refrain from smoking. If communication is really required, the vehicle shall be pulled over at safe location.
- Unauthorized passengers (hitchhikers) shall not be carried in vehicles, except in case of emergency or requisition by local authorities.
- No passenger shall be ever carried in cargo loading area of the vehicle or allowed to hang with the door.
- In case of security personnel at rear side of the vehicle for security escort, proper fixed seats must be provided.
- In case of rash driving or violation of traffic rules, it shall be the responsibility of the senior-most travelling employee to advise driver to drive carefully.
- HOD/ Location InCharge/ InCharge Transport (TPT) must be intimated regarding the behavior of driver on first available opportunity.
- In case, an alternate route to be opted, driver shall inform InCharge Transport (TPT)/ Journey Coordinator.
- In case, deviation from the original routes (planned/ alternate) is to be opted, driver shall take permission from InCharge Transport (TPT)/ Location InCharge.
- Upon reaching the destiny, driver shall report completion of the trip to InCharge Transport (TPT)/ Journey Coordinator.
- If a driver does not reach/ check-in at the designated destination on the estimated time, InCharge Transport (TPT) shall contact the driver and passenger(s), and in case of no contact, shall inform Security Rep. to take up the matter according to the situation.

6.0 Incident/ Emergency Handling During A Journey

- There shall be a laminated sticker or low-gauge metal plate posted on the dashboard or at other noticeable place either at front or rear windshield of a vehicle mentioning the names and contact numbers to whom may be informed in case of an incident or emergency.
- If vehicle encounters an accident or emergency situation, following must be done:
  - Respective HOD/ Location InCharge/ InCharge Transport (TPT) be reported immediately.
  - Emergency services be contacted, if required.
  - Any injured person be provided assistance/ first aid (if possible) until arrival of an ambulance.
  - Emergency service provider may be assisted as required.
  - Vehicle be moved away from the roadway and secured, if possible.
  - Driver and passengers to remain at the incident scene until advised by the police (if relevant).

- Subsequently, the concerned regulatory authorities shall be intimated accordingly and formal incident investigation carried out as per prevailing procedure.

7.0 Drivers Qualification, Competence, Fitness and Monitoring

- Only approved drivers shall be eligible to drive company-owned or hired/ rented vehicles.
- Approved drivers shall be those who are appropriately licensed, trained, assessed and medically fit.
- Location InCharge/ InCharge Transport (TPT) shall be responsible for maintaining and communicating an updated list of approved drivers.
- The approved driver must have the following qualification at the minimum:
  - Medically fitness as per trade test (e.g. tests for diabetes, eyesight, colorblind, vertigo, etc.).
  - Valid driving license relevant to the class of vehicle.
  - Must be at least of 21 years of age.
  - Minimum 3 years driving experience (preferably of major cities/ facilities/ organizations).
  - Driven similar type of vehicles before.
- Drivers driving OGDCL-owned or hired vehicles shall undergo mandatory defensive driving course.
- For the newly hired drivers for OGDCL-owned vehicles, defensive driving course shall be organized by HSEQ Deptt. having following topics:
  - Review of applicable policies & standards.
  - Defensive driving techniques.
  - Journey planning/ management (including alertness & fatigue management).
  - Effects of medication & substance abuse.
  - Pre-trip checks & requirements (including restraint/ safety systems).
  - Skill versus changing driving vulnerabilities (hazards & risks).
- Refresher defensive driving training sessions shall be arranged as per annual training plan and drivers who had encountered accident(s) or near hits shall be included specially.
- Frequency of refresher's defensive driving trainings shall be three years.
- Records of trainings shall be maintained by TPT and HSEQ Deptt..
- It shall be the contractual obligation of Contractors to impart defensive driving trainings to drivers of hired/ rented vehicles whereas compliance of this condition shall be ensured by InCharge TPT/ Location InCharge.
- Based on risk assessment and/ or local regulations, Location InCharge/ InCharge Admin. may consider installation of an In-Vehicle-Monitoring-System (IVMS) or Vehicle Data Recorder (VDR) to acquire journey data (against a driver identification # or key) to be analyzed for driver's performance (like speed, acceleration/ deceleration, kilometers driven, driver overall hours, etc.).
- With the installation of IVMS, data management system shall be implemented to ensure data is properly analyzed and feedback is provided to drivers for bringing improvement and safety in their driving skills.

7.5 Framework for Hydrogen Sulfide (H_2S) Management

OGM/P-HSE-7.5(00) Revision Number 00

ORIGINAL ISSUE: NOV – 28, 2019
THIS REVISION : --

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Change/ Revision Log

#	Description of Change
1	Framework for Hydrogen Sulfide Management has been introduced as a new procedure; whereas ER Procedure has been merged into Crisis Management Procedure.

Associated Documents Approval & Issue

Related Document/ Record/ Appendix	Initiated by	Reviewed by	Checked/ Verified / Approved by
H_2S Detection Equipment (Location &Quantities) for Drilling Rigs	Manager HSE	GM HSE	MD/ CEO

7.5.1 Purpose

- Hyrdogen Sulfide (H_2S) is one of the most toxic gas and at a concentration of 100 ppm is considered to be immediately dangerous to life and health (IDLH) by National Institute of Occupational Safety and Health (NIOSH). H_2S is so dangerous because the level (concentration) that can kill is much lower than that of many other toxic gases. Therefore, the purpose of this procedure is to provide a basic framework for hydrogen sulfide management for all OGDCL operation facilities.

7.5.2 Hydrogen Sulfide(H_2S) Emergency Management during Rig Operations

- H_2S potential risk assessment shall be conducted jointly by Exploration and Petroserv Directorates prior to commencement of drilling operations.
- Each proposed well shall be categorized either as sweet or sour depending upon expectancy of encountering H_2S during the drilling operation.
- Where the well is categorized as sour, following steps shall be taken by Petroserv Directorate:
  - Drilling Rig's Emergency Response Plan (ERP) shall be updated as per guidelines provided in this document.
  - H_2S detection equipment (sensors, alarms, monitors) shall be made available in quantities as per Appendix-A, before commencement of work.
  - Continuous supply of compressed air through Breathing Air Manifolds connected with Cascade Breathing Air Supply System shall be made available at rig floor, derrick, cellar, shale shaker, trip tank/ degasser, and choke manifold (to be made operational when H_2S is encountered).
  - 30/60-Minute Self Contained Breathing Apparatus (SCBA) units shall be made available at emergency response post, muster points, rig floor, dog house, mud cabin and data unit.
  - 10/15-Minute Emergency Escape Breathing Apparatus (EEBA) shall be made available at OM office, HSE cabin, rig floor, dog house, mud cabin, rig maintenance office/ workshops, power control cabin, engine driver cabin, admin room, and data unit.
- Subsequently, the Operations team shall take following steps during drilling:
  - Number of personnel on the drilling rig shall be restricted to a minimum when entering H_2S gas bearing zones, especially during testing or coring.
  - Drilling crew must carry personnel H_2S monitors while working at or around the rig.
  - Two suitable muster points shall be made available keeping in view the wind pattern to avoid exposure in the event of emergency involving release of H_2S.
  - Rig crew must practice "wind consciousness" to know where the wind indicators are; make the habit to check regularly and always be prepared to quickly move upwind or cross-wind.
  - All personnel shall receive safety induction prior to start of work and have knowledge of the location of the Muster Points.
  - The rig crew shall be made to participate in the H_2S rescue mockup drills and practice wearing and using breathing apparatus.
  - Periodic inspection shall be undertaken to assure that all safety / emergency equipment and gadgets are properly stored, maintained and fully operational. Drilling crew must make a habit to check the H_2S alarms as during daytime alarm lights can be difficult to see.
  - Safe operating conditions shall be maintained and alert shall be made for any changes in conditions especially when approaching suspected gas bearing zones or during well testing.
  - Each team working in the hazardous zone shall have the requisite number of Advanced First Aiders.
  - Mechanism of community evacuation in case of emergency must be incorporated into Drilling Rig's Emergency Response Plan (ERP).
- H_2SEmergency Conditions can be subdivided into three conditions:

Condition-I: Caution (When H_2S concentration is more than zero but less than 10ppm)	∞ Continuous **Yellow Light** flash over rig with no alarm ∞ Be alert for a condition change ∞ Keep emergency Breathing Apparatus (BA) like EEBA and SCBA nearby and ready in case H_2S levels increase beyond 10ppm
Condition-II: Potential Danger to Life and Health (When H_2S concentration is 10ppm to 15 ppm)	∞ **Red Light** flashover rig with no alarm ∞ All Rig site personnel shall be advised of the change in the condition level ∞ Use the buddy system (i.e. work in pairs) to prevent anyone from entering or being left in an area alone ∞ Condition-II will remain in effect until the H_2S concentration drops below 10ppm and the yellow flashing light de-activates or Condition III develops
Condition-III: Extreme	∞ **Red Light Flash over Rig with continuous alarm**

Danger (When H_2S concentration is greater than 15 ppm)	∞ All non-essential personnel will mask-up and proceed to the upwind muster point ∞ A list of key personnel shall be compiled and included in Site Emergency Procedure who shall remain on site. ∞ All non-essential personnel or all personnel, as appropriate, shall be evacuated ∞ The "buddy" system (working in pairs) will be used to prevent anyone from entering or being left in an area alone, even wearing SCBA ∞ Do not remove masks until absolutely certain the air is safe to breath. Replenish air supply from cascade system as needed ∞ If a sudden gas release occurs without warning, you should: – Hold your breath but do not inhale to do so and don BA (EEBA and SCBA). If a BA set is not readily available hold your breath and move rapidly upwind or cross wind muster point. Don BA ASAP. Don't panic. – If H_2S gas comes to surface, it is to be burned at the flare if possible. Check for SO_2 inboard of the flare. Do not assume the area is safe after the gas is ignited. Additions of scavengers to the mud should be made as deemed prudent. ∞ When circulation with less than 10ppm H_2S can be achieved and the detector readings show less than 10 ppm (alarms not activated) the condition level will revert to condition I or II depending on the operation and drilling zone. ∞ After consulting H.O., Operation Manager shall be responsible for igniting the well in the event of severe well control problems. This decision should be made only as last resort in situations where it is clear that; – Human life and property are endangered. – There is no hope of controlling the gas release under the prevailing conditions at the well. ▪ If the well is ignited, the burning H_2S will be converted to sulphur dioxide (SO_2), which is also highly toxic and heavier than air. Do not assume that area is safe after the well is ignited. ▪ If the well must have to be ignited, the primary method will be with a flare gun.

Note:-
- Air Manifolds of Cascade Breathing Air Supply System shall be used for working in an H2S drilling environment.
- Emergency Escape Breathing Apparatus (EEBA) shall be used for "evacuation" only and neither for search and rescue operation, nor for working in an H2S environment.
- Self-Contained Breathing Apparatus (SCBA) shall be used for "rescue" and "search" operation only.

7.5.3 Hydrogen Sulfide (H_2S) Emergency Management during Plant Operations

7.5.3.1 H_2S Hazards

- An evaluation of gas processing facilities shall be carried out to determine if fixed H_2S detection and alarm systems are needed. This evaluation should consider the likelihood of H_2S gas accumulating in high concentrations in enclosed workplaces, where workers may be unknowingly exposed.
- Individual response to exposures may vary according to frequency of exposure, duration of exposure, intensity of exposure, age, fitness & health and personal susceptibilities. Therefore, all personnel must receive safety induction prior to start of work and have knowledge of the location of the Muster Points. The field personnel shall be made to participate in the H_2S rescue mockup drills and practice wearing and using breathing apparatus.
- Since concentration of H_2S in process stream when release into atmosphere is diluted in ratio of 100:1, based on this rule facilities are categorised as:

Classification	Concentration in the Feed Gas
Sweet facility	0 to 49 ppm
Low Risk Sour facility	50 to 499 ppm
High Risk Sour facility	+500 ppm

7.5.3.2 Detection and Protective Measures:

Low Risk Sour Facility: (50 to 499 ppm)	
H2S Detection:	∞ Hydrogen Sulfide Risk assessment of the facility shall be conducted to identify locations of Hydrogen Sulfide Fixed Gas Detectors. ∞ Fixed Gas Detector Reading shall be made available in plant control room and shall activate plant emergency alarm in case of H_2S detection > 10 ppm.
H2S Protection:	∞ If H_2S level has a tendency to fluctuate, strict access control to plant and wellhead facilities shall be incorporated into location management system and no person shall be allowed to enter or leave plant and wellhead area without personal H_2S detectors. ∞ Two suitable muster points shall be made available at all wellheads and plant facilities keeping in view the wind pattern to avoid exposure in the event of emergency involving release of H2S. ∞ Wind Socks shall be installed and maintained at all prominent locations. ∞ All employees shall be imparted with H_2S training as part of induction including Competencies in H_2S, breathing apparatus, sour work practices. ∞ Company personnel, contractors shall be made aware of the hazard and the appropriate actions to escape or shelter from a credible H_2S release. ∞ Facilities shall have Emergency Response Procedures (ERPs) which specifically address the sour aspects of the operation and steps to be taken in case of loss of containment. ∞ Sour equipment shall be properly isolated and made safe prior to breaking of containment. When returning to service, proper assembly, tightening, purging and leak testing shall be carried out to ensure integrity. ∞ Sampling of sour fluids will be strictly controlled and managed, using engineered sample points, breathing apparatus and the buddy system.
High Risk Sour Facility: (+500 ppm)	
H_2S Detection:	∞ All employees shall be required to carry personnel H_2S Monitors when entering plant or wellhead facilities. ∞ Fixed H_2S Detector must be installed at all high risk sour wellhead and plant locations. The number and location of fixed Gas detectors shall be ascertained after Risk Assessment by competent personnel. ∞ Fixed Gas Detector's real-time readings shall be made available in plant control room and shall activate plant emergency alarm in case of H_2S detection > 10 ppm. ∞ The Plant shall be configured to automatically blow down to flare in case H_2S is released due to leakage / loss of containment in excess of 50 ppm. ∞ Due to community risk, pipelines from wellheads must have some adequate mechanism of leak detections which should activate well shutdown and blow down of pipelines to flare in case a leak is detected.
H_2S Protection:	∞ Sufficient number of 5/10 minute Emergency Escape Breathing Apparatus (EEBA) sets shall be made available to all personnel who shall enter plant/ wellhead facilities so that in case, safe evacuation is made. ∞ Sufficient number of 30 minute Self Contained Breathing Apparatus (SCBA) sets shall be made available to all emergency personnel who have the potential for exposure to H_2S during rescue and search operations in the event of loss of containment or the failure of flare systems that may combust fluids containing H_2S. ∞ Strict access control to plant and wellhead facilities shall be incorporated into location management system and no person

shall be allowed to enter or leave plant and wellhead area without personal H_2S detectors and 5/10 minute EEBA.

- Two suitable muster points shall be made available at all wellheads and plant facilities keeping in view the wind pattern to avoid exposure in the event of emergency involving release of H2S.
- Wind Socks shall be installed and maintained at all prominent locations.
- All employees shall be imparted with H_2S training as part of induction including competencies in H_2S breathing apparatus, sour work practices.
- Company personnel, contractors shall be made aware of the hazard and the appropriate actions to escape or shelter from a credible H_2S release.
- Facilities shall have Emergency Response Procedures (ERP's) which specifically address the sour aspects of the operation. Emergency drills shall be conducted regularly to keep personnel trained on the ERP's.
- Each team working in the hazardous zone must have the requisite number of Advanced First Aiders.
- Mechanism of community evacuation in case of emergency must be incorporated into Location's Emergency Response Plan.
- Sour equipment shall be properly isolated and made safe prior to breaking of containment. When returning to service, proper assembly, tightening, purging and leak testing be carried out to ensure integrity.
- Sampling of sour fluids will be strictly controlled and managed, using engineered sample points, breathing apparatus and the buddy system.
- Risk assessments shall be done for sour activities, and the job procedures, hazards and controls shall be identified to ensure the work is done safely.
- High Risk H_2S Areas shall be specified and access to High Risk H_2S designated areas shall only be allowed provided the following have been adhered to:
  - Permit Issuing/ Area Authority has completed a gas test of the area and the recorded results indicate < 5 ppm of H_2S in air.
  - Valid Permit to Work has been issued, authorized by the Responsible Supervisor, validated by the Area Authority and specifying clearly the reasons for entry.
  - Persons entering the restricted area have the correct safety equipment for that area which shall include personal H_2S monitors and EEBA.
  - All persons entering the restricted area are fully conversant with the 'Buddy' system and aware of the escape routes and Muster Points.
  - For long time working in an H2S environment in the plant facility, Supplied Air Breathing Apparatus (SABA) shall be used.
  - All persons entering the restricted area have completed and signed the Entry logbook i.e. Name, Department, Entry Pass Number and Time In.

Note:-

- Supplied Air Breathing Apparatus (SABA) shall be used for long time working in an H2S environment in the plant facility. Two compressors shall be made available for filling of the SABA cylinders.
- Emergency Escape Breathing Apparatus (EEBA) shall be used for "evacuation" only and neither for search and rescue operation, nor for working in an H2S environment.
  Self-Contained Breathing Apparatus (SCBA) shall be used for "rescue" and "search" operation only.

7.5.4 Treatment After H_2S Exposure

- Treatment of life threatening H_2S exposure, characterized by loss of consciousness and associated respiratory failure, shall be aimed at:
  - Maintaining respiration by first aid measures. Oxygen resuscitator must be used as soon as possible.
  - Treatments of local irritant effects of H_2S gas on the eyes and mucous membranes of respiratory tract by supportive measures and medical treatment, by field medic.

- Enhancing detoxification by administration of antidotes, by field medic.

- Immediately remove victim from the hazardous area to fresh air while wearing SCBA and using the buddy system (i.e. 2 people, 1 rescuing, 1 in standby in safe area). Immediately call field medical officer, advanced first aiders. Check mouth of victim (false teeth, chewing gum, etc.) and clear if needed. If he is breathing, maintain at rest and administer O_2 if available. If breathing has ceased or is labored, start artificial respiration to clear lungs of contaminated air. Prior to applying mouth to mouth respiration, try to expel gas from victim's lungs by pressing down the chest, to prevent rescuer himself from being exposed by breathed H_2S. Apply O_2 resuscitator as soon as available on site to support respiration, once the victim resumes breathing spontaneously.
- If it is impossible to move victim to fresh air, apply resuscitator immediately after checking victim's mouth as above. The role of oxygen in the treatment of H_2S poisoning is essential: this is the fastest method for counteracting the effects of H_2S inhalation. Keep then victim at rest and prevent the victim from becoming cold. Then evacuate the victim, if necessary.
- If eye contamination has occurred, flush with clear water for up to 10 minutes.
- Treatment to enhance detoxification exists but requires extreme care & high medical knowledge and therefore be carried out by a qualified medical practitioner.
- First Aid and medical equipment shall include:
  - Oxygen resuscitator and inhalator
  - Eye wash solution
  - Usual first aid equipment

Appendix A

H_2S Detection Equipment (Location &Quantities) for Drilling Rigs

Personal H_2S Monitors

Minimum 15 (actual to be determined & provided after risk assessment)

Fixed H_2S Gas Sensors

RIG FLOOR	x 2	CELLAR	x 1	WASTE PIT	x 1
MUD TANKS	x 1	SHAKERS	x 1		
TRIP TANK	x 1	CHOKE	x 1		
FLARE PIT	x 1	RIG SITE CAMP	x 1	**TOTAL**	**10**

Fixed LEL Gas Sensors

RIG FLOOR	x 1	CELLAR	X 1	CHOKE	x 1
MUD TANKS	x 1	SHAKERS	x 1	**TOTAL**	**05**

H_2S Alarms

RIG FLOOR STAIRS	x 1	RIG FLOOR	x 1
MUD TANKS	x 1	SHAKERS	x 1
ENGINE ROOM	x 1	MINI CAMP	x 2
GENERATOR	x 1	MAIN GATE	x 1
		TOTAL	**09**

LEL Alarms

SHAKERS	x 1	RIG FLOOR	x 3

Multi Gas Detectors (H_2S, CO, LEL, O_2)

HSE OFFICE	x 2

Wind Socks

RIG FLOOR	x 1	WATER PIT	x 1
MUD CABIN	x 1	MUSTER POINT B	x 1
MUSTER POINT A	x 1	NEAR FLARE PIT	x 1
NEAR FUEL TANKS	x 1	**TOTAL**	**07**

7.6 HSE Protocol for Management of Project Contractors and Service Companies

OGM/P-HSE-7.6(06) Revision Number 6

ORIGINAL ISSUE: JUNE – 25, 2007
THIS REVISION : MARCH – 02, 2018 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Added: HSE Cognizant Procurement Cycle and HSE Protocol For Project (Contractor) Management.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
-	-	-	-

HSE Cognizant Procurement Cycle

Step No.	Phase	Target	OGDCL	Contractor
Step 1	***Indent Preparation***	Specifications to manage hazards related to the work shall be identified as scope & depth that OGDCL management needs to involve in next phases.	User's/ Indenting Department shall work with IRC and initiate the risk assessment and takes into account Technical, HSE and other domain's input if needed to finalize the specifications.	N/A
Step 2	***Advertisement***	TOR/ SOW shall be finalized and advertized. Confirmation of major hazards with outline targets criteria and methods for control.	Supply Chain Management (SCM) shall prepare bid documents and finalize advertisement for tendering.	Respond to advertisement: Discuss HSE responsibilities and staffing internally.
Step 3	***Tender Period***	Preparation of Technical, Commercial, Quality Control and HSE Plans.	User's/ Indenting Department shall work with SCM, HSE and Technical domain, respond to clarification requests. The typical activities shall be to meet with contractor reps, site visits, communicate OGDCL's HSE System to contractors, etc.	Prepare HSE Plan along with the bid: Clarification requests, Meetings, Site Visits.
	Evaluation and Contract Award	Confirmation that contractor HSE Plan meets OGDCL criteria. Agreement with contractor on methods to be used, performance measurement criteria and audit/review strategy.	User's/ Indenting Department shall ensure that HSE requirements be included in the contract. Typical activities shall be to evaluate bids, raise clarifications on contractor's HSE Plan and finalize Contract.	Respond to clarifications / meetings.
Step 4	***Mobilization***	Confirmation that contractor's HSE Plan has achieved pre-execution targets.	User's/ Indenting Department shall be responsible for this phase. The typical activities may include pre-mobilization meeting, confirmation of contractor's HSE Plan, activities supervision, pre-execution audit.	Kick-off meeting, Confirm HSE Plan activities, Supervision, Induction, Training, Meetings, Inspections, Pre-execution status achievement.
	Kick-off	Assurance and verification that contractor systems are performing in line with contractor's HSE Plan.	User's/ Indenting Department shall be responsible. The typical activities may include kick-off meetings, communicate HSE requirements with fields supervisors, confirm the preparation of people and equipment are line to contract requirements, etc.	Supervision, Inspection, Induction, Training/Drills, Toolbox-Talks, performance review systems.
Step 5	***Work in progress***	Management of work activities, Milestone Review.	Location management shall be responsible. The typical activities may include routine	Supervision, routine HSE management,

			walk through, site inspection/ observation, investigation of incidents, auditing etc.	such as HSE meeting, inspections, c&p actions tracking, investigation of incidents, auditing, etc.
Step 6	***Evaluation/ Close-out***	Analysis and feedback of OGDCL and Contractor HSE Performance.	User's/ Indenting Department and Unit Management shall be responsible. The typical activities shall include Close-out meeting, communicate to contractor, feedback for future contract HSE Plans/Contract clauses.	Close-out report and feedback (to own management).

HSE Protocol For Management of Project Contractors and Service Companies

Sr. No	Title	Specific Requirement
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 strictly follow the Work-to-Permit System and shall provide plan of activities in advance, submit THAs/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 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 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.

7.7 Use of Personal Protective Equipment

OGM/P-HSE-7.7(06) Revision Number 6

ORIGINAL ISSUE: JUNE – 25, 2007
THIS REVISION : MARCH – 02, 2018 (FINAL)

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Change/ Revision Log

#	Description of Change
1	Added: Complete detail of Personal Protective Equipment.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
PPE Need Assessment Matrix	Sectional IC	HSE Rep.	Location IC

7.7.1 Purpose of PPE

- The purpose of PPE shall be to protect the OGDCL employees, contractors, service companies and visitors from exposure to workplace hazards.
- PPE shall not be a substitute for the effective engineering or administrative controls and must be worn for personal protection ensuring that safety arrangements are in place.

7.7.2 Types of 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.

7.7.3 PPE Matrix

- Considering practical guidelines for assessing the hazardous situations that are likely to arise under foreseeable work activity conditions and to match employee PPE to the identified hazards, each Location shall develop PPE Matrix for its individual Sections, based upon following:
  (1) Impact
  (2) Penetration
  (3) Compression (roll-over)
  (4) Chemical
  (5) Heat
  (6) Harmful dust
  (7) Light (optical) radiation
  (8) Drowning
  (9) Falling
- PPE Matrix shall be documented by each Section in the tabular format given below and reviewed on an annual basis.

Task or work functions that are performed by the Sectional workforce members	Safety glasses	Hard hat/Helmet	Safety vest/ harness	Coverall	Muff / plugs	Chemical goggle	Gum boot	Leather (gloves) / Insulating (gloves)	Chemical Resistance Gloves	Latex (gloves)	Face shield	Chemical apron	Welding goggles	Welding face cover	Welding gloves	Flame resistant cloth	Safety toed shoes	Dielectric safety shoes	Chainsaw chaps	Gas mask	Dust mask	SCBA	Air purifying (HEPA)	Others: (cotton gloves, etc.)
1.																								
2.																								
3.																								
4.																								
5.																								
6.																								

- Personal factors can impact the effectiveness of PPE or be a hazard in their own right and therefore be avoided/ managed with care as much as possible. Typically, these are as follows:
  - Rings, arm bangles, jewelry or similar ornaments shall not be worn.
  - Low profile 'sleeper' ear studs (one per ear) are acceptable
  - Watches shall have breakable non-metallic bands.
  - Long hair shall be tied back or enclosed in a hair net
  - Persons who may have to use breathing apparatus or face-fitting respiratory protection devices (e.g. areas where there is a risk of hydrogen Sulphide gas) shall not have beards and be clean shaven at start of shift. Moustaches that are neatly trimmed and do not interfere with correct functioning of respiratory PPE are permitted.
- The above list is not exhaustive and there may be other personal factors that should be taken into account on an individual basis. Some disabilities or impairments may have to be treated sensitively and in confidence.

7.7.4 Protection Mechanism

7.7.4.1 Head Protection

- Hard hats, or safety helmets, which meet the requirements of EN397, shall be worn in all designated work areas as outlined in the Location (Sectional) PPE Matrix. Hard hats shall be made of plastic and designed to hold chin straps. Chin straps shall be worn when working at heights.
- 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.
- Metal hard hats do not meet the standards for electrical resistance and therefore shall not be permitted.
- Hard hats shall be checked monthly for signs of damage, and replaced immediately if the hard hat becomes brittle, cracked or is otherwise damaged. Suspensions and shells shall be replaced per the manufacturer's recommendation. It is recommended that suspensions be replaced at least annually and shells be replaced every 3 to 5 years.

7.7.4.2 Eye Protection

- Safety glasses, with side impact protection, or goggles shall be worn in all designated work areas as outlined in the Location (Sectional) PPE Matrix. Glasses shall be designed and constructed to meet EN166-1F (or equivalent standard). Where regular prescription glasses are required to be worn, over protection such as over glasses or goggles shall be used.
- Both clear and tinted lenses shall be made available, with tinted lenses provided for protection against UV light damage. Tinted lenses shall not be used during hours of darkness.
- It is the individual's personal responsibility to maintain eye protection in a safe condition. Antifogging compounds for safety glasses/ lenses shall be available and used to maintain clear vision when work conditions are impacted by fogging.
- Contact lenses are permitted, but their use shall not interfere with or be compromised by the work activity. Contact lenses do not provide eye protection and the wearer may have increased risk of eye injury from exposure to dusts and chemical vapors. Eye protection shall be worn in addition to the contact lenses.
- Special lenses are required when oxygen fuel cutting. Goggles are required when working with chemicals or in dusty conditions.

7.7.4.3 Face Protection

- During work activities that involve grinding, chipping, and buffing, or where material could separate and become a projectile, a face shield shall be worn in conjunction with safety glasses/ goggles as defined by the job hazard analysis.
- Personnel working with chemicals, degreasers, detergents, or equipment that contains a hazardous or pressurized liquid or gas (e.g. wet cell batteries) shall wear non-vented, splash proof goggles. For exposure to hot or corrosive materials, a face shield shall be worn over the goggles.
- A welding hood, with non-glass visor, shall be worn over standard safety glasses when welding. Personnel engaged in sandblasting, water blasting or spray painting shall wear eye protection under the face shield or air supplied hood to protect the eyes and face from known hazards.

7.7.4.4 Hearing Protection

- Hearing protection shall be worn in all designated high noise areas. Hearing protection shall meet the requirements EN352-1 for earmuffs and EN352-2 for or ear plugs. Types of hearing protection will depend on the job hazard analysis and must meet personalized fit testing requirements.
- A quantitative noise survey shall be completed around all machinery and equipment located at the site to document sound level readings and identify areas that require hearing protection. The assessment shall include both permanent and temporary equipment.
- Signs shall be posted at each work location where continuous noise levels are at 80 dB (A) or greater over an 8 hour time-weighted average. Various forms of hearing protections shall be made available, such as disposable/ reusable ear plugs or hard hat mounted ear protectors, and shall be worn in posted areas. Hearing protection shall also be worn during operations that generate noise in excess of 80 dB (A).

7.7.4.5 Protective Clothing

- The wearing of Flame Resistant Clothing is required for all employees, contractors and visitors when:
  - Located on a production facility with hydrocarbon-containing process equipment and working in PPE required areas.
  - Loading/ unloading or transferring hydrocarbons where vapors are present in the atmosphere that present a flash fire potential.
  - Repairing active hydrocarbon piping, tankage or equipment that is outside the production facility and the potential for a flash fire has not been completely eliminated.
  - Performing hot work activities on active hydrocarbon equipment and piping (hot tapping).
  - Working on hydrocarbon piping or other related equipment that is below grade or defined as a confined space, and the potential for a flash fire has not been completely eliminated.
  - Performing high voltage switching operations and maintenance.
  - An employee or supervisor identifies a site-specific job and/ or area with potential exposure to flash fire/ arc burn injuries, such as through an electrical circuit.
- Flame Resistant Clothing shall comply with the following requirements:
  - Thermal protection: if the protective material is worn over another layer of fabric, the protective fabric shall exhibit an average Thermal Protective Performance (TPP) value of 4, before and after washing.
  - Flame Resistant Clothing materials shall comply with EN531.
  - Reflective strips shall be visible across the arms, at a minimum, of each garment and conform to the ANSI/ ISEA 107-1999 Level 2 standards (or equivalent standard).
- Flame Resistant Clothing is not required when working in seismic operations, drilling operations (unless conducting live well servicing or well testing and working around process equipment), or project facilities that are not located at a production facility.

- All Flame Resistant Clothing and non-Flame Resistant Clothing shall be worn and maintained accordingly:
  - Personnel shall wear Flame Resistant Clothing as the outer-most garments except when other personal protective clothing is required (e.g. Chemical resistant suits, welder's leather, personal flotation devices, increased visibility vests).
  - Personnel should not wear synthetic blends such as nylon, polyester, rayon, polyethylene, etc. under the protective clothing. Natural fibers such as cottons or wools should be worn underneath.
  - Only long sleeved Flame Resistant Clothing shall be worn in designated Flame Resistant Clothing areas/ jobs.
  - Flame Resistant Clothing shall be worn in such a manner as to completely cover the torso, arms and legs (sleeves rolled down and body fully zipped or buttoned up).
  - Clothing should be laundered, repaired and taken out-of-service per the manufacturer's recommendations.
  - Rain / Winter gear worn over Flame Resistant Clothing can negate the effectiveness of the protective layer, especially if the material would melt in a flash fire. Flame Resistant rain/winter gear is recommended where available.

7.7.4.6 Hand Protection

- All personnel shall wear gloves on the work site. Exceptions to this requirement, such as performing tasks that require additional finger dexterity, shall be approved by a supervisor and captured on the job hazard assessment or through the PTW system. Personnel shall use hand protection when performing work, not limited to, exposing the hands to absorption of harmful substances, cuts or lacerations, abrasions, punctures, vibrations, chemical burns, thermal burns and other harmful extremes in temperature.
- The use of fit for purpose protective gloves is mandatory when welding, oxygen fuel cutting, grinding, blasting, working with chemicals and when performing specific electrical functions or using hand tools. Leather gloves are required when rigging or handling materials. Gloves shall be free of holes and defects.
- The selection of hand protection shall be based on the specific task being performed, conditions present, and duration of exposure, potential hazards identified and performance characteristics of the glove material.

7.7.4.7 Foot Protection

- Safety-toed boots are required in all designated work areas outside the site office. Footwear shall meet the requirements of Safety footwear to EN345-1 S1 (or equivalent standard). Protective footwear shall have leather or rubber uppers that extend above the ankle, an oil resistant sole, and a distinctive heel (raised 3/8 to ½ inch across the entire heel) for climbing stairs and ladders.
- Lace up or pull on styles are accepted, however lace up boots provide better ankle support and are therefore preferred. Chemical resistant foot protection is required when handling or working with hazardous or corrosive materials. Exceptions to this requirement, such as use of safety shoes by short-term visitors, shall be approved by the Location IC.

7.7.4.8 Personal Fall Protection

- Personal fall protection shall be worn in all designated areas and as required by the job risk assessment and Permit to Work. Fall protection shall be worn where there is a risk of falling from a height of 2 meters or more (including work areas within 2 meters of an open edge where there is the potential to fall 2 meters or more) or as detailed by the job risk assessment.
- The components of the personal fall protection system include:
  - An engineered and appropriately rated anchor point.
  - Automatic and/or self-locking connecting mechanisms.
  - A lanyard with deceleration capability.
  - A full body harness.
- All fall protection equipment shall be inspected before each use and maintained according to the manufacturer's recommendations. A register of

fall protection equipment shall be maintained, including records of inspections for new and replacement equipment.

7.7.4.9 Respiratory Protection

- Respiratory protection shall be worn in all designated areas and as outlined by Location HSE Matrix. Respiratory protection shall meet the requirements outlined in OSHA 29 CFR Part 1910.134 – Respiratory Protection (or equivalent standard). The PPE Matrix must address the following work environments:
  - Firefighting or confined spaces when there is a risk of insufficient oxygen.
  - Protection against H2S or other hazardous atmospheres.
  - Protection against dusts, mists, vapours, gases or particulates.
- When dealing with chemicals, check the MSDS for specific guidance on respiratory protection requirements. Where there is a risk of inhaling low levels of non-toxic dusts, disposable dust masks shall be required.

7.7.5 Color Code for Coverall and Hard Hat (Safety Helmet):

- Standardization in colors shall be as follows:

Color of Coverall	Recommended Categories for Use
Grayish Blue	OGDCL Officers
Red	Firefighting Crew
Dark Blue	OGDCL staff members; laborers (other than Officers)
	Contractors shall comply as per their own company's policy

Note: All Coverall Uniforms shall be Fire Retardant.

Color of Safety Helmet	Recommended Categories for Use (for working in PPE required areas)
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

7.7.6 Issuance of PPE

- The **Basic PPE** (*Category A*) shall be provided to all OGDCL employees irrespective of their designation as per entitlement in the existing policy. OGDCL shall provide the **Basic PPE** to contractors, service companies and visitors at operational sites for their stay period only.
- Five units of each **Specific PPE** *(Category B)* shall be allotted for two-year-basis to Sectional Heads at all OGDCL operational sites and they shall be liable to maintain this inventory.
- Sectional heads shall issue the **Specific PPE** *(Category B)* to the employee(s) only against the PPE requirements mentioned in the Work Permit to safely execute the job.
- Five units of **Emergency PPE** *(Category C)* shall be allotted to each Fire Section at all OGDCL operational sites and they shall be liable to maintain this inventory.
- OGDCL shall not be liable to pay any PPE allowance or associated amount to the employees: However washing allowance shall be provided as per the existing policy.

7.7.7 Cleaning and Maintenance

- 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.

7.7.8 Disposal

- The contaminated PPE which cannot be decontaminated shall be disposed of in a manner that protects employees from exposure to hazards.

7.8 Framework for Site Restoration

OGM/P-HSE-7.8(00) Revision Number 00

ORIGINAL ISSUE: JANUARY – 20, 2021
THIS REVISION : --

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Change/ Revision Log

#	Description of Change
-	-

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 033A Well(site) Handing Over Taking Over Checklist	Field HSE Rep.	Drilling/ Production Rep.	Location IC
OGF – HSE – 033B QC Checklist (Treatment & Restoration)	Field HSE Rep.	Drilling/ Production/ P&P Rep.	Location IC

1.0 General

Upon completion of drilling/ testing/ workover/ plugging and abandonment of a well/ abandonment of a production site, and where management, DGPC, local authorities and landowner agrees the facilities have no future use, custodians of the generated-waste shall restore the site to its previous condition as defined in this procedure.

2.0 Primary Responsibility

- ✪ Treatment and restoration of *drilling pits* shall be the primary responsibility of **Drilling Deptt.** as custodian of the generated-waste.
- ✪ Treatment and restoration of *produced water pits* shall be the primary responsibility of **Production Deptt.** as custodian of the generated-waste.
- ✪ Treatment and restoration of *pits associated with a Gas Processing and LPG Recovery Plant* shall be the primary responsibility of **P&P Deptt.** as custodian of the generated-waste.

Note: After successful completion of a well/ workover, each well(site) shall be handed over to Production Deptt. once all requisite HSE aspects, especially related to wastes including pits, have been duly addressed as mentioned in the *Wel(lsite) Handing Over Taking Over Checklist*.

3.0 Assessment/ Categorization

- A pit wastes usually contains both solid and liquid components. Constituents and characteristics of environmental concern may include salts, hydrocarbons, pH value, chemicals and biologically available heavy metals.
- The constituents have the possibility of impacting soil and water quality, therefore all pits which have no operational requirement shall be restored.
- HSEQ Department shall take the lead to carry out laboratory analysis of each pit in the light of EPA regulatory requirements through concerned Department and based upon results, categorize a pit as nonhazardous or hazardous.
- However, hazardous pits with substantial hydrocarbon content and/ or oily sludge may be auctioned as per company rules and subsequently the pit shall be restored accordingly as defined in this procedure.

4.0 Restoration Process

4.1 Nonhazardous Pits

- *Restoration* requisition shall be initiated by Drilling/ Production/ P&P Deptt. as the case may be and forwarded to C&ESS Deptt.
- *Restoration* shall be carried out by C&ESS Deptt. either employing its own resources or outsourcing the job to waste management contractor.
- In case of outsourcing, TORs/ Invitation-to-Bid (ITB) document shall be prepared by C&ESS Deptt. having inputs from the concerned Departments and perform technical evaluation of the bids accordingly.

4.2 Hazardous Pits

- Drilling/ Production/ P&P Deptt. may outsource the t*reatment* job to waste management contractor as per requirement.
- The *restoration* part may either be referred to C&ESS Deptt. or Drilling/ Production/ P&P Deptt. may outsource it directly to the waste management contractor along with the *treatment* part.
- TORs/ Invitation-to-Bid (ITB) document shall be prepared by Drilling/ Production/ P&P Deptt. having inputs from HSEQ Deptt. in the light of EPA regulatory requirements for the *treatment* job and technical evaluation of the bids shall be carried out accordingly.

4.3 Execution and Quality Control

- Drilling/ Production/ P&P Dept. shall ensure that the restoration is executed as per TORs in consultation with HSEQ Deptt..
- Laboratory results of the treated water/ cuttings/ soil samples shall be benchmarked against the permissible limits defined by regulatory body(ies)

or best industrial practice(s) and may be compared with surrounding undisturbed soil, where required.

- QC Checklist presenting overview of restoration of hazardous pits shall be developed by HSEQ Deptt.; and the same shall be filled&signed by HSEQ and Drilling/ Production/ P&P Reps.

4.4 Budget Allocation and Invoicing

- Budget allocation, verification and processing of invoices shall be the responsibility of Drilling, Production, P&P and C&ESS Department.

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).

5.0 Restoration of Wellsite after Plugging & Abandoning (P&A)

5.1 Restoration of Soil

- Area shall be jointly visited by Representatives of a) Drilling/ Production/ P&P, b) Land Management/ CSR, c) C&ESS and d) HSEQ Deptt. and any contaminated soil within and around the wellsite fence boundary shall be marked.
- Laboratory analysis of the soil shall be the responsibility of concerned Departments.
- C&ESS Deptt. shall remove the contaminated soil (if any) and where required handover it to waste management contractor/ bioremediation facility for treatment and backfill the area with clean/ treated soil.

5.2 Surface Facilities Removal

- Following surface facilities from the wellsite shall be removed by Production/ PE&FD;
  - Oil, gas and water supply lines
  - Solar arrays & batteries for solar panels
  - Wellhead control panels
  - Skid mounted separator
  - Surface piping/ pipe racks/ pig launcher
  - Cables/ cable trays
  - Chemical injection tank
  - Every sort of instrumentation
  - Any other

5.3 Cellar Area

- Civil construction in the cellar may be dismantled and cellar backfilled with soil with the consultation of Drilling/ Production Deptt.

5.4. Septic Tank and Soak Pit

- Septic tank shall be broken and after neutralizing the material, the septic tank/ soak pit shall be leveled with clean soil having an extra 1 meter layer.

5.5 Flow Line

- All the surface and underground flow lines and other facilities shall be removed entirely from end to end by Production/ PE&FD Deptt.

5.6 Fence and Civil Construction

- Fence including main gate, mesh/ barbed/ razor/ concertina wire and anti-snake sheet around the well-site shall be removed by C&ESS Deptt..
- Civil construction like accommodation facilities, barracks, secondary containment for diesel/ chemicals and foundations may be removed by C&ESS Deptt.
- All concrete structures e.g. pads/ flow line supports, etc. at wellsite shall be removed by C&ESS Deptt.

5.7 Water Source/ Tubewell

- Decision on the dismantling or usage/ handing over of water sources like tubewell(s) may be made by RC/ CSR Officer/ Land Management Section in consultation with landowner(s)/ local administration.

6.0 Conflict Resolution

- Handling of complaints arising from the waste management services as well as their redressal shall be the responsibility of CSR Deptt.
- Hiring of legal counsel in case litigation arises from the waste related matters shall be the responsibility of Legal Services Deptt.
- NOC from landowner(s) shall be acquired by RC/ CSR Officer/ Land Management Section.
- Endorsement of restoration of hazardous pit from regulatory authority(ies) shall be acquired as per regulatory requirements.