Preamble

Terms & Definitions

Context

Leadership

Planning

Support

Operation

Performance Evaluation

Improvement

Reference Standards

ISO14001:2015 & ISO45001:2018

Clause 6.1: Actions to address vulnerabilities associated with threats and opportunities.

Clause 6.2: HSE objectives and planning to achieve them.

PSM (22 Elements) Model

Process Safety Information: It provides a foundation for identifying and understanding the hazards involved in the process. It ensures that PSM goals of HSE are achieved by providing process safety documentation. A PSI package shall be prepared for each process unit. Documents of the PSI package should be maintained up to date for the life of each process unit.

Risk Assessment and Process Hazard Analysis: A systematic and comprehensive study to identify and evaluate the significant hazards of the process and the safeguards associated with Highly Hazardous Processes (HHP) and Lower Hazard Operations (LHO). Process Hazard Analysis systematically identifies the safety hazards such as potential for fires, explosions and / or release of toxic materials, and is a well-defined program to remove or lower these hazards.

Goals, Objectives and Plans: The purpose of this element is to provide guidelines for establishing realistic, achievable and quantifiable safety goals and objectives. Managing safety, like managing other aspects of a business, includes setting of performance goals and objectives which should be Specific, Measurable, Attainable, Result Oriented, Time Bound (SMART) and within the sphere of influence of the person and group who is to be held accountable for achievement.

This Section's Objectives

- Develop processes and prepare plans to establish HSE System.
- Identify significant HSE vulnerabilities, threats, opportunities and associated Impact.
- Study HSE vulnerabilities, threats, opportunities and identify compliance obligations.
- Address HSE vulnerabilities, threats, opportunities and associated Impact in the light of human rights, operational controls and applicable laws & regulations
- Set SMART HSE objectives/ targets for all relevant areas to prevent incidents and pollution.
- Establish management programs to achieve objectives/ targets and evaluate results.

Associated Documents

- HSE Risk Assessment Plan
- HSE Risk Assessment Register
- Job Vulnerability/ Hazard Analysis (JVA/ JHA)
- HSE Objective and Management Plan
- Annual HSE Activity Plan

Applicable Documents

- Regulatory Requirement Matrix

Enterprise Risk Management
OGM/P-HSE-5.1

Job Vulnerability /Hazard Analysis
OGM/P-HSE-5.2

Legal & Other Requirements
OGM/P-HSE-5.3

Objectives & Management Program
OGM/P-HSE-5.4

5.1 Enterprise Risk Management (ERM)

OGM/P-HSE-5.1(08) Revision Number 8

Original Issue: June 25, 2007
This Issue: March 14, 2022

Updated By:
Muhammad Sameem Hussain Qaiser
Senior HSEQ Officer, OGDCL

Reviewed By:
Muhammad Mubashir Abbas
Manager HSEQ, OGDCL

Checked By:
Mahmood-ul-Hassan Khan
General Manager HSEQ, OGDCL

Approved By:
Syed Khalid Siraj Subhani
Managing Director, OGDCL

Change/ Revision Log

#	Description of Change
1	Modified: *Potential Impact w.r.t. Asset/ Financial exhibited in USD replacing PKR.*
2	Modified: *Incident Probability in terms of frequency rationalized.*
3	Added: *Area Management to examine Final Risk Register and give feedback accordingly.*
4	Added: *Risk Dashboard to encompass prioritized risks.*
5	Added: *Occupational Hazards (Appendix-D).*
6	Added: *Process Risk Management Team and process risk management.*

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 001 Hazards Identification & Risk Assessment (HIRA) Plan	Location HSE IC	Location HSE MRC	Location IC
OGF – HSE – 002 Risk Register (Template)	Location HSE IC	Location HSE MRC	Location IC

5.1.1 Purpose

- The purpose of this procedure is to provide a system to manage risks to *as low as reasonably practicable* (ALARP) by identifying the risks (identification phase), analyzing the risks (analysis phase), evaluating the risks (evaluation phase), implementing the effective controls/barriers (treatment phase), communicating the risks (communication phase), and reviewing the risks (review phase).

5.1.2 Definitions

ALARP (As Low As Reasonably Practicable)	Principle is that the residual risk be reduced as far as reasonably practicable as any additional cost involved in reducing the risk further would not be proportionate to the benefit gained.
Barrier (Hazards Control Hierarchy)	Functional grouping of safeguards or controls selected to prevent a major accident or limit the consequences.
Enterprise Risk Management (ERM)	ERM is a way to effectively manage risk across the organization through the use of a common risk management framework. This framework can vary widely among organizations but typically involves people, rules, and tools.
Hazard	Any process/operation/activity related event or gap in the protection efforts or source that could potentially cause damage and give opportunity for improvement.
Hazard Communication (HAZCOM)	Disseminating safety information about hazards in a workplace.
Hazards Control Hierarchy (Barriers)	☠ Elimination is removal of hazard by eliminating a requirement to carry out a task, use of particular equipment or use of a chemical. ☠ Substitution is replacement of the material; plant; equipment; process; or work practice with a less hazardous one. ☠ Engineering controls reduce the reliance of human factors; engineering controls can be redesign of equipment, redesign of process or increase of automation. Engineering controls also include change in layout, ventilation, guards, enclosures, firewalls etc. ☠ Administrative controls are the procedural aspects, such as planned and preventive maintenance, HSE awareness events, Standard Operating Procedures (SOPs), work permit system, job hazards analysis and competence of personnel. ☠ Personal Protective Equipment (PPE) is the last and might be the least effective method as it relies on human behavior.
Hazard Identification (HAZID)	A study by a multi-disciplinary team to identify potential hazards.
Hazard and Operability Study (HAZOP)	A study by a multi-disciplinary team to identify hazards and operability problems, including causes, consequences, safeguards and remedial actions.
HIRA Plan	Formal plan to carry out hazards identification and risk assessment of an oil & gas installation or office building.
HIRA Team	Team of appropriate domain professionals (subject matter experts) trained on hazards identification & risk assessment methodologies.
Individual Risk	Risk to which an individual is exposed during a defined period of time.
Inherently Safer Design	Design which eliminates or reduces major accidents through measures that are permanent/ inseparable from the design.
Residual Risk	Residual risk is the amount of risk that remains after controls are accounted for.
Risk (Rating)	Numerical value of an impact as combination of an incident-likelihood and consequence-severity within a 5x5 risk matrix.
Risk Appetite	Level of risk an organization is prepared to accept in pursuit of its objectives, before action is deemed necessary to reduce the risk.
Risk Assessment	Overall process of estimating the magnitude of impact and deciding whether or not it is significant.
Risk Criteria	Terms of reference which evaluates the significance of a risk as Low = 1-6; Medium = 7-12; High = 13-20; Intolerable = 21-25.
Risk Dashboard	Graphical presentation of the risks.
Risk Management	System to eliminate or mitigate the risks.
Risk Matrix	A visualization tool for Enterprise Risk Management (ERM). Also known as Risk Heat Map or Risk Heat Chart, it shows risk likelihood on the horizontal axis (X) and risk impact on the vertical axis (Y).

Risk Owner	Entity accountable as well as authoritative to manage a risk.
Risk Register	Record used to identify applicable hazards to assess risks.
Risk Source	Element which has potential to give rise to a risk.
Risk Tolerance	Readiness to bear a risk after risk treatment.
Risk Treatment	Controlling, avoiding or transferring the risk.
Significant Risk	Intolerable or high risk.

5.1.3 Structure of OGDCL's Enterprise Risk Management (ERM)

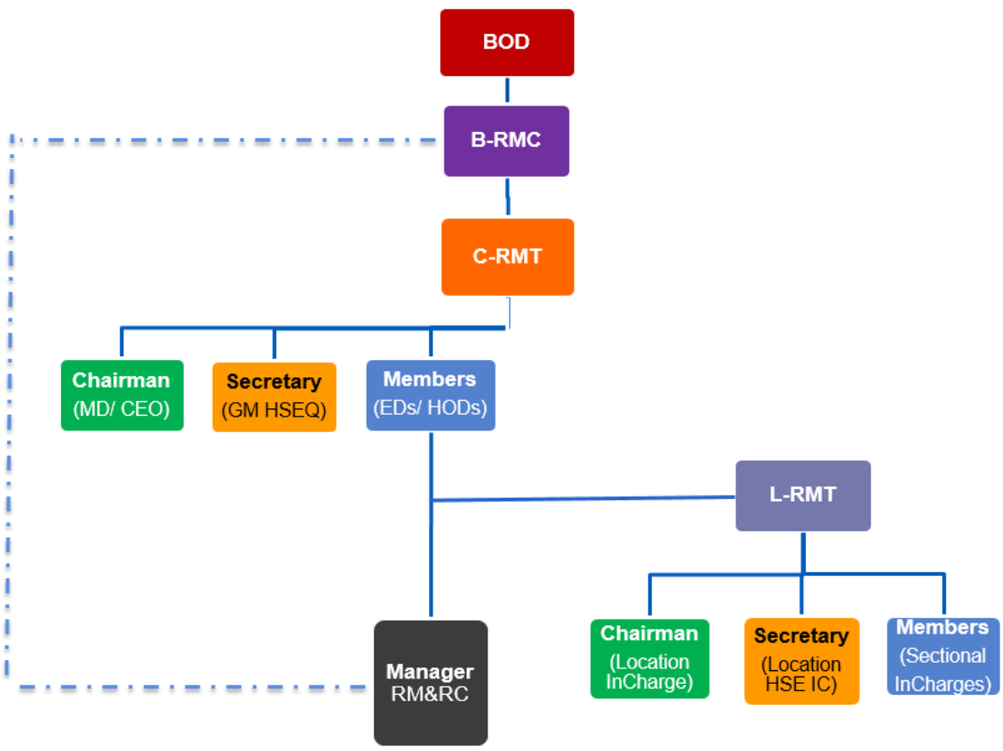
- OGDCL's Enterprise Risk Management (ERM) shall be governed by ERM Policy which is placed at Section 4.1 titled *HSE & ERM Policy Statements*.
- OGDCL's Enterprise Risk Management (ERM) Teams shall be constituted as follows;

Team	Chairman	Secretary	Members
Corporate Risk Management Team (C-RMT)	MD/ CEO/ COO/ CFO	GM HSEQ	EDs/ GMs/ HODs
Location Risk Management Team (L-RMT)`	Location InCharge	Location HSE InCharge	Location Sectional InCharges
Process Risk Management Team	Experienced Chairperson from an Independent Party	HSEQ Representative	• Process/ Project Representative • Discipline Engineers • Sector Expert

`However, HIRA Team(s) to carry out hazards identification & risk assessment activities.

- Management shall ensure provision of requisite resources for the training and development of these teams on risk & crisis management.

Structure of Enterprise Risk Management (ERM)



Roles & Responsibilities of *Corporate* Risk Management Team (C-RMT)

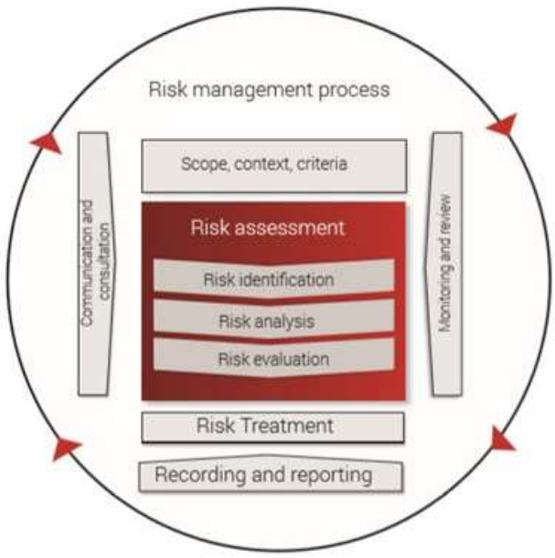
Chairman	Secretary	Members
• Constitute C-RMT and ensure provision of requisite resources for the training and development of C-RMT on Risk & Crisis Management. • Ensure corporate risk assessment is carried out by C-RMT each quarter as per Risk Criterion and endorse the overall corporate risks. • Ensure Risk Treatment is prioritized by C-RMT/ each Directorate by controlling (mitigating/ minimizing) the HIGH risks through interim controls/ barriers and strategic decision making, whereas INTOLERABLE risks by stopping the activity until risks have been reduced or transferred through an outsourced services. • Ensure Corporate Risk Register include a Risk Dashboard to provide high level visibility, comprehension and significant risks along with controls are presented in the C-RMT Meetings by Secretary C-RMT. • Ensure risks and controls are timely communicated through distribution of Corporate Risk Register to all Directorates by Secretary C-RMT. • Ensure Risk Register is reviewed and updated on quarterly basis in the C-RMT Meetings and when there is a change in the nature of operations/ processes/ activities. • Ensure timely formulation of short & long term objectives/ action plans to mitigate/ minimize the significant corporate level risks.	• Arrange trainings for the C-RMT on Risk & Crisis Management based on training need assessment (TNA). • Based on Locations' Risk Registers and inputs from Members C-RMT, update Corporate Risk Register and Risk Dashboard. • Ensure quarterly updating of Corporate's Risk Register by getting inputs from all stakeholders. • Conduct short awareness sessions/ convene C-RMT Meeting to communicate the documented (approved) risks and controls to all HODs on quarterly basis after the B-RMC Meetings. • Circulate agenda related to C-RMT Meetings. • Ensure to develop/ update Risk Dashboard and deliver a presentation on Enterprise Risk Management to provide high level visibility/ comprehension in the B-RMC and C-RMT Meetings. • Assist Members C-RMT in the formulation of short & long term objectives/ targets to mitigate/ minimize the significant corporate level risks. • Track progress on objectives and action plans to reduce significant corporate risks.	• Participate in the specific trainings on Risk & Crisis Management. • Oversee risk assessment by focusing on Risk Sources like Man, Machine, Material, Method, Product, Record, and Legal Framework pertaining to their own Directorate. • Carry out corporate risk assessment each quarter as per Risk Criterion pertaining to their own Directorate.. • Crosscheck/ review the overall corporate risk assessment process. • Treat Directorate's risks by controlling (mitigating/ minimizing) the HIGH risks through interim controls/ barriers and strategic decision making, whereas INTOLERABLE risks by stopping the activity until risks have been reduced or transferred through an outsourced services. • Further communicate Directorate's approved risks and controls to all units'/ sub unit's teams. • Provide inputs to Corporate Risk Register in the L-RMT Meetings on quarterly basis and when there is a change in the nature of operations/ processes/ activities. • Ensure timely mitigation on the agreed objectives and action plans to reduce significant corporate risks.

Roles & Responsibilities of *Location* Risk Management Team (L-RMT)

Chairman	Secretary	Members
• Constitute Hazard Identification & Risk Assessment (HIRA) Teams, circulate Quarterly HIRA Plan and provide requisite resources for the training and development of L-RMT on Risk & Crisis Management. • Ensure location's risk assessment is carried out by assigning ratings to each activity as per Risk Criterion (Low = 1-6; Medium = 7-12; High = 13-20; Intolerable = 21-25). • Ensure Risk Register is timely compiled for circulation. • Ensure Risk Treatment is prioritized by controlling (mitigating/ minimizing) the HIGH risks through interim controls/ barriers and strategic decision making, whereas INTOLERABLE risks by stopping the activity until risks have been reduced or transferred through an outsourced services. • Ensure Location's Risk Register include a Risk Dashboard to provide high level visibility, comprehension and significant risks are presented in the L-RMT/ HSE MRC Meetings. • Ensure hazards. risks and controls are communicated through distribution of Risk Register; Toolbox Talk; HAZCOM (signboard/poster/color-coding); training/ awareness session; safety bulletins; safety alerts; circulars, etc. • Ensure Risk Register is reviewed on quarterly basis in the L-RMT/ HSE MRC Meetings and when there is a change in the nature of operations/ processes/ activities. • Ensure timely formulation of short & long term objectives/ targets to mitigate/ minimize the significant level risks.	• Arrange specific trainings for the HIRA Teams on Risk & Crisis Management. • Based upon the inputs provided by HIRA Teams, compile hazards, risks and controls objectively in the Risk Register. • Quarterly update Locations' Risk Register by getting inputs from all stakeholders. • Conduct short awareness sessions/ convene L-RMT Meeting/ HSE MRC Meeting to communicate the documented (approved) hazards, risks and controls to all Sectional InCharges. • Circulate agenda related to L-RMT/ HSE MRC Meetings. • Develop Risk Dashboard and deliver a presentation on Risk Management to provide high level visibility/ comprehension in the L-RMT/ HSE MRC Meetings. • Assist location's management in the formulation of short & long term objectives/ targets to mitigate/ minimize the significant risks. • Timely submit update Locations' Risk Register to all concerned at, H.O.	• Participate in the specific trainings on Risk & Crisis Management. • Initiate location's risk assessment by visiting the areas as per HIRA Plan focusing on Risk Sources like Man, Machine, Material, Method, Product, Record, and Legal Framework. • Carry out location's risk assessment by assigning ratings to each activity as per Risk Criterion (Low = 1-6; Medium = 7-12; High = 13-20; Intolerable = 21-25). • Treat risks by controlling (mitigating/ minimizing) the HIGH risks through interim controls/ barriers and strategic decision making, whereas INTOLERABLE risks by stopping the activity until risks have been reduced or transferred through an outsourced services. • Further communicate hazards, risks and controls to the employees, contractors and service companies working within their area of operations / processes / activities. • Provide inputs to Location's Risk Register in the L-RMT/ HSE MRC Meetings on quarterly basis and when there is a change in the nature of operations/ processes/ activities.

5.1.4 Risk Management Process

- After establishing context, risk management process shall comprise of following phases:
  4.1 Risk Identification Phase
  4.2 Risk Analysis Phase
  4.3 Risk Evaluation Phase
  4.4 Risk Treatment Phase
  4.5 Risk Communication Phase
  4.6 Risk Review Phase



5.1.4.1 Risk Identification Phase

- *Location's Risks* shall be identified by Hazards Identification & Risk Assessment (HIRA) Team(s) constituted by Location InCharge in case of oil & gas installation* or office building** and respective InCharge Admin. in case of Head Office***.
- Whereas *Corporate Risks* shall be identified by Corporate Risk Management Team (C-RMT).
- Depending upon the number of processes, operations and activities, *HIRA Plan* shall be developed in the following tabulated form and circulated:

#	Area	Team Lead	Team Members	Schedule (From – To)	Risk Register Deadline		
					Compilation	Review	Approval
1							
2							
3							

- *HIRA Plan* shall be developed on quarterly basis for carrying out hazards identification and risk assessment accordingly.
- In addition, whenever a new project (or expansion), exploration, seismic or drilling activity takes place, *HIRA Plan* shall be developed prior to commencement of work.
- HIRA Team members shall be the appropriate domain-related professionals (subject matter experts) who are provided with formal training session(s) on hazards identification and risk assessment methodologies.
- Each HIRA Team shall visit the allocated areas as per *HIRA Plan* by focusing on following *List of Risk Sources* (but not limited to):

Man	i.e. awareness, competence, and experience of workforce, contractors, service companies, etc.
Machine	i.e. aging factor and integrity of infrastructure, design, equipment, tools, safeguards, etc.
Material	i.e. quality of chemicals, parts/spares, backup machines, etc.
Method	i.e. mechanism, processes, supply chain systems, procedures, work instructions, etc.
Product	i.e. product's characteristics & quality with respect to reservoir's lifecycle perspective, contractual obligations, etc.
Record	i.e. HAZOP, drawings, risk assessments, historical logs, audits/inspections, HSE TOP cards, permits, JHAs, shutdown/ breakdown/accidents history, etc.
Legal Framework	i.e. applicable laws, regulatory/other requirements, etc.

- Each HIRA Team shall identify and list down applicable hazards considering the following List of Hazards whereas HSE Rep. shall compile the same against each process/operation/activity in the *Risk Register*.

List of Hazards (not exhaustive)

a. Physical hazards
- Electrical (shock/burn)
- Hazardous/stored energy
- Radiations (ionizing or non-ionizing)
- Revolving or rotating entities
- Moving entities/dynamic situation (on floor/ soil, in water or overhead)
- Falling objects
- Ejection (flying pieces or parts)
- Improper storing/stacking (falling materials)

b. Chemical hazards
- Explosion (explosive/chemical/fuel/ electric)
- Fire (electric/chemical/fuel)
- Splash
- Asphyxiation (e.g. low oxygen atmospheres, excessive CO_2, drowning, excessive N_2, halon, smoke, etc.)
- Combustible materials
- Flammable materials
- Oxidizing materials

- Improper floor or surface (tripping/slipping)
- High pressure points
- High temperature points/surfaces/fluids
- Extreme low temperature points/surfaces/ fluids
- Explosion/rupture/boiling liquid expanding vapor explosion (bleve)
- Work at heights (falls)
- Confined space (toxic gases/suffocation)
- Obstructions/collisions/ contacts/impacts (sharp edges, low head-rooms)
- Objects under tension/induced stress
- Objects under compression
- Vibration
- Noise (high level/intrusive)
- Natural hazard (storm/lightning/flood/ earthquake)
- Terrain (swamps/marshes/morass/slopes/ streams)

- Corrosive/irritating materials
- Carcinogenic materials
- Toxic materials (e.g. H_2S, exhaust fumes, SO_2, benzene, chlorine, welding fumes, tobacco smoke, CFCs)
- Dust/particles
- Fumes/vapors/steam
- Mist/fog
- Frost bite

c. Ergonomics hazards

- Poor organization and job design
- Work planning issues
- Improper work environment (temperature/ humidity)
- Improper light (glare/poor light)
- Indoor climate (too hot/cold/dry/humid, draughty)
- Heat stress (high ambient temperatures)
- Cold stress (low ambient temperatures)
- Improper ventilation
- Manual lifting, handling or shifting
- Repetitive movements
- Poor Posture
- Poor workplace design/layout
- Congested workplace
- Stressful tasks
- Long sittings/duration of work
- Improper work rest cycles
- Mismatch of work to physical abilities
- Assigning task to unskilled/ untrained person

d. Biological hazards

- Unhygienic conditions
- Food contamination/ food-borne bacteria (e.g. e. coli)
- Water-borne bacteria (e.g. legionella)
- Clinical waste
- Infections (blood/needles)
- Contagious diseases
- Bacteria/viruses (endemic/epidemic/ pandemic)
- Poisonous plant (e.g. poison ivy and oak, stinging nettles, nightshade)
- Animal/insect bite or sting
- Algae or diseased plants
- Disease-transmitting insects (mosquitoes: *dengue, malaria, yellow fever*; ticks: *lyme disease*; fleas: *plague*)
- Parasitic insects (e.g. pin worms, bed bugs, lice, fleas)

e. Psychological hazards

- Post-traumatic stress
- Burnout/fatigue
- Bullying/harassment
- Motion/sea sickness
- Travel sickness
- Height phobia

f. Security-related hazards

- Violence/terrorism
- Assault
- Sabotage
- Military action/civil disturbances
- Pilferage/burglary

g. Occupational hazards

- Acute coronary syndrome
- Accidental trauma; Heat related disorders
- Exposure to high noise; UV light; vibration; welding fumes; oil fumes; chemicals; extreme heat/ coldness; human blood; video screens; cleaning liquids, detergents and insecticide spray
- Contaminated drinking water; infected sewage
- Lifting of heavy weight; prolonged standing; shift work

- Existing controls/ barriers already in place against each process/operation/ activity shall be scribed in the *Risk Register* using *Hazards Control Hierarchy*.

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

5.1.4.2 Risk Analysis Phase

- Actual Risk (with Existing Controls/ Barriers) and Residual Risk (after implementing Further Controls/ Barriers) shall be calculated as
  Risk Rating (RR) = Consequence (C) x Probability (P)
- Based upon the inputs provided by HIRA Teams, HSE Rep. shall compile risks objectively in the *Risk Register* by assigning values as per following risk criteria:
  - **Consequence (C) Severity** (Table-A) with numerical values attached to each impact pertaining to human, environment, asset/ financial and reputation. However, the highest numeric value shall be selected for Risk Rating calculation.
  - **Incident (P) Probability** (Table-B) with numerical values attached to Probability of Occurrence and/ or effectiveness of existing controls/ barriers.
- **Risk Rating (RR)** 5x5 Risk Matrix (Risk Heat Map / Risk Heat Chart) Table-C

Table-A: **Consequence Severity (C)**

Severity	Potential Impact			
	Human	Environment	Asset/ Financial	Reputation
Catastrophic (5)	Multiple Fatalities	Massive Effect Persistent Severe Environmental Damage or Severe Nuisance extending over a large area of commercial, communal or recreation use. Continuous excursions beyond allowable or regulatory limits.	Loss of > 10 Million USD	International Concern
Critical (4)	Single Fatality	Major Effect Severe environmental damage; the company is required to take Extensive measures to restore the damaged environment. Intermittent excursions beyond allowable or regulatory limits.	Loss of 2 – 10 Million USD	National Concern
Major (3)	Multiple Injury Cases esp. Lost Time Injury(ies)	Local Effect Limited Discharges affecting the neighborhood or damaging local environment. Excursions beyond allowable or regulatory limits.	Loss of 0.025 – 2 Million USD	Provincial / Regional Concern
Marginal (2)	Medical Treatment Case(s)/ Restricted Workday Injury(ies)	Minor Effect Discharge or Contamination with no lasting effect. Rare excursions beyond allowable or regulatory limits.	Loss up to 0.025 Million USD	Local Concern
Negligible (1)	First Aid Case/ Near Hit	Slight Effect Slight Damage within the premises of the facility	Nil	Awareness, No Concern

Table-B: **Incident (Event) Probability (P)**

Likelihood That Exposure Would Result Into Loss		
	IN TERMS OF FREQUENCY	**IN TERMS OF EFFECTIVENESS OF CONTROLS/BARRIERS**
***Highly Likely* (5)**	Incident or event occurred THREE OR MORE TIMES DURING LAST TEN YEARS within E&P oil and gas industry, Pakistan	Or NO operational control/barrier is in place
***Very Likely* (4)**	Incident or event occurred TWO TIMES DURING LAST TEN YEARS within E&P oil and gas industry, Pakistan	Or INSUFFICIENT operational controls/barriers are IN PLACE
***Likely* (3)**	Incident or event occurred ONCE DURING LAST TEN YEARS within E&P oil and gas industry, Pakistan	Or operational controls/barriers are IN PLACE and are NOT ROUTINELY REVIEWED
***Unlikely* (2)**	Incident or event occurred SELDOM/ RARELY DURING LAST TEN YEARS within E&P oil and gas industry, Pakistan	Or operational controls/barriers are IN PLACE and ARE REVIEWED as per plans
***Very Unlikely* (1)**	NEVER heard of DURING LAST TEN YEARS in E&P oil and gas industry, Pakistan	Or operational controls/barriers are EFFECTIVE to WITHSTAND their intended purpose

Table-C: **5x5 Risk Matrix** (Risk Heat Map / Risk Heat Chart)

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

- Further controls/barriers against the process/operation/activity shall be mentioned in the second last column of *Risk Register* especially in case ALARP is not attained.
- Whereas the residual risk rating be assigned in the last column of *Risk Register.*
- *Draft Risk Register* shall be reviewed by L-RMT/ HSE MRC with due diligence.
- Following template shall be used for *Risk Register*:

#	Details of Process/ Operation/ Activity	List of Hazards (Ref. Appendix-D of ERM Procedure)	Existing Controls/ Barriers	Consequence Severity (C) — The highest numeric value to be selected for RR.				Probability (P)		Actual Risk Rating (RR=C x P)	ALARP (Yes/No)	Further Controls/ Barriers	Residual Risk Rating (RR = C x P) (After Implementing Further Controls/ Barriers)
				Human	Environment	Asset/ Financial	Reputation	In terms of incidents Frequency	In terms of effectiveness of Controls/ Barriers	Low (1-6); Medium (7-12) High (13-20) Intolerable (21-25)			
☐ Operational Risk ☐ Strategic Risk ☐ External Risk													
1													
2													
3													

5.1.4.3 Risk Evaluation Phase

- Risk ratings and existing controls/ barriers mentioned in the *Risk Register* shall be compared with the predetermined risk criteria to see how the assessed (rated) risks be treated accordingly e.g.:
  - no further action is required;
  - risk treatment option(s) to be applied; or
  - risk analysis to be redone.
- Subsequently, the *Final Risk Register* shall be endorsed and approved by Location InCharge in case of oil & gas installation or office building and respective InCharge Admin. in case of Head Office for circulation to all concerned with a copy to HSEQ Department H.O.
- Area Management shall examine the *Final Risk Register* and give feedback accordingly.

5.1.4.4 Risk Treatment Phase

- Risk treatment and actions shall be prioritized in the following manner based on risk appetite:

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

- Objectives and associated targets, therefore, shall be formulated to control the significant ***(High & Intolerable)*** risk ratings through a Management Program / Action Plan (till ALARP is achieved) which includes:
  - Objective and targets to be achieved;
  - Areas where the program needs to be implemented;
  - Methods and means to achieve the objective.
  - Responsibility for defining and implementing the program.
  - Timeframe for completing the program and/or its elements or phases;

- L-RMT/ HSE MRC shall review, discuss and approve Management Program for implementation.
- Progress of Management Program shall be reviewed depending upon the nature of case.
- When Management Program achieves its objective and associated targets, the reduction in risks shall be reported to L-RMT/ HSE MRC for review and if found satisfactory, shall be closed out.

5.1.4.5 Risk Review Phase

- *Risk Register* shall be reviewed on quarterly basis by L-RMT/ HSE MRC.
- Furthermore, *Risk Register* shall be reviewed when there is a change in the nature of operations/processes/activities and/ or a development in appreciation of the relevant hazards and risks e.g. new guidance or legislation; audit/ inspection revealing nonconformity(ies); and/or major incident/ accident.

5.1.4.6 Risk Communication

- *Risk Register* shall include a *Risk Dashboard* to provide high level visibility, comprehension and for presenting risks in the L-RMT/ HSE MRC Meetings.
- Communication of hazards and risks shall be carried out through distribution of risk register; toolbox talk; HazCom (signboard/poster/color-coding); training/ awareness session; safety bulletins; safety alerts; circulars, etc.
- Sectional InCharges shall be responsible for the further communication of the hazards and risks to the employees, contractors and service companies working within their areas of operations/processes/activities.

5.1.5 Process Risk Management

- Process risk management shall be carried out employing Process Hazard Analysis (PHA) techniques by identifying the hazards at an early stage in the design process and the actual changes or the changes that can reasonably be expected during the operations lifetime in meeting / workshop format.
- PHA shall be conducted after every five years with following objectives:
  - To check, verify and validate the efficacy of process controls and barriers / internal controls.
  - To up to date documentation / arrangements for achieving safe operating limits and ensure availability to O&M personnel.
  - To ensure placement of conscious labeling on equipment, storage vessels, containers, tanks and pipelines carrying or containing hydrocarbons or other hazardous material as per appropriate international standards.
  - To ensure provision of an emergency response plan which includes means of escape; emergency response teams; appropriate safe refuge and assembly areas; and emergency response equipment for spillage containment, fires, explosions, burns, etc., and
  - To communicate hazard information to employees (including using the analysis hazard review tables to improve operating procedures or develop trouble-shooting guides)

5.1.5.1 PHA Preparation Phase

- This phase of the PHA shall involve planning the meetings and workshops, collecting and reviewing background information, and preparing for leading and documenting the proceedings.
- The preparation phase shall be the responsibility of the team leader but the effort could be shared by the team scribe or others.
- Team members shall be allowed sufficient time to help collect and review process safety information (PSI) and procedures.

5.1.5.2 PHA Workshop Phase

- During PHA team meetings and workshops, accident scenarios shall be anticipated, important hazards & data shall be identified and risks shall be judged, employing variety of techniques for particular process areas or part of the PHA.

5.1.5.3 PHA Report Phase

- PHA report, results, and supporting documentation shall be based upon the information collected during the PHA meeting. PHA report shall state (1) who the team was, (2) what process the team reviewed, (3) when the PHA meetings and workshops took place, (4) how the team performed the review, (5) what the results were and (6) what were the recommendations for reducing the risk.
- PHA Report shall be shared with the concerned Departmental Heads.
- Custodian of the unit shall develop Action Plan against the PHA recommendations and perform quarterly reviews of the recommendations followed by progress sharing with concerned management and HSEQ Department.

5.1.6 Corporate Risk Management

- Manager Risk Management & Regulatory Compliance (RM&RC) shall be responsible to consolidate *Location's Risk Registers*, develop *OGDCL's Corporate Risk Register and Dashboard*.
- *OGDCL's Corporate Risk Register* shall mainly include a) operational, b) strategic and c) external risks; whereas *Risk Dashboard* to include those significant activities which have been mutually agreed in the Corporate Risk Management Team (C-RMT) meeting. *Risk Dashboard* shall generally encompass following prioritized risks (but not limited to):

#	Category	Priority Risk
1	Strategic Risks	Financial Instruments (Credit Risk, Liquidity Risk, Market Risk)
		Reserves Replacement Ratio
		Project Risks
		Supply and Demand Risks
2	Operational Risks	Regional Risks
		Human Capital Deficit
		Operational Hazards
		Supply Chain Risks
		Ageing Oil and Gas Infrastructure
		Information Technology
		Petroleum Data Preservation
3	External Risks	Impact of Investigation Agencies/ LEAs
		Natural Calamities
		Pandemic Risks

- *OGDCL's Corporate Risk Register* and *Risk Dashboard* shall be reviewed by C-RMT on quarterly basis before submission to MD/CEO for final approval.
- Furthermore, OGDCL's *Corporate Risk Register* shall be reviewed when there is a change in the nature of operations/processes/activities and/ or development in appreciation of the relevant hazards and risks e.g. new guidance or legislation; audit/inspection revealing nonconformity(ies); and/or major incident/accident.
- MD/CEO shall be responsible to ensure that the identified, especially the significant corporate risks, controls and objectives/ action plans are communicated to BOD and other stakeholders.
- Respective Directorate shall be responsible to communicate the approved risks & controls to its units'/sub unit's teams and ensure timely mitigation on the agreed objectives/ action plans to reduce significant corporate risks.
- GM HSEQ shall be responsible to ensure that *Enterprise Risk Management (ERM) Procedure* is up to date as well as accessible and comprehensible to all concerned for compliance.

OGF/XXX-HSE-001(03)

OIL & GAS DEVELOPMENT COMPANY LIMITED

HAZARDS IDENTIFICATION AND RISK ASSESSMENT (HIRA) PLAN

Date of Risk Assessment (From_____ To _____)

LOCATION: _____

HIRA TEAM A

Assessment Area	Team Leader	Team Members	Schedule (From – To)	Risk Register Deadline		
				Compilation	Review	Approval

HIRA TEAM B

Assessment Area	Team Leader	Team Members	Schedule (From – To)	Risk Register Deadline		
				Compilation	Review	Approval

HIRA TEAM C

Assessment Area	Team Leader	Team Members	Schedule (From – To)	Risk Register Deadline		
				Compilation	Review	Approval

HIRA TEAM D

Assessment Area	Team Leader	Team Members	Schedule (From – To)	Risk Register Deadline		
				Compilation	Review	Approval

Note:

1) THIS PLAN HAS BEEN PREPARED UNDER THE SECTION 5.0 "PLANNING" OF OGDCL INTEGRATED HSE SYSTEM MANUAL DULY APPROVED BY MD&CEO OGDCL.
2) APPROVED COPY OF RISK REGISTER WILL BE DISTRIBUTED TO ALL CONCERNED AFTER THE ENDORSEMENT OF COMPETENT AUTHORITY.
3) OBJECTIVES & MANAGEMENT PROGRAM WILL BE IMPLEMENTED BY THE RESPECTIVE SECTIONS FOR THE MITIGATION MEASURE OF SIGNIFICANT (INTOLERANT/HIGH) RISK AREAS.

Prepared by	Reviewed by	Approved by

Ref. Section 05 (Planning) of OGDCL's Integrated HSE System Manual

OGF/XXX-HSE-002(06)

CORPORATE / LOCATION RISK REGISTER
BASED ON LIFECYCLE PERSPECTIVE

Risk Register No.: HSE / XXX / 20XX – XXX(00)

Title of Entity: _____

Date of Risk Assessment: From_____ To _____

Reference of Risk Assessment Plan: _____

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited
RISK REGISTER
Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

C-RMT / L-RMT

#	Name	Role	Designation	Directorate/ Department/ Section
1		Chairman		
2		Secretary		
3		Memebr-1		
4		Memebr-2		
5		Memebr-3		
6		Memebr-4		
7		Memebr-5		
8		Memebr-6		
9		Memebr-7		
10		Memebr-8		
11		Memebr-9		
12		Memebr-10		

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited
RISK REGISTER
Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

Hazards Identification & Risk Assessment (HIRA) Team

Area(s)	Name	Role	Designation	Company
HIRA Team A				
		Team Lead		
		Member		
		Member		
		Member		
HIRA Team B				
		Team Lead		
		Member		
		Member		
		Member		
HIRA Team C				
		Team Lead		
		Member		
		Member		
		Member		
HIRA Team D				
		Team Lead		
		Member		
		Member		
		Member		

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited
RISK REGISTER
Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

Summary of Risk Assessment (Tabulated)

Area of Assessment	Low	Medium	High	Intolerant	Total
I.					
II.					
III.					
IV.					
V.					
VI.					
VII.					
VIII.					
IX.					
X.					
Total:					

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited
RISK REGISTER
Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

Risk Dashboard

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited
RISK REGISTER
Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

Area I: _____

HIRA Team:

Sr. No.	Name	Designation	Signature	Date

OGF/XXX-HSE-002(06)

Oil and Gas Development Company Limited

RISK REGISTER

Threats & Opportunities Assessment for Managing Risks Based On Life Cycle Perspective

#	Details of Process / Operation / Activity	List of Hazards (Ref. Appendix-D of ERM Procedure)	Existing Controls / Barriers	Consequence Severity (C) — The highest numeric value to be selected for RR.				Probability (P)		Actual Risk Rating (RR=C x P) Low (1-6) Medium (7-12) High (13-20) Intolerable (21-25)	ALARP (Yes/No)	Further Controls / Barriers	Residual Risk Rating (RR = C x P) (After Implementing Further Controls/ Barriers)
				Human	Environment	Asset/ Financial	Reputation	In terms of incidents Frequency	In terms of effectiveness of Controls/ Barriers				
☐ Operational Risk ☐ Strategic Risk ☐ External Risk													
1													
2													
3													
4													
5													

5.2 Job Vulnerability & Hazard Analysis

OGM/P-HSE-5.2(08) Revision Number 8

Original Issue: June 25, 2007
This Issue: March 14, 2022

Updated By:
Muhammad Sameem Hussain Qaiser
Senior HSEQ Officer, OGDCL

Reviewed By:
Muhammad Mubashir Abbas
Manager HSEQ, OGDCL

Checked By:
Mahmood-ul-Hassan Khan
General Manager HSEQ, OGDCL

Approved By:
Syed Khalid Siraj Subhani
Managing Director, OGDCL

Change/ Revision Log

#	Description of Change
	Reviewed, no change suggested.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 003 Job Vulnerability/ Hazard Analysis (JVA/ JHA)	Department / Section ICs	Location HSE IC Permit Issuer	Location IC

5.2.1 Purpose of JVA/ JHA

- A JVA/ JHA shall be intended to provide a structured approach to identifying hazards and incorporating controls measures for those hazards related to tasks.
- JVA/ JHA shall be required for any task performed under a Permit to Work (PTW). However, there may be exceptions; In such cases, the rationale for not conducting a JVA/ JHA should be clearly stated on the PTW template.

5.2.2 Requirements for JVA/ JHA

- Jobs with the worst accident history shall have priority and should be analyzed first.
- JVA/ JHA will be based upon following factors:
  - **Frequency of Accidents:** a job has repeatedly caused near hits or accidents is a candidate for JVA / JHA.
  - **Rate of Disabling Injuries:** Every job that has caused disabling injuries should be given a JVA / JHA.
  - **Severity Potential:** Some jobs may not have a history of accidents but may have the potential for a severe injury (high impact ratings).
  - **New Jobs:** Analyses of new jobs and jobs where changes have been made in processes and procedures should follow.
  - **SIMOPS (Simultaneous Operations) Jobs**: Jobs that involve a number of functional groups or disciplines.
- JVAs / JHAs shall be attached to the corresponding work permits and discussed during the toolbox talks / safety meetings.
- The following list is designed to assist in determining the requirement for a JVA / JHA and contains jobs that are considered DO NOT require a JHA. This list is not exhaustive and be used as a guide only:

Production – Routine Operations:	***Maintenance – Routine Operations:***
Weekly line of sight gas detector cleaning	Housekeeping
Radiation surveys using the radiation survey meter	Test running emergency generator, fire & Foam pumps
Lube oil top offs	Test running standby machinery
Taking water/ oil samples (LP process)	Washing gas turbine compressors
Draining of sight glasses (to prove levels)	Starting/ stopping gas turbine
Laboratory work	Internal visual gas turbine inspections
Greasing LP pumps	Changing over equipment
Inventorying activities	Topping off of oil and water in machinery
Topping off tempered water tank	Boiler water tests
Compressor lubricator rate check	Use of Elec/Mech workshop machinery
Greasing production chokes	Use of hydraulic press
Draining liquids from compressors	Portable equipment testing in non-hazardous areas
Solenoid leakage checks	Charging of batteries
Housekeeping	Adding refrigerant
Testing export gas H2S levels	Routine checking of electric motors
Removal and installation of pressure gauges for calibration from block and bleeds	Foam system checks
Checking oil levels on chemical pumps and topping off	CO2 room checks not including opening release stations
Backflush process seawater strainers	Visual inspection of 440 volt MCC's prior to resetting overloads
Drills	Lube oil sampling
Filling of bowzer	Inspection of Slings, Shackles etc.

5.2.3 JVA/ JHA Development Team

- The Team shall constitute of the following members:
  - *Team Lead:* Representative from exploration, construction, seismic, production, maintenance or drilling (depending on the scope of work). This person should be experienced in the work and at least at supervisor level.
  - Representative(s) at the "hands on" level – ideally, the Job Supervisor who will directly oversee the execution of the Job
  - Technical specialists / engineers who can bring additional knowledge to the assessment (if required)
  - Location HSE Rep. (if required)
  - At a minimum one representative from every discipline or contractor involved in execution of job

5.2.4 JVA / JHA Responsibilities

- It shall be the responsibility of Job Supervisor to coordinate and conduct JVA / JHA prior to execution of the task.
- Location HSE Representative shall communicate the requirements laid down in this procedure to all employees and contractor's management.
- For activities to be carried out by projects personnel or any contractor inside plant boundary / live areas / process areas (i.e. Brown field), all risk assessments shall be reviewed and endorsed by Permit Issuer.
- In green field (development of new facility / construction sites / projects) outside of plant boundary; all JVAs/ JHAs shall be reviewed and endorsed by designated person as authorized by Location IC.

5.2.5 Modus Operandi: JVA/ JHA

Step 1 – Establish the Context

- Establish the context of the scope of work required by the JVA/ JHA:

Complete Section of the JVA / JHA Worksheet:	
Job Description	*- What will be done?* State the specific job to be performed that may have a history of potential for injury, incidents, safety critical, new jobs, jobs changed, new personnel performing job.
Location	*- Where?* Identify the location where the work will be conducted.
JHA Date	*- When?* Record the date that the JVA/ JHA is being recorded.
JHA Leader	*- Who facilitated the JVA/ JHA?* Record the name of the person who facilitated the JHA.
Review Team	*- Who will be involved?* Record details of the Department, responsible Job Supervisor for the work and the names of JVA/ JHA participants.
Hazard Checklist	- Identify applicable Hazards from list

Step 2 – Break the Job into Logical Steps

- Divide each job into simple steps. Number these and describe what is to be done and in what order. Ensure steps are not too complicated or too simple.

Complete Section of the JVA / JHA Worksheet:	
Step No.	*How many steps can the job be broken into?* Number the steps of the job, i.e. 1,2,3 etc.
Job Step	*What shall be done at each step?* Against each step number, briefly describe what is to be done in order of the work to be conducted.
Note: Consider these in each step *Are there safer methods to achieve the same results?* *Are there alternative methods such as avoiding confined space entries via remote device, removing task from a hazardous area, shutting in the process (consider hierarchy of controls).*	

Step 3 - Identify the Hazards for Each Job Step (Hazards)

- For each step of the job, identify all significant hazards associated with the work, whether they are part of the employee's task or part of the job surroundings. For each of these hazards, identify the potential incident that may occur. Also identify any potential control measures that may fail as a result of the activities conducted during the job.

Complete Section of the JVA / JHA Worksheet:	
Hazard	*What can happen at each step?* *What are the potential incidents that could occur from each of the Job Steps?* *Are there any potential failures of existing controls that could occur as a result of the Job Step?* Identify the hazard for each step of the job and the potential incident that may occur. Identify any existing control measures that may be impacted or compromised by the job.

Step 4 – Develop Hazard/ Risk Elimination or Reduction Measures

- Once the hazards have been identified, hazard / risk reduction or elimination measures shall be developed. When adopting measures to control a hazard, the following Hierarch of Controls should be followed.
- The Hazard Control Section of the JVA / JHA shall be completed by following the below given guidelines:

Complete Section of the JHA Worksheet:	
Hazard Controls	***What is or will be in place to manage or remove the hazards?*** For each step of the job, identify the controls in place to manage or remove the hazard. Use the hierarchy of control, i.e. elimination, substitution, redesign, separate, administrate, PPE ***Are the controls listed specific and complete?*** All of the controls shall be implemented before the job commences, complex controls may not be able to be implemented before commencement of the job – this will require further interim controls to be in place before commencing the job. ***Have all the hazards and controls been identified from previous times that this job was completed?*** Review any previous JHA Worksheet for this job, ensuring any relevant hazards and controls are included in this JHA worksheet

Step 5 – Calculate the Risk and Determination of Tolerability

- The fifth and final step of risk assessment shall be to determine the risk associated with each step of the work tasks. Risk is defined as the product of the probability of occurrence (likelihood) and severity of loss (Consequence) from exposure to a hazard.

Risk Rating (RR) = Consequence (C) x Probability (P)

- The Risk shall be calculated as per following 5x5 Risk Matrix (Risk Heat Map / Risk Heat Chart):

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

- Risk tolerability/treatment of each step shall be assessed as per the following criteria:

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

Oil & Gas Development Company Limited

JHA No. _____ OGFXXX – HSE – 003(04)

Rev. No. _____

Issue Date: _____

Location / Site:_____

Job Vulnerability / Hazard Analysis (JVA / JHA)

DESCRIPTION OF JOB LOCATION	POTENTIAL VULNERABILITIES	IMPACT CONTROL MEASURES

JOB DESCRIPTION	DEPARTMENT	RESPONSIBLE PERSON	SUPERVISOR

#	ROLE	NAME	COMPANY / POSITION	SIGNATURE
1	Leader			
2	Rep. Permit Issuing Authority			
3	Rep. Permit Receiving Authority			
4	Rep. HSE			

HAZARD / RISK CHECKLIST				
☐ Slips, Trips and Falls	☐ Access / Egress	☐ Moving Machinery	☐ Manual Handling	☐ Stored Energy
☐ Lifting Operation	☐ Noise	☐ Illumination	☐ Waste Management	☐ Miscommunication
☐ Corrosive Substance	☐ Use of Oils / Chemicals	☐ SIMOPS	☐ Flaring / Venting	☐ Inadvertent unit / facility trip
☐ Flammable Materials	☐ Explosives	☐ Ignition Source	☐ Hydrocarbon Release	☐ Hydrogen Sulphide
☐ Dropped Object	☐ Working with Pressure	☐ Weather Conditions	☐ Electricity	☐ Working at Height
☐ Fatigue / Over Exertion	☐ Explosives	☐ Isolation	☐ Vehicle/Equip. Movement	☐ Confined Space
☐ Y ☐ N Have alternatives been considered to achieving the job outcome?				

OGFXXX – HSE – 003(04)

VULNERABILITY / HAZARD ANALYSIS DETAILS

#	JOB STEPS BREAKDOWN	HAZARD	CONTROL	RISK CALCULATION			RISK *TOLERABLE (Y/N)*
				C	P	R	

Ref. Section 05 (Planning) of OGDCL's Integrated HSE System Manual
Page 2 of 3

OGFXXX – HSE – 003(04)

Prepared by: Signature (Concerned Departmental/ Sectional In-Charge)	Reviewed by: Signature (Permit Issuer)	 Signature (Location In-Charge HSE)
Date:	Date:	
Remarks:		
Approved by: Signature (Location In-Charge)		
Date:		

5.3 Legal & Other Requirements

OGM/P-HSE-5.3(08) Revision Number 8

Original Issue: June 25, 2007
This Issue: March 14, 2022

Updated By:
Muhammad Sameem Hussain Qaiser
Senior HSEQ Officer, OGDCL

Reviewed By:
Muhammad Mubashir Abbas
Manager HSEQ, OGDCL

Checked By:
Mahmood-ul-Hassan Khan
General Manager HSEQ, OGDCL

Approved By:
Syed Khalid Siraj Subhani
Managing Director, OGDCL

Change/ Revision Log

#	Description of Change
	Reviewed, no change suggested.

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGM/RR-HSE-001 HSE Regulatory Matrix (Preparation/ Updation)	Chief HSE	Manager HSE	GM HSE
OGM/RR-HSE-001 HSE Regulatory Matrix (Compliance Status)	Location HSE	Location HSE IC	Area Manager/ Location IC

5.3.1 General

- HSE Department shall be responsible for identifying the applicable regulatory and other requirements.
- HSE Regulatory Requirements shall include the national/ local regulations related to environment, occupational health & safety e.g.:
  a) Directorate General Petroleum Concession (DGPC) Guidelines
  b) Oil & Gas Safety Regulations (Mines Act)
  c) IEE/EIA Regulations (Pakistan Environmental Protection Act)
  d) Oil and Gas Regulatory Authority (OGRA) Rules & Regulations
  e) Exploration and Production Rules (Petroleum Act)
  f) National Environmental Quality Standards [NEQS] Rules[Pakistan Environment Act]
  g) Electricity Rules [Electricity Act]
  h) Wildlife Protection Ordinance [Federal/ Provincial]
  i) Explosives Rules
  j) Pakistan Nuclear Regulatory Authority (PNRA) Regulatory Guides
- All applicable laws, regulations and other requirements shall be listed in the **Regulatory Requirements Matrix**, which is maintained by the HSE Department.
- HSE Section / Department in consultation with all stakeholders shall seek, record to check compliance on all applicable laws, regulations, and other requirements and report on the Regulatory Requirement Matrix on biannual basis.

5.3.2 Access to Regulatory and Other Requirements

- Information related to regulatory and other requirements shall be obtained by contacting the regulatory bodies, browsing the official websites or through industrial associations.
- HSE Department shall track legislative and regulatory developments applicable to the oil & gas industry and area where the facility is located. The information shall be acquired from internal and external sources.
- HSE Department shall respond to the applicable changes by updating the Regulatory Requirements Matrix. The format of Regulatory Requirements Matrix is mentioned below:

Requirement	Regulation, Law, Recommended Practice	Authority/ Stakeholders	Applicable				Status of compliance with regulations/ Comments (or Action taken in case of non-compliance)
			Office Building	Seismic	Drilling	Production	

5.3.3 New & Modified Activities & Services

- Changes to, and development of new activities, processes and services may change OGDCL legal and regulatory obligations. Such changes include:
  a) Changes in processes and technology, and introduction of new processes/ material substitution;
  b) Increase, reduction, or modification of the point of sources of emissions and discharges;
  c) Changes in the inventory of chemicals and other regulated substances;
  d) Significant expansion or reduction in business activities;
  e) Facilities addition or relocation;
  f) Temporary projects, such as construction, installation of new equipment
- Departmental heads shall be responsible for identifying changes in activities, processes and services that may change the facility's legal and regulatory obligations, and to communicate the same to the HSE

Department/ Section.

- Relevant changes may also be identified by the Location HSE Management Review Committee (MRC) meetings or by internal or external audits of the HSE System.
- The HSE Department shall review the reported changes and determine their legal and regulatory impact and impact. When the change triggers new regulatory requirements, the Regulatory Requirements Matrix shall be updated accordingly.
- In addition, the Regulatory Requirements Matrix shall be reviewed at least once every year.
- Based on the changes / amendments in the legislative requirements, HSE Department / Section shall seek any change(s) in the Risk Register and any need to modify & implement relevant HSE Objectives and Management Programs in consultation with all stakeholders.

5.4 HSE Objectives and Management Programs

OGM/P-HSE-5.4(08) Revision Number 8

Original Issue: June 25, 2007
This Issue: March 14, 2022

Updated By:
Muhammad Sameem Hussain Qaiser
Senior HSEQ Officer, OGDCL

Reviewed By:
Muhammad Mubashir Abbas
Manager HSEQ, OGDCL

Checked By:
Mahmood-ul-Hassan Khan
General Manager HSEQ, OGDCL

Approved By:
Syed Khalid Siraj Subhani
Managing Director, OGDCL

Change/ Revision Log

#	Description of Change
1	Added: *Specimen of Annual HSE Activity Plan (Appendix A)*

Associated Documents Approval & Issue

Related Document/ Record	Initiated by	Reviewed by	Checked/ Verified / Approved by
OGF – HSE – 004 HSE Objective & Management Program	Department / Section ICs	Location HSE MRC	Area Manager/ Location IC

5.4.1 HSE Plan

- HSE Plan shall be the cornerstone of HSE Planning and Goal Setting. Development of HSE Plan shall be of strategic process because it involves the best way to respond to the circumstances of business environment whether or not these are known with any degree of certainty. Being strategic, means being clear about objectives, being aware of the organization's objectives and resources, and incorporating both to be able to respond to a dynamic environment.
- An Annual HSE Activity Plan (specimen attached at Appendix A) shall be rolled out on the start of each year and then subsequently every year. The Annual HSE Plan shall be:
  - Developed by GM HSE; reviewed and agreed by HODs/ management team members; approved by Managing Director; and updated annually & "rolled forward" to reflect improved knowledge

Note: Following Table provides "examples" that may be referred to while setting up HSE Plan based on the identified focus areas of Facilities, People, System & Procedure and Failures. The Table provides a glossary of Objectives, Goals & Targets to be considered where applicable.

FACILITIES	PEOPLE	SYSTEMS & PROCEDURES	FAILURES
Technical audits	Incentive schemes	Emergency response training (mock up) drills	Lost Time Injury Frequent Rate
Operational audits	Percent of workforce with approved HSE training completed	Management system audits	Number of near hits per month
Percent completion of maintenance programs	Percent of workers trained (operational) - actual versus plan	Project safety reviews and actions complete	Days off sick those are not caused by reported workplace incidents
Inspections of facilities	HSE awareness programs	IS0 14001/ 45001 Certification	Total Recordable Injury Rate Rate (=LTI+RWC+MTC)
Management safety behavior audits	Wellbeing programs	Percent completion of planned HSE meetings; Toolbox talks	Number of spills, leaks, fires, injuries as a percent of historical average
Number of toolbox meetings/quarter	Staff and contractor employee turnover	Percent of workforce undergoing health screening.	Hazard/unsafe behaviors reported
Project HSE plan compliance	Percent line managers/supervisors achieving 100% HSE competency	Percent complete of HSE action plans within a challenging timescale	Following an incident: identifying learning points and instigating actions to prevent recurrence
Written scheme of verification implemented	Number of hazards reported per month	Percent compliance with legal compliance register	Re-use/ Reduce/ Recycle/ Refurbish/ Repair Success
Safety equipment inspections	Senior management site visits	Percent completion of planned HSE audits	Energy efficiency/conservation
Calibrations	Percent attendance in HSE MRC meetings	Percent of job safety analyses performed	Emissions / Vent / Flare
Safe disposal of hazardous waste	Percent complete safety induction	Closeout from action tracking register	Bio-diversity

5.4.3 HSE Objectives & Targets

- All locations shall establish HSE Objectives & Targets based on Annual HSE Plan. As next level down from the Annual HSE Plan, the location HSE Plan shall be much more detailed with all Objectives and Targets further

subdivided into actions and responsibilities i.e. Management Programs (Strategy). Progress – actual versus planned – shall be monitored and discussed in HSE Management Review Committee (MRC) Meetings.

- Location HSE Plan shall be developed and rolled out within one month of the rollout of Annual HSE Plan. The Location HSE Plan shall:
  - Derive its inputs from Annual HSE Plan; based on the results of HSE Risk Assessment activities, HSE Section in consultation with the Sectional ICs, shall set the Objectives & Targets to control the Significant Risk Ratings.
  - These shall be reviewed by the concerned Sectional IC and then discussed in the Location HSE MRC meetings, where they may be approved.
  - The approved targets shall be kept with the HSE Department/ Section and displayed on notice boards, bulletin boards, and/ or electronic/ print media for easy access to employees and stakeholders.
  - Progress reviewed by Location Management on fortnightly / monthly basis
- In addition, based on the results of Impact (Risk) Assessment, HSE Objectives & Targets shall be formulated to control the Significant i.e. Intolerable and High Impact (Risk) Ratings.
- When HSE performance falls below desirable level, or when there is a possibility of a noncompliance against laws or regulations, establishment of appropriate HSE Objectives and Targets shall be recommended as well.

5.4.4 Setting HSE Objectives & Targets

- The objectives shall define the goals to be achieved given in subjective terms and the target is the measurable and specific indicator related to objective. Overall following SMART approach shall be adopted:

S: Simple M: Measurable A: Attainable R: Realistic T: Time-bound

- While executing SMART approach, impact (risk) control hierarchy shall be used to fill the HSE variances (as appeared from the results of HSE Risk Assessment).
- While formulating objectives, the following table shall be consulted to assess the vulnerabilities and check the "effectiveness" of existing controls in a given situation, which is based on lifecycle perspective of Man-Machine-Material-Method.

MAN			
DESIGN STANDARDS	Systems or sub system elements are designed for a more **severe** duty than they experience	→ Scenarios, where targets and objectives to be defined →	The systems or sub system elements were constructed to standards **lower** than the current norm
SUPPLIER (CONTRACTOR / SUB-CONTRACTOR / SERVICE COMPANY) LEVEL OF COMPLIANCE	The suppliers are more conscious and never compromise on HSE		The suppliers are reluctant to implement and follow HSE e.g. to remain on the lower cost side
COMPETENCE OF OPERATOR	The **operators** are well-trained and skilled to operate the process systems or sub system element		The **operators** are untrained and unskilled to operate the process systems or sub system element
MATERIAL			
QUALITY OF COMPONENTS (MATERIAL)	The quality of components (material) is **better** than the industry norm	→ Scenarios, where targets and objectives to be defined →	**Severe** service conditions apply, e.g. highly corrosive
MACHINE			
RESERVOIR	**New** & viable reservoir		**Old** & diminishing reservoir

BEHAVIOR	fluid behavior and properties	→ Scenarios, where targets and objectives to be defined →	fluid behavior and properties
PROCESS AGE	The process systems or sub system element is **new** and known to withstand design conditions		The process systems or sub system element is **old** and known to have severe fatigue
METHOD			
ACCEPTANCE CRITERION	OGDCL has a criterion to verify/ validate critical jobs and consignments to formally rule-out any potential faults and failures	→ Scenarios, where targets and objectives to be defined →	OGDCL has not set standardized criterion to verify/ validate critical jobs and consignments
PRODUCT CHARACTERISTICS	HSE features are intertwined in the product quality as per agreed specs & regulations before dispatch		HSE features are overlooked in the product quality as per agreed specs & regulations before dispatch

- Following factors shall be considered before finalizing the objectives:
  - Financial constraints
  - Operational constraints
  - Business constraints

5.4.5 Establishing HSE Management Programs

- For each HSE objective and associated targets, the concerned Departmental/ Sectional head in consultation with HSE Department/ Section shall establish the Management Program (Strategy) to achieve the objective and target. HSE Management Programs shall be defined on the Objective Sheet, which includes:
  a) HSE objective and targets that are to be achieved;
  b) Areas/ departments where the program needs to be implemented;
  c) Methods and means to achieve the objective.
  d) Responsibility for defining and implementing the program.
  e) Timeframe for completing the program and/or its elements or phases;
- Location HSE MRC shall review and discuss the HSE Management Programs for implementation. Planning, implementation and review of HSE Management Programs shall offer reassurance with regard to:
  a) ongoing compliance with regulatory requirements,
  b) ongoing training of field personnel,
  c) minimization of the volume and toxicity of the wastes and prevention of accidents &
  d) appropriateness/ feasibility of the program itself.
- After approval, the HSE Programs shall be assigned to the concerned Departments/ Sections for implementation.

5.4.6 Final Review and Closeout

- HSE Department/ Section shall monitor the progress of HSE Management Programs on fortnightly basis or as deem practical depending upon the nature of case and reports it to the management immediately or in the Location HSE Management Review Committee (MRC) meetings. Progress shall be recorded on the HSE Management Program Sheet.
- When an HSE Management Program achieves its objectives and targets, the results shall be reported to the Location HSE Management Review Committee (MRC), which reviews and verifies the implementation of the management program and if found satisfactory, shall close out the

management program.

- The achievement of HSE Objectives and Targets shall also be reported in the Location HSE Management Review Committee (MRC) meetings.

5.4.7 Amendment of HSE Management Programs

- Issues related to new developments or to new or modified activities, processes and services or changes due to lifecycle perspective shall be reported to the HSE Department/ Section. Such projects may include:
  a) Significant expansion, reduction or modification of facility;
  b) New suppliers (contractors, sub-contractors, service companies);
  c) Temporary project activities.
- Location HSE Management Review Committee (MRC) shall review the proposed changes and determine whether the HSE Management Program needs to be amended or updated to address the change.

5.4.8 HSE Objectives & Management Program Template

- Following template shall be used for HSE Objectives & Management Program:

Ref.: *Vulnerabilities Identified & Rated during HSE Impact (Risk) Assessment:*	Severity	Probability	Impact (Risk) Rating

GENERAL

DURATION / TIME SPAN:	FROM (DATE):	TO (DATE):
OBJECTIVE:		
TARGET:		
Location In-Charge HSE (SIGN):	Location HSE MRC (SIGN):	Location HSE MRC (SIGN)

IMPLEMENTATION PLAN

NO.	ELEMENT / ITEM	RESPONSIBLE PERSON(S)	RESOURCES REQUIRED	DATE		REMARKS
				DUE	ACTUAL	

FORTNIGHTLY/ MONTHLY REVIEW LOG:

NO.	DATE OF REVIEW	REVIEW ELEMENT	EVIDENCE CHECKED	PROGRESS STATUS	SIGNATURE LOCATION IC

CLOSE OUT REVIEW:

Secretary – Location HSE MRC (SIGN):	Close Out Date

Appendix A
Annual HSE Activity Plan (Specimen)

#	TASK	DESCRIPTION OF TASK	RESPONSIBLE	STATUS
A.	**Leadership & Commitment**	1. Management System Certifications	Corporate HSEQ	
		2. HSE KPIs (related to facilities; people; systems & procedures; & failures)	Location InCharge → Corporate HSEQ	
		3. Management Walk Around (MWA)/ STOP Intervention Program	EDs/ HODs/ Area Managers	
		4. HSE Leadership & Commitment Training for All Sectional In-Charges/ Area Mangers	Corporate HSEQ	
		5. Regulatory (CIM/ EPA/ OGRA) Compliance	Location Management → Corporate HSEQ	
		6. Engineering Change Requests (ECR) Reviews	ECR Committee	
B.	**Competence, Training and Development**	7. HSE Training Need Assessment	Location InCharge/ Location HSE InCharge	
		8. Update of PPE Need Assessment Matrix	Respective Sectional InCharges/ Location HSE InCharge	
		9. Onsite HSE Training (Awareness) Planner and Execution	Location HSE InCharge/ HSE Development Facilitator (DF) and as assigned	
C.	**Hazards Identification & Risk Assessment**	10. Hazards Identification & Risk Assessment (HIRA) Plan and execution	Location InCharge → HIRA Team/ Location HSE InCharge	
		11. Development/ Updation of HSE Risk Register & Risk Dashboard	Sectional InCharges → Location InCharge	
		12. Hazards Communication (HazCom)	Sectional InCharges	
		13. Jobs' Hazard Analysis (JHAs)	Sectional InCharges	
D.	**Emergency Preparedness & Response**	14. Emergency Response Plan (ERP)& LMT Roster	Location HSE InCharge → Location InCharge	
		15. Management of Emergency Response Post	Location Management	
		16. Emergency Drill Planner	Location HSE InCharge → Location Management	
		17. Scenario-based (Mockup) Emergency Drills	Location Management/ Location HSE InCharge	
		18. Safety (Proactive) Monitoring Plan and execution	Sectional InCharges	
		19. Calibration of Safety Critical Equipment	Sectional InCharges	
E.	**Contractor Safety Management**	20. Submission of HSE Plans & Protocols Compliance (Risk Control Mechanism)	Reps. of Contractors/ Service Companies	
		21. Pre-Job Meetings with the Reps. of Contractors/ Service Companies	Sectional InCharges	
		22. PPE Compliance by Subcontractors & Local Labors	Sectional InCharges	
		23. Performance Gauging of Contractors (High Risk Jobs)	Location Management	
		24. Contractors HSE Awareness Activities/ Inductions (HSE Pledge Handbook For Contractors & Service Companies)	Location Management/ HSE InCharge	
F.	**Road Safety Management**	25. Journey Management & Safe Driving Instructions (Leaflet)	Location TPT InCharge	
		26. Onsite Awareness for Drivers (Defensive Driving)	Location HSE InCharge / External Trainer	
		27. Vehicular Inspections	TPT InCharge	
		28. Acknowledgment of Safe Drivers	Location Management	
G.	**Measuring Performance**	29. HSE Routine/ Daily Reporting	Location HSE InCharge	
		30. Analysis & Compliance of HSE Audit Observations	Location HSE MRC Members	
		31. Onsite HSE MRC Meetings	Location HSE MRC Members	
		32. HSE Performance Reports	Location HSE InCharge → Location InCharge → H.O.	
H.	**HSE Campaigns/ Readiness**	33. Toolbox (Safety Talks)	Sectional InCharges	
		34. STOP Intervention/ Observation Tours	Location Management/ Sectional InCharges	
		35. Hazard Hunt Program (HHP)	Hazard Hunt Teams	
		36. Celebration of HSE Events/ HSE Reward & Recognition	Location Management	
		37. Health Awareness, Campaigns & Wellness Initiatives	Location Medical InCharge → Medical Services H.O.	
		38. Maintenance of plants/ saplings	Location Admin. InCharge	
I.	**Occupational Health (OH)**	39. Health Monitoring Plan and execution	Location Medical InCharge/ Location HSE InCharge/ Location Admin InCharge	
		40. Occupational Health Assessment Plan & Trade-wise Assessment Tests of Employees	Location Medical InCharge	
		41. Occupational Health Trainings (First Aid; Respiratory Protection; Stress Management/; Seasonal Diseases & Hygiene)	Location Medical InCharge	

J.	***Environment Monitoring***	42. *Environment Monitoring Plan and execution*	*Location Lab. InCharge/ Location HSE InCharge*	
		43. *Air Emissions Data Analysis*	*Location HSE InCharge → H.O.*	
		44. *Maintenance of Air Emitting Point Sources (Generators etc.)*	*Location Mechanical InCharge*	
		45. *Carbon Footprint Study*	*Carbon Footprint Study Team*	
K.	***Waste Management***	46. *Onsite Waste Management Plan*	*Location HSE InCharge*	
		47. *Waste Handling Awareness Sessions*	*Location HSE InCharge*	
		48. *Storage & Maintenance of Disposal Site/ Treated Waste*	*Location Material InCharge*	
		49. *Pre-&-Post Treatment QC of Waste/ Pits*	*Location InCharge/ Location Lab InCharge/ Outsourced (EPA Certified Env. Labs)*	
		50. *Safe Disposal of (Hazardous) Waste*	*Location InCharge/ Location Material InCharge*	