OIL AND GAS INDUSTRY RISK ASSESSMENT

Document Information

Field	Details
Company Name	_____
Facility/Site Name	_____
Facility Type	☐ Drilling ☐ Production ☐ Refinery ☐ Pipeline ☐ Storage ☐ Other: _____
Assessment Date	_____
Assessor Name	_____
Assessor Position	_____
Department/Area	_____
Review Date	_____
Document Reference No.	RA-OG-_____

1. Introduction

This Risk Assessment document is designed to identify, evaluate, and control hazards associated with oil and gas operations. The oil and gas industry presents high-risk environments including exposure to flammable and toxic substances, high-pressure systems, heavy equipment operations, confined space entry, and remote location hazards. This assessment aims to ensure the health and safety of all personnel by

systematically identifying potential hazards and implementing appropriate control measures in accordance with industry standards (API, OSHA, NFPA) and regulatory requirements.

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2. Scope of Assessment

This risk assessment covers the following oil and gas activities and areas:

- ☐ Drilling operations
- ☐ Well completion and workover
- ☐ Production operations
- ☐ Process and separation facilities
- ☐ Pipeline operations
- ☐ Tank farm and storage
- ☐ Loading/unloading operations
- ☐ Maintenance and turnaround
- ☐ Hot work activities
- ☐ Confined space entry
- ☐ Lifting operations
- ☐ Transportation and logistics
- ☐ Other: _____

Site Location: _____

GPS Coordinates: _____

Number of Personnel: _____

Operating Status: ☐ Active ☐ Shutdown ☐ Turnaround

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3. Risk Identification

Risk ID	Risk Description	Risk Category	Affected Area/Personnel
OG-001			
OG-002			
OG-003			
OG-004			
OG-005			
OG-006			
OG-007			
OG-008			
OG-009			
OG-010			

4. Risk Analysis Matrix

Risk Scoring Criteria

Likelihood Scale:

Score	Likelihood	Description
1	Rare	May occur only in exceptional circumstances
2	Unlikely	Could occur but not expected
3	Possible	Might occur at some time
4	Likely	Will probably occur in most circumstances
5	Almost Certain	Expected to occur in most circumstances

Impact Scale:

Score	Impact	Description
1	Negligible	Minor injury, no environmental impact
2	Minor	First aid treatment, minor spill contained
3	Moderate	Medical treatment, localized environmental impact
4	Major	Serious injury, significant environmental damage
5	Catastrophic	Multiple fatalities, major environmental disaster

Risk Analysis Table

Risk ID	Likelihood (1-5)	Impact (1-5)	Risk Score (L×I)	Risk Level
OG-001				
OG-002				
OG-003				
OG-004				
OG-005				
OG-006				
OG-007				
OG-008				
OG-009				
OG-010				

Risk Level Classification:

- **Low (1-4):** Acceptable risk, monitor and review
- **Medium (5-9):** Action required, implement additional controls
- **High (10-16):** Immediate action required, stop work if necessary

- **Critical (17-25):** Operations must cease immediately

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5. Risk Control Measures

Risk ID	Current Controls	Additional Controls Required	Responsible Person	Target Date	Status
OG-001					☐
OG-002					☐
OG-003					☐
OG-004					☐
OG-005					☐
OG-006					☐
OG-007					☐
OG-008					☐
OG-009					☐
OG-010					☐

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6. Oil and Gas Industry-Specific Hazards

The following hazards are commonly encountered in oil and gas operations:

6.1 Fire and Explosion Hazards

- Flammable hydrocarbon vapors and gases
- Ignition sources in hazardous areas
- Process upsets and pressure releases
- Static electricity discharge
- Lightning strikes

6.2 Toxic Exposure Hazards

- Hydrogen sulfide (H2S) exposure
- Benzene and other VOCs
- NORM (Naturally Occurring Radioactive Materials)
- Carbon monoxide
- Drilling mud chemicals

6.3 High-Pressure Hazards

- Well control incidents (blowouts)
- High-pressure lines and vessels
- Hydraulic systems
- Pneumatic systems
- Pressure testing operations

6.4 Mechanical Hazards

- Rotating equipment (pumps, compressors)
- Drilling rig machinery
- Crane and lifting operations
- Moving vehicles and equipment
- Pinch points and struck-by hazards

6.5 Confined Space Hazards

- Oxygen-deficient atmospheres
- Toxic atmospheres
- Engulfment hazards
- Limited egress
- Communication difficulties

6.6 Working at Heights

- Drilling derricks and masts
- Process structures and platforms
- Tank gauging and inspection
- Scaffold work
- Rope access operations

6.7 Environmental Hazards

- Extreme weather conditions
- Remote location risks
- Wildlife encounters
- Terrain hazards
- Heat/cold stress

6.8 Transportation Hazards

- Helicopter operations
- Marine vessel operations
- Heavy vehicle transport
- Personnel transfer
- Road conditions

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7. Permit to Work Requirements

7.1 Permit Types Required

Activity	Permit Type	Duration	Issuing Authority
Hot Work	☐ Required		
Confined Space Entry	☐ Required		
Excavation	☐ Required		
Electrical Work	☐ Required		
Working at Heights	☐ Required		
Lifting Operations	☐ Required		
Isolation/LOTO	☐ Required		
Breaking Containment	☐ Required		

7.2 Job Safety Analysis (JSA) Summary

Task Step	Hazards Identified	Control Measures
1.		
2.		
3.		
4.		
5.		

8. Gas Detection and Monitoring

8.1 Fixed Gas Detection Systems

Location	Gas Detected	Alarm Setpoints	Last Calibration
		Low: ___ High: ___	
		Low: ___ High: ___	
		Low: ___ High: ___	

8.2 Personal Gas Monitors

Monitor Type	Gases Detected	Calibration Date	Assigned To

8.3 H2S Action Levels

H2S Concentration	Action Required
10 ppm	Evacuate area, don SCBA
20 ppm	IDLH - Immediate evacuation
50 ppm	Rapid incapacitation
100+ ppm	Immediate death possible

9. Emergency Response Procedures

9.1 Emergency Contacts

Role	Name	Contact Number
Site Manager/OIM		
HSE Manager		
Control Room		
Medical/Medic		
Emergency Services		911 / 000 / 999
Coast Guard		
Company Emergency Line		
Regulatory Authority		

9.2 Emergency Procedures

H2S Release:

1. Hold breath and evacuate upwind/crosswind
2. Sound alarm and notify control room
3. Don SCBA if rescue required
4. Account for all personnel at muster point
5. Do not re-enter until area cleared

Fire/Explosion:

1. Sound fire alarm
2. Evacuate to designated muster point
3. Initiate emergency shutdown if trained
4. Account for all personnel
5. Do not fight fire unless trained and safe

Well Control Emergency:

1. Activate well control procedures
2. Notify supervisor and control room
3. Close BOP as per procedures
4. Evacuate non-essential personnel
5. Implement emergency response plan

Man Overboard (Offshore):

1. Shout “Man Overboard” and point to person
2. Throw life ring/MOB marker
3. Notify bridge/control room
4. Initiate rescue boat operations
5. Maintain visual contact with person

Medical Emergency:

1. Call for medic/first aid
2. Provide first aid if trained
3. Do not move injured person unless in danger
4. Prepare for medical evacuation if required
5. Complete incident report

Muster Points:

- Primary: _____
- Secondary: _____
- Lifeboat Stations: _____

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10. Personal Protective Equipment (PPE) Requirements

PPE Item	Required	Specification
Hard Hat	☐ Yes ☐ No	Type: _____
Safety Glasses	☐ Yes ☐ No	Type: _____
Face Shield	☐ Yes ☐ No	Type: _____
Hearing Protection	☐ Yes ☐ No	NRR: _____
FRC (Fire Resistant Clothing)	☐ Yes ☐ No	Rating: _____
Safety Boots	☐ Yes ☐ No	Steel toe: ☐ Yes ☐ No
Gloves	☐ Yes ☐ No	Type: _____
H2S Monitor	☐ Yes ☐ No	Type: _____
SCBA/Escape Pack	☐ Yes ☐ No	Duration: _____
Fall Protection	☐ Yes ☐ No	Type: _____
Life Jacket/PFD	☐ Yes ☐ No	Type: _____
Other: _____	☐ Yes ☐ No	_____

11. Sign-Off and Approval

Assessor Declaration

I confirm that this risk assessment has been conducted in accordance with applicable regulations and industry standards and represents an accurate evaluation of the identified hazards.

Assessor Name:	_____
Signature:	_____
Date:	_____

HSE Review

I have reviewed this risk assessment and confirm that appropriate controls are in place.

HSE Manager Name:	_____
Signature:	_____
Date:	_____

Operations Approval

I approve this risk assessment and authorize the commencement of operations.

Operations Manager Name:	_____
Position:	_____
Signature:	_____
Date:	_____

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12. Review Schedule

Review Type	Frequency	Next Review Date
Daily Toolbox Talk	Daily	
Weekly Safety Meeting	Weekly	
Routine Review	Monthly	
Comprehensive Review	Annually	
Post-Incident Review	As required	

Triggers for Immediate Review:

- Any incident, near-miss, or unsafe condition
- Changes in operations or procedures
- New equipment or process introduction
- Regulatory changes
- Lessons learned from industry incidents
- Personnel changes in key positions

Document Control

Version	Date	Author	Changes Made
1.0			Initial version

This document is a template and should be customized to meet specific site requirements, company standards, and regulatory requirements.