

Appendix E: Risk Assessment Templates

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Risk Assessment Framework

Purpose and Scope

This appendix provides standardized templates and criteria for conducting comprehensive risk assessments across all organizational activities, areas, and operations to ensure systematic identification, evaluation, and control of potential hazards.

Risk Assessment Principles

- **Systematic Approach:** Consistent methodology across all assessments
- **Stakeholder Involvement:** Input from relevant personnel and experts
- **Evidence-Based:** Decisions supported by data and analysis
- **Continuous Improvement:** Regular review and updating of assessments
- **Proportionate Response:** Controls appropriate to risk level

Risk Assessment Process

- 1. **Preparation:** Define scope, gather information, assemble team
 - 2. **Identification:** Identify hazards and potential consequences
 - 3. **Analysis:** Assess likelihood and impact of identified risks
 - 4. **Evaluation:** Compare risks against acceptance criteria
 - 5. **Treatment:** Develop and implement control measures
 - 6. **Monitoring:** Track effectiveness and review regularly
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General Risk Assessment Template

Form RA-01: General Risk Assessment

Assessment Details:

- **Assessment ID:** _____ **Date:** _____
- **Assessor(s):** _____
- **Area/Activity:** _____
- **Review Date:** _____ **Next Review:** _____

Scope of Assessment: ☐ New activity/area ☐ Routine review ☐ Incident-triggered ☐ Change-driven ☐ Pre-operational ☐ Post-incident ☐ Regulatory requirement ☐ Other: _____

Assessment Team:

Name	Role/Department	Signature	Date

Risk Identification Matrix

Hazard Category	Identified Hazards	Potential Consequences	Affected Persons
Physical			
Chemical			
Biological			
Ergonomic			
Psychosocial			
Environmental			
Operational			
Security			

Risk Analysis and Evaluation

Hazard Reference	Risk Description	Likelihood (1-5)	Impact (1-5)	Risk Score	Risk Level	Existing Controls
RA-01-001						
RA-01-002						
RA-01-003						
RA-01-004						

Risk Treatment Plan

Risk Ref	Control Measures Required	Priority	Responsibility	Target Date	Resources Needed	Status
		H/M/L				
		H/M/L				
		H/M/L				

Overall Risk Assessment Summary:

- High Risk Items: _____ Medium Risk Items: _____ Low Risk Items: _____
- Residual Risk Level: ☐ Acceptable ☐ Tolerable ☐ Unacceptable
- Recommendations: _____

Approvals:

- Assessor Signature: _____ Date: _____
- Manager Approval: _____ Date: _____
- Safety Officer Review: _____ Date: _____

Activity-Specific Risk Assessments

Form RA-02: Work Activity Risk Assessment

Activity Details:

- Activity Name: _____
- Location: _____ Duration: _____
- Personnel Involved: _____ Frequency: _____

Activity Description:

Equipment/Materials Used:

Item	Quantity	Condition	Safety Requirements

Step-by-Step Risk Analysis:

Step	Task Description	Hazards	Risk Level	Control Measures	Responsible Person
1			H/M/L		
2			H/M/L		
3			H/M/L		
4			H/M/L		
5			H/M/L		

Form RA-03: Chemical Handling Risk Assessment

Chemical Information:

- Chemical Name: _____
- Quantity Used: _____ Storage Location: _____
- SDS Date: _____ Supplier: _____

Hazard Classification: ☐ Flammable ☐ Toxic ☐ Corrosive ☐ Oxidizing ☐ Explosive ☐ Carcinogenic ☐ Mutagenic ☐ Reproductive Toxin ☐ Environmental Hazard

Exposure Scenarios:

Scenario	Exposure Route	Duration	Frequency	PPE Required	Engineering Controls
Normal Use					
Maintenance					
Emergency					
Disposal					

Emergency Procedures:

- Spill Response: _____
- Exposure Treatment: _____
- Fire Response: _____
- Emergency Contacts: _____

Form RA-04: Equipment Operation Risk Assessment

Equipment Details:

- Equipment Type: _____
- Model/Serial: _____ Installation Date: _____
- Operator Requirements: _____

Pre-Operation Checklist: ☐ Equipment inspection completed ☐ Guards in place ☐ Emergency stops functional ☐ Operator training verified ☐ PPE available ☐ Work area clear

Operational Risk Analysis:

Operation Phase	Potential Hazards	Risk Controls	Monitoring Requirements
Start-up			
Normal Operation			
Maintenance			
Shutdown			
Emergency Stop			

Area-Specific Risk Assessments

Form RA-05: Workplace Area Risk Assessment

Area Information:

- **Area/Room:** _____
- **Purpose/Function:** _____
- **Occupancy Limit:** _____ **Access Controls:** _____

Physical Environment Assessment:

Factor	Current Status	Risk Level	Required Actions
Lighting		H/M/L	
Ventilation		H/M/L	
Temperature		H/M/L	
Noise Levels		H/M/L	
Floor Conditions		H/M/L	
Housekeeping		H/M/L	
Emergency Exits		H/M/L	

Access and Security: ☐ Authorized personnel only ☐ Visitor controls required ☐ Special entry procedures ☐ Personal protective equipment required ☐ Training prerequisites

Form RA-06: Laboratory Risk Assessment

Laboratory Classification: ☐ BSL-1 ☐ BSL-2 ☐ BSL-3 ☐ BSL-4 **Research Activities:**

Biological Agents:

Agent	Risk Group	Route of Infection	Containment Level	Vaccination Required
	1/2/3/4			Y/N
	1/2/3/4			Y/N

Containment and Safety Measures: ☐ Biosafety cabinet ☐ Fume hood ☐ Negative pressure ☐ HEPA filtration ☐ Autoclave access ☐ Eyewash stations ☐ Safety shower ☐ Spill kits

Form RA-07: Construction/Maintenance Risk Assessment

Project Details:

- **Project Name:** _____
- **Location:** _____ **Duration:** _____
- **Contractor:** _____

Work Categories: ☐ Excavation ☐ Hot work ☐ Working at height ☐ Confined space ☐ Electrical work ☐ Demolition ☐ Heavy lifting ☐ Chemical use

Site-Specific Hazards:

Hazard	Location	Risk Level	Control Measures	Monitoring Frequency
		H/M/L		Daily/Weekly/Monthly
		H/M/L		Daily/Weekly/Monthly
		H/M/L		Daily/Weekly/Monthly

Permit Requirements: ☐ Hot work permit ☐ Confined space permit ☐ Excavation permit ☐ Electrical permit ☐ Working at height permit ☐ Other: _____

Risk Evaluation Criteria

Likelihood Assessment Scale (1-5)

Level	Description	Frequency/Probability
1 - Rare	Almost never occurs	< 1 in 10,000 events
2 - Unlikely	Seldom occurs	1 in 1,000 to 1 in 10,000
3 - Possible	Sometimes occurs	1 in 100 to 1 in 1,000
4 - Likely	Often occurs	1 in 10 to 1 in 100
5 - Almost Certain	Expected to occur	> 1 in 10 events

Impact Assessment Scale (1-5)

Level	Health/Safety Impact	Environmental Impact	Operational Impact	Financial Impact
1 - Negligible	Minor first aid	No lasting effect	Minor disruption	< \$1,000
2 - Minor	Medical treatment	Localized effect	Short delay	\$1,000 - \$10,000
3 - Moderate	Lost time injury	Contained release	Significant delay	\$10,000 - \$100,000
4 - Major	Permanent disability	Major contamination	Extended shutdown	\$100,000 - \$1M
5 - Catastrophic	Fatality/multiple injuries	Widespread damage	Business failure	> \$1M

Risk Matrix

Likelihood ↓ Impact →	1 Negligible	2 Minor	3 Moderate	4 Major	5 Catastrophic
5 Almost Certain	5 Medium	10 High	15 High	20 Extreme	25 Extreme
4 Likely	4 Low	8 Medium	12 High	16 High	20 Extreme
3 Possible	3 Low	6 Medium	9 Medium	12 High	15 High
2 Unlikely	2 Low	4 Low	6 Medium	8 Medium	10 High
1 Rare	1 Low	2 Low	3 Low	4 Low	5 Medium

Risk Acceptance Criteria

Risk Level	Score Range	Management Response	Timeline for Action
Extreme	20-25	Immediate action required	Within 24 hours
High	12-16	Senior management attention	Within 1 week
Medium	6-10	Management responsibility	Within 1 month
Low	1-5	Manage by routine procedures	Within 3 months

Risk Control Measures

Hierarchy of Controls

1. Elimination

- Remove the hazard completely
- Change process to eliminate risk
- Substitute with safer alternative

2. Substitution

- Replace with less hazardous materials
- Use safer equipment or processes
- Implement alternative methods

3. Engineering Controls

- Isolation and containment
- Ventilation systems
- Machine guarding
- Automated systems

4. Administrative Controls

- Training and procedures
- Job rotation and scheduling
- Warning signs and labels
- Maintenance programs

5. Personal Protective Equipment (PPE)

- Respiratory protection
- Eye and face protection
- Hand and foot protection
- Body protection

Control Effectiveness Assessment

Control Type	Implementation Status	Effectiveness Rating	Maintenance Requirements
	Complete/Partial/Planned	High/Medium/Low	Daily/Weekly/Monthly/Annual
	Complete/Partial/Planned	High/Medium/Low	Daily/Weekly/Monthly/Annual
	Complete/Partial/Planned	High/Medium/Low	Daily/Weekly/Monthly/Annual

Documentation and Review Procedures

Risk Register Maintenance

Risk Register Template:

Risk ID	Description	Category	Current Risk Level	Target Risk Level	Control Status	Review Date

Review Triggers

- **Scheduled Review:** Annual or as specified
- **Incident-Triggered:** Following accidents or near misses
- **Change-Driven:** Process, equipment, or personnel changes

- **Regulatory Update:** New requirements or standards
- **Audit Findings:** Internal or external audit recommendations

Form RA-08: Risk Assessment Review

Review Details:

- **Original Assessment Date:** _____ **Review Date:** _____
- **Reviewer:** _____
- **Reason for Review:** _____

Changes Since Last Assessment: ☐ No significant changes ☐ Process changes ☐ Equipment changes ☐ Personnel changes ☐ Regulatory changes ☐ Incident occurrence

Review Findings:

Item	Original Rating	Current Rating	Reason for Change	Action Required

Updated Risk Assessment Required: ☐ Yes ☐ No **Next Review Date:** _____

Reviewer Signature: _____ **Date:** _____

Quality Assurance Checklist

Risk Assessment Quality Review: ☐ Scope clearly defined and appropriate ☐ All relevant hazards identified ☐ Risk analysis methodology correctly applied ☐ Control measures follow hierarchy of controls ☐ Responsibilities clearly assigned ☐ Implementation timelines realistic ☐ Review dates established ☐ Documentation complete and legible ☐ Appropriate approvals obtained

Specialized Risk Assessment Tools

Form RA-09: Job Safety Analysis (JSA)

Job Title: _____ **Department:** _____ **Date:** _____

Step	Task Description	Potential Hazards	Recommended Controls
1			
2			
3			
4			
5			

Form RA-10: Hazard and Operability Study (HAZOP)

System/Process: _____ Study Date: _____ Team Leader: _____

Node	Parameter	Deviation	Causes	Consequences	Safeguards	Risk Level	Actions
						H/M/L	
						H/M/L	
						H/M/L	

Form RA-11: Fire Risk Assessment

Building/Area: _____ Occupancy Type: _____ Max Occupancy: _____

Fire Hazard Assessment:

Fire Hazard	Location	Ignition Sources	Fuel Sources	Risk Rating
				H/M/L
				H/M/L
				H/M/L

Fire Safety Measures: ☐ Smoke detection ☐ Fire alarms ☐ Sprinkler system ☐ Fire extinguishers ☐ Emergency lighting ☐ Exit signs ☐ Fire doors ☐ Evacuation plan

Appendices to Appendix E

E.1: Risk Assessment Standards and References

- Applicable regulations and standards
- Industry best practices
- Professional guidelines

E.2: Training Requirements for Risk Assessors

- Competency requirements
- Training programs
- Certification maintenance

E.3: Risk Assessment Software Tools

- Recommended software platforms
- Data management requirements
- Integration capabilities

E.4: Emergency Response Integration

- Links to emergency procedures
- Escalation protocols
- Communication requirements

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1.0		Initial version	