



RISK ASSESSMENT

Leakage in the Fire Hydrant Line

Project Name – XYZ

Location:

State:

Document Title	Risk Assessment – Leakage in the Fire Hydrant Line
Facility	Site Name
Location	Al Batyeh, Sharjah, UAE
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Related Document	RMP-HSEDOCS-FHL-001 (Risk Management Plan)
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Assessed By	HSE Officer / Fire & Safety Engineer
Reviewed By	HSE Manager
Approved By	Hospital Engineering Director
Methodology	5 x 5 Likelihood x Severity Risk Matrix
Classification	Internal – Controlled Document

TABLE OF CONTENTS

TABLE OF CONTENTS..... 2

1. Purpose & Scope..... 3

2. Risk Assessment Methodology..... 3

 2.1 Likelihood Rating..... 3

 2.2 Severity Rating..... 3

 2.3 Risk Matrix (L × S)..... 3

 2.4 Risk Rating & Required Action..... 4

3. Risk Assessment Register..... 4

 Risk Assessment Register..... 5

4. Required PPE & Site Controls..... 7

5. Emergency Arrangements Summary..... 7

6. Assessment Team & Sign-Off..... 7

1. Purpose & Scope

This Risk Assessment (RA) supports the Risk Management Plan (RA-HSEDOCS-FHL-001) prepared for the isolation, repair, and reinstatement of the leaking section of the fire hydrant line at **Hospital Name Here**. It systematically identifies the hazards associated with each activity in the shutdown and repair sequence, evaluates the level of risk before and after control measures, and assigns responsibility for implementing the required controls.

This assessment shall be read in conjunction with the RMP, the Method Statement, and all applicable Permits to Work. It shall be reviewed and re-validated if the scope of work, site conditions, or personnel involved changes materially from what is described herein.

2. Risk Assessment Methodology

Risk is evaluated using a 5 x 5 matrix, where Risk Score = Likelihood (L) × Severity (S). Likelihood and Severity are each rated from 1 (lowest) to 5 (highest) as defined below.

2.1 Likelihood Rating

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

2.2 Severity Rating

Score	Rating	Description
1	Negligible	No injury or first-aid only; negligible service impact
2	Minor	Minor injury (medical treatment); brief, localized service disruption
3	Moderate	Injury requiring medical treatment/lost time; significant localized disruption
4	Major	Serious injury or major disruption to fire protection / hospital operations
5	Catastrophic	Fatality, multiple serious injuries, or total loss of fire protection with life-safety consequence

2.3 Risk Matrix (L × S)

Likelihood ↓ / Severity →	1 Negligible	2 Minor	3 Moderate	4 Major	5 Catastrophic
1 – Rare	1	2	3	4	5
2 – Unlikely	2	4	6	8	10
3 – Possible	3	6	9	12	15
4 – Likely	4	8	12	16	20
5 – Almost Certain	5	10	15	20	25

2.4 Risk Rating & Required Action

Score	Rating	Required Action
1 – 4	Low	Acceptable. Manage through routine procedures and monitoring.
5 – 9	Medium	Requires specific control measures and supervisory monitoring before/during works.
10 – 14	High	Work shall not proceed until additional controls are implemented and verified; senior management review required.
15 – 25	Very High	Unacceptable. Work must stop/not commence; escalate to senior management and HSE for mandatory risk elimination or substitution.

3. Risk Assessment Register

The register on the following page(s) identifies the hazards associated with each stage of the shutdown and repair works, the initial (pre-control) risk rating, the additional controls required prior to and during the work, and the residual (post-control) risk rating. Work shall not commence on any activity where the residual risk remains rated High or Very High without further mitigation and senior management/HSE sign-off.

Risk Assessment Register

Risk Rating Key: 1–4 Low | 5–9 Medium | 10–14 High | 15–25 Very High (L = Likelihood, S = Severity)

Task / Activity	Hazard	Risk To	Existing Control Measures	L	S	Risk	Additional Controls Required	L	S	Risk	Responsible
Isolation of fire hydrant ring main / depressurization	Complete loss of fire hydrant protection to Zone B during isolation window	Patients, staff, visitors, property	Planned shutdown with prior HSE approval; pre-verified backup hose route	4	5	20 (VH)	Verified backup water supply, mobile fire pump on standby, 24/7 fire watch, phased isolation, sprinkler system confirmed unaffected	2	4	8 (M)	HSE Manager / Fire & Safety Officer
Excavation for pipe repair	Strike on underground utilities (electrical, medical gas, communications)	Workers, site services, hospital utilities	Utility survey / GPR scan completed; Permit to Dig obtained	3	4	12 (H)	Hand-digging within 0.5 m of known services, utility marking/flags, banksman supervision always	2	3	6 (M)	Site Engineer / MEP Contractor
Trench excavation walls	Trench collapse / cave-in onto working personnel	Excavation workers	Trench depth monitored; general excavation guidance followed	3	4	12 (H)	Shoring/battering for depth > 1.2 m, daily pre-shift inspection, edge barricading and warning signage	1	4	4 (L)	Site Supervisor
Hot work – pipe cutting / welding / jointing	Fire ignition, burns, exposure to welding fumes	Workers, adjacent structures	Hot Work Permit issued and controlled	3	4	12 (H)	Fire extinguisher & fire blanket on standby, gas/atmosphere test prior to work, dedicated fire watch during and 30 min after work	1	3	3 (L)	Fire & Safety Officer
Manual handling of pipes, valves & fittings	Musculoskeletal injury from lifting/carrying heavy components	Workers	Team-lifting SOP in place	3	2	6 (M)	Mechanical lifting aids (chain block/trolley) provided, toolbox talk on manual handling techniques	2	2	4 (L)	Site Supervisor
Reduced hydrant coverage during shutdown	Delayed fire-fighting response if an incident occurs while backup fails or is delayed	Patients, staff, property	Fire watch deployed, portable extinguishers positioned	2	5	10 (H)	Mobile pump tested & staged, backup hose route pressure-verified prior to shutdown, Civil Defence placed on-call notice	1	5	5 (M)	Fire & Safety Officer / HSE Manager
Restricted access along perimeter road / work zone	Emergency/ambulance vehicle access to Emergency Department obstructed	Patients, EMS/ambulance crews	Traffic management plan drafted	3	4	12 (H)	Alternate access lane maintained at all times, traffic marshal on duty, advance signage, coordination with ED prior to works	1	4	4 (L)	Traffic Marshal / Site Manager
Site communication during shutdown	Communication failure between site team, Fire Watch and Command Centre delaying emergency response	All site personnel, patients, staff	Two-way radios issued	2	4	8 (M)	Redundant communication (radio + mobile), scheduled check-ins every 30 minutes, dedicated emergency channel	1	4	4 (L)	Site Supervisor / Command Centre
Hydrostatic pressure testing of repaired section	Pipe/joint rupture under test pressure; uncontrolled high-pressure water release	Workers, nearby personnel	Testing per applicable code / manufacturer procedure	3	4	12 (H)	Exclusion zone established during test, pressure relief provisions, gradual/staged pressurization, competent person supervision	1	3	3 (L)	MEP Contractor / Commissioning Engineer
Proximity to live clinical operations	Noise, dust and vibration affecting patients; unauthorized entry into work zone	Patients, clinical staff, public	Barricading installed around work zone	3	3	9 (M)	Noise-limited working hours agreed with Clinical Ops, dust screens, restricted-access signage, liaison with Clinical Operations Representative	1	3	3 (L)	Clinical Operations Representative / Site Manager
Temporary electrical equipment (pumps, lighting)	Electric shock or short-circuit from equipment used in wet excavation conditions	Workers	PAT-tested equipment used on site	2	4	8 (M)	RCD (30 mA) protection on all circuits, IP-rated cabling and connectors, routine visual inspection before each shift	1	4	4 (L)	Electrical Supervisor

Task / Activity	Hazard	Risk To	Existing Control Measures	L	S	Risk	Additional Controls Required	L	S	Risk	Responsible
Reinstatement, backfilling & compaction	Personnel struck by moving compaction equipment or delivery vehicles	Workers, site visitors	Banksman assigned during vehicle movement	3	3	9 (M)	Defined exclusion zone, reversing alarms on plant, mandatory hi-vis PPE, segregated pedestrian route	1	3	3 (L)	Site Supervisor

4. Required PPE & Site Controls

- Safety helmet, high-visibility vest/coverall, safety boots (steel toe) – mandatory at all times in the work zone.
- Cut-resistant/leather gloves for pipe handling; welding gauntlets during hot work.
- Face shield/welding mask, fire-retardant coveralls, and respiratory protection during cutting/welding operations.
- Hearing protection where excavation/compaction equipment is in continuous use.
- Safety harness (if working within a deep chamber/pit exceeding permit-required depth).
- Barricading, warning signage, and flagging around excavation and hot-work areas at all times.

5. Emergency Arrangements Summary

Full emergency escalation contacts, response timelines, backup water supply arrangements, and immediate recovery procedures are detailed in the associated Risk Management Plan (RA-HSEDOCS-FHL-001), Sections 7.1 to 7.5. These arrangements shall be verified as in place and tested prior to commencement of any isolation activity covered by this Risk Assessment.

6. Assessment Team & Sign-Off

This Risk Assessment has been jointly developed and reviewed by the following personnel and shall be approved prior to commencement of works. It shall be re-assessed if conditions change or following any incident/near-miss during the works.

Name	Designation	Signature	Date
	Risk Assessor (HSE Officer)		
	Fire & Safety Officer		
	HSE Manager (Reviewer)		
	Hospital Engineering Director (Approver)		