

	RISK ASSESSMENT			Page 1 of 5
	Department QHSE	Document Ref. No. HSEDOCS-RA-00	Issue Date 00-00-2026	Revision 01

Company Name:	XYZ	Prepared by:	Name:	Signatures	Date
Functional Area /Activity:	DEWATERING	Approved by:			
Project/Reference No:	ABC	Client:			

S/No	Main Activity	Sub-Activities	Hazards (Potential Hazards)	Risks Involved & (Consequences)	Legal References (International Bodies & Standards)	Risk Ranking (Without Controls)			Health & Safety Control (s)	Residual Risk	Responsible Person (s)
						L	S	RR			
1	Site Setup & Mobilization	Delivery of pumps, pipes, and generators; positioning of heavy machinery.	Moving vehicles, heavy loads, uneven terrain.	Collision, crush injuries, or overturning. Potential for fatalities, fractures, or severe musculoskeletal damage.	- ISO 45001:2018 (Clause 6.1.2 – Hazard Identification). - OSHA 29 CFR 1926.600 (Equipment). - IOSH "Managing Safely" – Traffic Management protocols.	4	5	20 (High)	- Establish one-way systems and segregated pedestrian walkways. - Conduct banksman (spotter) briefing before reversing. - Ensure delivery vehicles are on stable, level ground.	ALARP	Site Supervisor / Logistics Coordinator
2	Electrical Setup (Power Supply)	Connecting pumps to generators or mains; running trailing cables.	Water ingress to electrical systems, damaged insulation, wet conditions.	Electrocution, electric shock, or arc flash. Can cause cardiac arrest, burns, or death.	- IEC 60364 / NEC (NFPA 70) (Electrical Installations). - OSHA 29 CFR 1926.404 (Wiring Design and Protection). - ISO 45001 (Clause 6.1.3 – Legal requirements).	5	5	25 (High)	- Use Ground Fault Circuit Interrupters (GFCIs) / Residual Current Devices (RCDs). - Ensure all electrical connections are weatherproof and elevated. - Daily visual inspection of cables by a competent person.	ALARP	Electrician / Site Engineer
3	Pump Installation & Lifting	Lowering pumps into sumps/excavations ; handling suction hoses.	Lifting operations, unstable loads, manual handling.	Struck-by accidents, hernias, or back injuries. Failure of lifting gear can cause fatal crushing.	- OSHA 29 CFR 1926.251 (Rigging Equipment). - ISO 21856 (Assistive products - General requirements). - IOSH "Working Safely" – Manual Handling guidelines.	4	4	16 (High)	- Use mechanical lifting aids (cranes/hoists) for heavy pumps. - Inspect lifting slings/shackles (color-coded inspection tags). - Ensure only trained riggers/banksmen perform lifting tasks.	ALARP	Lifting Supervisor / Operator
4	Confined Space Entry (Sump/Well Points)	Entering deep excavations to clean pump intakes or inspect valves.	Oxygen deficiency, toxic gases (H2S from stagnant water), engulfment.	Asphyxiation, poisoning, or drowning. Often fatal if atmospheric hazards are present.	- OSHA 29 CFR 1910.146 (Permit-Required Confined Spaces). - ISO 45001 (Clause 6.1.2.2 – Assessment of OH&S risks).	5	5	25 (High)	- Implement a strict Permit-to-Work system. - Conduct continuous atmospheric monitoring (O2, H2S, LEL). - Standby rescue team with harness, tripod, and winch.	ALARP	HSE Officer / Entry Supervisor

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					- World Bank EHS Guidelines (Section 2.0 – Occupational Health & Safety).						
5	Pumping Operations (Noise)	Continuous operation of diesel pumps or high-head electric pumps.	High decibel noise levels (>85 dB) near generators/pumps.	Noise-Induced Hearing Loss (NIHL). Permanent tinnitus or deafness over time.	- OSHA 29 CFR 1926.52 (Occupational Noise Exposure). - ISO 9612 (Acoustics – Determination of occupational noise exposure). - IOSH "Noise at Work" guidance.	4	3	12 (Medium)	- Enclose pumps in acoustic lagging or barriers where possible. - Implement job rotation to reduce exposure time. - Mandate use of High Fidelity Earplugs/Muffs (PPE) in designated zones.	ALARP	Site Supervisor / HSE Officer
6	Discharge Water Management	Pumping water to settlement ponds, drainage systems, or off-site.	Uncontrolled release of silt-laden or contaminated water.	Environmental pollution. Fines from regulatory bodies, damage to aquatic life, soil erosion.	- EPA Clean Water Act (NPDES Permits - US context). - World Bank EHS Guidelines (1.3 – Wastewater and Ambient Water Quality). - ISO 14001:2015 (Environmental Management – Clause 8.1).	3	4	12 (Medium)	- Install silt fences, geotextile bags, or settlement tanks. - Monitor pH and turbidity before discharge (if required). - Ensure discharge point is protected from scour (rip-rap).	ALARP	Environmental Officer / Site Engineer
7	Ground Stability & Subsidence	Lowering water table near structures or slopes.	Removal of soil fines (piping), loss of ground support.	Structural collapse of adjacent buildings or trench collapse. Catastrophic failure, multiple fatalities.	- ISO 19901-8 (Marine Structures – Soil interactions). - OSHA 29 CFR 1926.651 (Specific Excavation Requirements). - Geotechnical Engineering	4	5	20 (High)	- Conduct pre-dewatering geotechnical survey. - Install piezometers to monitor groundwater levels continuously. - Recharge wells (re-injection) to maintain hydrostatic balance if needed.	ALARP	Project Manager / Geotechnical Engineer

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					standards (Eurocode 7 / ASTM D18).						
8	Manual Handling of Hoses & Pipes	Moving heavy discharge hoses (6" / 8") for repositioning.	Awkward postures, heavy lifting, repetitive motion.	Musculoskeletal Disorders (MSDs). Chronic back pain, slipped discs, soft tissue injuries.	- ISO 11228-1 (Ergonomics – Manual handling). - OSHA (Ergonomics guidelines for shipyards/general industry). - IOSH "Working Well" guidance.	4	3	12 (Medium)	- Use hose ramps and trolleys for transport. - Implement 2-person lift policy for heavy sections. - Conduct toolbox talks on proper lifting techniques (kinetic lifting).	ALARP	Work Crew / Site Supervisor
9	Fire / Hot Work (Pump Maintenance)	Repairing pumps (diesel engines) or welding pipe flanges.	Fuel leaks (diesel), ignition sources, hot surfaces.	Fire and explosion. Severe burns, property damage, and potential fatalities.	- ISO 45001 (Clause 8.1.2 – Hierarchy of Controls). - OSHA 29 CFR 1926.152 (Flammable Liquids). - NFPA 10 (Fire Extinguisher Standards).	3	5	15 (High)	- Establish designated refueling areas with spill kits. - Keep fire extinguishers (Class B) immediately adjacent to pumps. - Implement Hot Work Permit if welding/grinding.	ALARP	Maintenance Team / Fire Warden
10	Night Operations / Low Visibility	Continuing dewatering during hours of darkness.	Poor illumination, operator fatigue, uneven wet surfaces.	Slips, trips, and falls. Also, failure to see open excavations leading to drowning.	- OSHA 29 CFR 1926.56 (Illumination). - ISO 8995-1 (Lighting of work places). - IOSH "Delivering Sustainable Safety" – Fatigue management.	3	4	12 (Medium)	- Install high-mast lighting (towers) to ensure minimum 5-foot candles (54 lux). - Mark all open excavations with high-vis tape and flashing beacons. - Enforce strict rotation schedules to manage worker fatigue.	ALARP	Night Shift Supervisor / HSE Officer

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RISK MATRIX/CLASSIFICATION:

Likelihood	Examples (Consider Near-Hits as well as actual events)	RISK RATING				
(5) ALMOST CERTAIN	Unwanted events occur frequently: Occurs in order of (1) or more per year & is likely to re-occur within 1 year	5 (M)	10 (M)	15 (H)	20 (Ex)	25(Ex)
(4) LIKELY	The unwanted event has occurred infrequently: Occurs in order less than once per year & is likely to re-occur within 5 years.	4 (M)	8 (M)	12 (H)	16 (Ex)	20(Ex)
(3) POSSIBLE	The unwanted event has occurred in the business at some time: or could happen within 10 years.	3 (L)	6 (M)	9 (M)	12(H)	15 (H)
(2) UNLIKELY	The unwanted event has occurred in the business at some time: or could happen within 20 years.	2 (L)	4 (M)	6 (L)	8 (M)	10(M)
(1) RARE	Examples (Consider Near-Hits as well as actual events)	1 (L)	2 (L)	3 (L)	4 (L)	5 (L)

PERSON EXPOSED	Risk Rating	Risk Level	Guidelines for Risk Matrix
PERSON EXPOSED	16 to 25	(Ex) - Extreme	Stop operation and review controls- Eliminate, avoid risk &, and implement high-priority action plans
E – SEC Employee / Consultant	12 to 15	(H) – High	Proactively manage & implement specific controls/action plans-Review after 7 days
C – Contractors / Subcontractors	8 to 10	(M) - Medium	Actively manage & monitor – Additional controls are advised & review after 30 days
O – Others, such as Public, visitors and clients.	1 to 6	(L) - Low	Risk acceptable – Monitor & manage as appropriate with frequent review

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