RISK ASSESSMENT CONFINED SPACE-CULVERT&CLEANING OF SEPTIC TANKS

Activity:	Leakage repair for the main firefighting system water pipeline in Culvert/ Cleaning Of Septic Tanks	**RA No.**	
Location:		**Date :**	

Equipment to be used:		**Revision Status**	
Gas Dictator Dye testing kit (for visual detection of leaks) Pressure gauges and pressure testing equipment Repair clamps or sleeves (for temporary or permanent fixes) Epoxy putty or sealing compounds	Pipe wrenches and pipe cutters Flange or joint gaskets (if applicable) Welding equipment (if the pipe is metal and welding is required) Others, if any	**Revision No.:**	**Revised Date:**
		NA	NA

Potential Hazards / Conditions considered (Tick Box)				**Persons at Risk**			
Fall From Height	☒	Falling of Materials	☒	Subcontractors	☒	Public	☐
Electricity	☒	Slips/Tripping	☒	Employees	☒	Visitors	☐

Personal protective equipment (PPE)									
☒	Safety Helmet	☒	Respiratory / Berating Apparatus	☒	Gloves	☒	Goggles	☐	Full Body Safety Harness
☒	Safety Boots	☒	Overalls	☒	Masks	☐	Ear Plugs/ Defenders	☐	Others, if any

Mandatory HSE requirements (Tick Box)									
☒	Safety Induction	☒	Proper PPE	☒	Work Permit	☒	Proper Tools/ Equipment	☒	Proper Barricade & Warning Sign in The Affected area
☒	Tool Box Talk	☒	Safe Work Place	☒	Proper Supervision	☒	Pre-Task Briefings	☐	Others, if any

Risk Level: H (HIGH-Potential to cause death or permanent injury) | M (MEDIUM –Potential to cause loss time injury) | L (LOW- An injury treatable with First Aid)

Likelihood (L)	Severity (S)	Class of risk (L*S)
Improbable	Negligible	High = 15-25
Remote	Minor	
Probable	Reportable	Medium = 07-14
Occasional	Serious	Low = 01-06

RISK MATRIX

LIKELIHOOD (L)						
5	5	10	15	20	25	
4	4	8	12	16	20	
3	3	6	9	12	15	
2	2	4	6	8	10	
1	1	2	3	4	5	
	1	2	3	4	5	
	SEVERITY (S)					

Note:
1. Risk assessment must be addressed to workers by the worker in charge before starting a job.
2. Risk assessment is a continuous process hence to be reviewed depending on the activity and risk involved

Sr.	Hazard	Harm/Consequences	EVALUATION			Control Measures in place or to be implemented	RE-EVALUATION			Persons responsible for Implementation and Supervision.
			Consequences	Likelihood	Likelihood		Consequences	Likelihood	Likelihood	
1.	Unfit/ untrained operatives	Suffocation, Death	4	4	16	• Operatives must be physically fit to carry out confined space activities • Person experienced/ Trained in confined space activity to be assigned for the job. • MS&RA must be addressed to the operative prior to entry.	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians
2.	Limited access and Exit. Fall of Person/ Materials	Serious injury, Suffocation, Fatality	4	4	16	• The work permit must be taken, a pre-entry checklist to be completed and all precautions must be taken before enter. • Provide safe access and exit to and from the confined space as much as possible (Manhole size requirement –Min. 450 mm x 407 mm or 457mm Dia.) • The rescue procedure / system (Tripod with winch, Rescue Harness, etc.) is in place and sufficient trained persons are available for the rescue operation. • All persons in the confined space must wear safety harnesses for rescue purposes. • Access and all openings to be protected to prevent fall of materials/persons	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians

3.	Oxygen deficiency/ enrichment, lack of ventilation.	Suffocation, Death	4	4	16	Carry out the atmospheric test and ensure there is a sufficient level of oxygen present in the area before enter. Use forced air ventilation/ exhaust fan to remove toxic gases from confined space. Shift working schedule as per condition to be made and strictly followed. Oxygen percentage (19.5% to 23.5%)	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians
4.	Flammable / Toxic gases	Serious injury, acute / long latency illness, Death	4	3	12	Carry out atmospheric tests and ensure there are no flammable/ toxic gases present in the area before enter. **A.** Flammable gas or vapors (Permissible Limit -<10% of LFL) **B.** Carbon Monoxide (Permissible limit-<50 ppm) **C.** Hydrogen sulfide (Permissible limit -<10ppm) ● Do not keep any compressed/ flammable gas cylinders inside the confined space. ● Provide adequate exhaust fans for proper ventilation. ● Always use flameproof electrical equipment's inside the confined space. ● Use positive pressure breathing apparatus in confined space.	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians
5.	Hot Work	Serious injury , Death	4	4	16	● Hot work permit must be taken prior to do any hot work operation ● Sufficient exhaust fan must be provided for ventilation. ● Ensure there is no flammable gas/ vapors present in the confined space. ● All operatives must wear required PPE's.	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians

6.	Lack of Lights & Communication Facility	Serious or minor injury, Death	4	3	12	• Sufficient lights (Flameproof) shall be provided in the confined space. • Proper communication facility (Walky-talky/ Radio) should be provided for confined space activities. • One fulltime standby person with communication facility shall be appointed outside the entrance. • Confined space register to be kept outside and strictly maintained.	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians
7.	High Temperature/ Humidity	Fatigue and drowsiness lack of concentration. Heat stroke Fatality	4	3	12	• Provide sufficient cool drinking water and oral dehydration fluids • Provide adequate ventilation and fan at the work place. • Avoid working in humid environment for long time. • Shift system based on the humid condition to be strictly followed. • Close supervision and communication at all time	2	3	6	Project Manager/ Project Engineer/Project Supervisor/Project Safety Officer/MEP Technicians

Assessed by:			
Name:	**Designation:**	**Date:**	**Signature:**
Reviewed & Approved By:			

Name:	Designation:	Date:	Signature: