


	CONFINED SPACE HAZARD ASSESSMENT		HA # 13
	CONFINED SPACE NAME: Fountain Recirculation Pump	ID # N/A	LOCATION: Lonsdale Quay

Confined Space?	YES	
YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Enclosed or partially enclosed?		
YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Limited or restricted entry/exit?		
YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Intended for continuous human occupancy?		
YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Large enough that a worker can enter?		

SPACE INFORMATION/DETAILS (IN OPERATION):			
SPACE DESCRIPTION: Below ground concrete vault with enclosed re-circulating piping for the fountain water.			
CONTENTS: Piping (PVC/copper) containing municipal potable water (contains dilute chlorine) and pump screens. Pipes also have two sand filters attached and run through the space – no pipes terminate in the space. <i>Equipment:</i> Pumps with electric motors, heater, electrical panel/controls/control unit.			
PROCESS/FUNCTION/USE DESCRIPTION: Re-circulates and filters the water for an outdoor water fountain.			
PHYSICAL CHARACTERISTICS: Rectangular shaped concrete chamber.			
DIMENSIONS: Approximately (feet - 'ft'): 20 ft (L) x 15 ft (W) x 12 ft (H)		VOLUME: Approximately: 3,600 ft ³	
SPACE MATERIAL: Pre-case concrete			
ENTRY CHARACTERISTICS: Manhole at grade			
LOCATIONS: 1		SIZE: 3 ft Ø	
SECURING MECHANISM: Gravity			
ADJACENT VESSELS/SPACES/PIPING:			
<u>NAME OF SPACE/PIPE</u>	<u>CONTENTS</u>	<u>TEMPERATURE</u>	<u>PRESSURE</u>
Inlet (10" Ø average)	Water	No concern	No concern
Outlet (8" Ø average)	Water	No concern	No concern

SCOPE OF WORK:
This Hazard Assessment (HA) refers to entry for the purpose of inspection and minor manual repairs with manual tools including removing and replacing damaged equipment. Pump screens are replaced and/or cleaned with a low pressure water hose and periodically the sand filters are cleaned out with manual tools (shovels) and replaced with new sand.
<i>Hot work and other atmospheric contaminant generating activities are not included in this Hazard Assessment.</i>

HAZARDOUS ATMOSPHERIC RATING (LOW, MOD. HIGH)	Moderate	JUSTIFICATION: Potential for O ₂ deficiency due to small amount of rust observed inside the space.
COMPLETED BY:	Prepared by: Peter Bergholz, BSc, CIH, AMEC, November 2012 Reviewed by: Victor Leung, MSc, CIH, ROH, CRSP, AMEC, November 2012	INFO. SOURCE: Richard Howard & Paul Elsoff

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HAZARDS		UNDISTURBED SPACE POTENTIAL HAZARDS	WORK TASKS POTENTIAL HAZARDS	CONTROL MEASURES
ATMOSPHERE	Oxygen (O ₂) Deficiency	Yes Possible for closed up space prior to entry due to small amount of rusting observed in the space (space is also not routinely entered).	No	Monitoring for O ₂ . Continuous ventilation during entry.
	O ₂ Enrichment	No	No	
	Chemical	No	No	
	Biological	Yes Vermin (rats, mice or their excrement) may be present. Bacteria and fungi growth is possible in spaces that are wet or are not opened for prolonged periods. Needles/sharps (potentially containing bodily fluids) may be present.	No	Rinse space prior to entry if space contains large amounts of bacteria/fungi/sludge. Remove objects (needles, sharps) from outside the space at all times with sucker truck, if feasible. General PPE: Coveralls, safety boots, work gloves, hard hat and safety glasses with side shields.
	Fire/Explosion	No	No	
SAFETY	Structural Hazard	No	No	
	Engulfment	No	No	
	Entrapment	No	No	
	Electrical	Yes Electrical receptacles (all sealed conduits), heating, pump and electrical panels are present in the space (all low voltage – 120 V).	No	Space must be locked-out.
	Access/Egress	No	No	
	Fall	Yes Space is 12' deep.	No	Fixed ladder or portable ladder required. Maintain 3 points of contact on the ladder at all times. Use caution upon initial entry (inspect fixed ladder condition). Portable ladders may substitute fixed ladders where condition of ladder is suspect or unknown. Fall protection required when climbing up and down ladders. Lifeline attached at all times.
	Slip/Trip	Yes Interior of space, ladder rungs and floor surface may be wet/slippery - typically the space contains only a trace amount of water on the floor. Wiring, equipment and hoses can cause trip hazards.	Yes Washing of pump screens with low pressure water hose will create a wet and slippery condition.	Wear General PPE (safety boots) and work with care.

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This Hazard Assessment (HA) pertains to the activity and confined space listed above. This hazard assessment is required to be reviewed within 3 years of preparation; any change in activity requires a review of this HA and a completion of a HA for the specific activity (especially when contaminants will be generated by an activity such as welding, radiation or chemical usage).

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PHYSICAL	Visibility/Light Level	Yes Insufficient lighting	No	Portable lighting (flashlight or portable light with GFCI) required.
	Baffles/Internal Arrangement	No	No	
	Floor Openings in Space	No	No	
	Noise/Vibration	No	No	
	Temperature	Yes Entry into space may occur during hot/cold weather conditions (spaces are located outside).	No	Wear General PPE and dress appropriate for outside weather conditions. Provide heat stress awareness sessions to work crews if working during hot summer days.
	Non/Ionizing Radiation	No	No	
	Laser	No	No	
OTHERS	Ingestion/Skin Contact Hazard	No	No	
	Mechanical Hazard	Yes Pumps present	No	Pumps must be locked out.
	Traffic Hazard	Yes Space located on a public pathway. Pedestrian traffic (no car traffic).	No	Entrance to space must be physically isolated from pedestrian traffic with pylons. Standby person must monitor pedestrian traffic in the area.
	Hydraulic/Pneumatic Hazard	No	No	

CONTROL MEASURES REQUIRED:	
Confined Space Permit:	Yes
Atmospheric Testing:	Gas monitor with sensors for O ₂ , LEL, CO & H ₂ S.
Ventilation Requirements:	Provide mechanical ventilation (minimum 1,200 CFM) through the opening. Minimum ventilation requirements are based on achieving 20 air changes per hour.
PPE Requirements:	General PPE: Coveralls, safety boots, work gloves, hard hat and safety glasses with side shields.
Lockout/Isolation:	Space must be isolated and locked-out. See space specific isolation and lockout document.
Standby Person:	Yes, at or near entrance.
Communication Procedures:	Radio, voice
Rescue Procedures:	Standby person calls 911 and calls Entry Supervisor. Entry Supervisor will respond to scene. Self rescue (if possible) or removal by Standby Person (from outside space) using winch.
Required Rescue and Safety Equipment	Two-way radio, cellular telephone, harness (must be worn), tripod, winch, lifeline (attached at all times).

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CONTROL MEASURES REQUIRED:

Other:

Rinse space prior to entry if space contains large amounts of bacteria/fungi/sludge.
Remove objects (needles, sharps) from outside the space at all times with sucker truck, if feasible.
Fixed ladder or portable ladder required. Maintain 3 points of contact on the ladder at all times.
Use caution upon initial entry (inspect fixed ladder condition). Portable ladders may substitute fixed ladders where condition of ladder is suspect or unknown.
Fall protection required when climbing up and down ladders. Lifeline attached at all times.
Portable lighting (flashlight or portable light with GFCI) required.
Wear **General PPE** and dress appropriate for outside weather conditions.
Provide heat stress awareness sessions to work crews if working during hot summer days.
Pumps must be locked out.
Entrance to space must be physically isolated from pedestrian traffic with pylons. Standby person must monitor pedestrian traffic in the area.

**HAZARDOUS
ATMOSPHERIC RATING
(LOW, MOD. HIGH)**

Moderate

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BY:**

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AMEC, November 2012
Reviewed by: Victor Leung, MSc, CIH, ROH,
CRSP, AMEC, November 2012

**INFO.
SOURCE:**

Richard Howard & Paul Elsoff