

City of Urbandale
Confined Spaces Entry Program

Table of Contents

PURPOSE	3
LEADERSHIP AND ACCOUNTABILITY	3
DEFINITIONS	3
CONFINED SPACE ENTRY	4
EMPLOYEE TRAINING	6
OUTSIDE CONTRACTORS.....	7
PERMIT REQUIRED CONFINED SPACES INVENTORY	8
CONFINED SPACE ENTRY CONTROL WORKSHEET	9
CONFINED SPACE ENTRY PERMIT	9

Purpose

This policy applies to all operations involving confined space entry and was created to protect employees from the hazards of entering into confined spaces.

Copies of this policy will be made available to all employees during their work shifts and is located at:

- Parks & Facilities (3310 86th Street), in safety resource cabinet.
- Public Works (9401 Hickman Road), in the office.
- Water Utility (3720 86th Street), in the office.
- Online at www.Urbandale.org/413/Employee-Intranet
- Alternately, it can be found by contacting the Director of Risk Management/Support Services.

Each employee working in or near a confined space will be trained on this policy. Training on this policy will be provided to new employees (or those newly assigned to a position covered under this policy).

Leadership and Accountability

The Director of Risk Management/Support Services or the Safety Leadership representative will be responsible for annually evaluating the confined space entry policy. Review of this policy shall utilize the cancelled permits retained under this policy for 1 year after cancellation.

Employees are accountable to know and follow this policy. Employees are also accountable for the proper care, maintenance and correct use of equipment provided for the job according to their training.

Employees should refer questions or comments about this policy to:

- Parks & Facilities - Facilities Maintenance Supervisor and/or Parks Supervisor
- Public Works - Assistant Director of Public Works
- Water Utility - Distribution Manager

Definitions

"Attendant" means a trained individual stationed outside the permit required confined space, which monitors the entrant(s) and the area.

"Confined space" means a space that:

- Is large enough that an employee can enter and perform assigned work.
- Has limited or restricted means for entry or exit (for example, tanks, vessels, sewer systems, storage bins, vaults, and pits are spaces that may have limited means of entry).
- Is not designed for continuous employee occupancy.

"Entry" means the action by which an employee passes through an opening into a permit-required confined space with the intent to enter the space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

"Entry permit (permit)" means the written or printed document that is provided by the City to allow and control entry into a permit space.

"Entry supervisor" means the person (such as the supervisor or manager) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry.

"Non-Permit confined space (non-permit space)" means a confined space that does not present any potential hazards, nor will the work performed in the space create a hazardous condition.

"Permit-required confined space (permit space)" means a confined space that has one or more potential hazards:

- Contains or has a potential to contain a hazardous atmosphere (Oxygen level below 19.5%)
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard (for example fire/explosion, electrical or mechanical hazards, chemical exposure or dismemberment).

"Permit system" means the City's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

"Rescue service" means the City of Des Moines or the City of West Des Moines Fire Departments.

Confined Space Entry

The Attendant(s) is responsible for:

- Being trained and shall be stationed outside the permit-required confined space.
- Having knowledge of the hazards that may be faced during entry and be able to recognize changing conditions that could affect the entrant(s).
- Monitoring the outside of the permit space to prohibit unauthorized people from entering the permit-required space.
- Maintaining continuous communication with the entrant(s).

The Entrant(s) is responsible for:

- Knowing the hazards that may be faced during entry, including the signs or symptoms and consequences of exposure.
- Performing the work in the confined space and properly using equipment for safe entry and operations.
- Communicating with the attendant(s) to enable the attendant to monitor his/her status.

The Entry Supervisor is responsible for:

- Determining the hazards and potential exposures on the confined space and those created by work to be done in the space by using the “Confined Space Entry Permit” (attached to this policy).
- Assesses if those hazards create a “permit space” or a “non-permit space”.
- Determines if the identified hazards that create the “permit space” can be eliminated without employee entry into the space or controls to eliminate or properly control the hazard(s).
- Identifies all equipment, including personal protective equipment (PPE) needed for the work to be performed in the “permit space”.
- Arranges for qualified and an adequate number of entrants and attendants for the work to be performed in the “permit space”.
- Reviews and enforces any other required safety permits or policy procedures (i.e., Trenching & Shoring Policy, Lockout & Tagout Policy and Respiratory Policy).

Preparation of the Permit Required Confined Space must include:

- Isolation of the space
 - Drain, clean and purge as appropriate.
 - Isolate all forms of kinetic and potential (stored) energy in the confined space (i.e., electrical, hydraulic, mechanical, thermal, and pneumatic).
 - Isolate all lines carrying fuels, liquids or gases.
 - Barricade and post the entrances as “Danger Confined Space Do Not Enter”.
- Personal Protective Equipment (PPE)
 - Using the job hazard assessment determine the needed PPE and other equipment needed (i.e., ventilation, monitoring equipment and fall gear).
 - Assure all equipment is in good working order prior to use and that all employees are trained (certified) to use the equipment.
- Electrical Equipment
 - Only use electrical equipment that meets the electrical classification of the area.
 - Assure all electrical equipment is grounded.
- Atmospheric Tests
 - Entry will only be allowed if atmospheric testing has been completed and the atmosphere(s) prove to be safe. Atmosphere(s) are considered Immediately Dangerous to Life and Health (IDLH) until proven otherwise.
 - Testing must be done of all areas of the “permit space”. Testing must include all locations, sections and sub-spaces of the “permit space”.

- Obtain readings for oxygen first, followed by %LFL and toxic contaminants.
- Adequate oxygen levels must be greater than 19.5%. If oxygen levels are less than 20.9% it should be a red flag for improperly calibrated or broken equipment, or another gas or vapor is present and it needs to be identified.
- The atmosphere must have a Lower Flammable Limit (LFL) of less than 10% and safe from toxic contaminants (per OSHA established exposure limits).
- If entry conditions are not in accordance with atmospheric requirements, correct the conditions and retest.
- If entry conditions are acceptable, determine the means for continuous monitoring and communication of conditions.
- Ventilation
 - Ventilation is required for all “permit space” entries.
 - Provide 5 air changes per hour and never ventilate with oxygen.
 - If motorized equipment is used, make sure exhaust never enters the space.
 - Never place ventilation gear/ducting such that it creates an impairment to access/egress of the space.

Permit Required Confined Space Entry:

- Before entry into a permit required confined space, **a permit shall be completed by an entry supervisor** after a review of the worksite and after determining that entry conditions are acceptable.
- The entry supervisor will authorize the beginning entry time and the cancellation time for the permit.
- Lockout/tagout procedures - if the hazard evaluation determines that lockout or tagout procedures are required to safely perform a task in a permit required space; employees shall refer to the City’s lockout /tagout policy for proper procedures.
- Hazardous communications - if hazardous substances are present in the confined space during entry (i.e., cleaning chemicals), a copy of the applicable safety data sheets for the substances must be available at the entry site.
- Completion of work – upon completion of work in the “permit space” the space should be inspected to make sure it is safe and ready to be put back into operation. Then cancel the permit by obtaining the signature of the entry supervisor and record the date and time on the permit.
 - Permits shall be kept on file in the department for 1 year after cancellation of the permit.
- Rescue Services – if needed rescue services would be activated by calling 9-1-1.

Employee Training

The City shall provide training to all supervisors, attendants and rescue staff prior to working in a position that would require entry into a permit required confined space. In addition, training will be repeated annually. Training will be documented and kept on file with the Director of Risk Management/Support Services and/or the department Safety Leadership representative.

Outside Contractors

Whenever outside vendors are to be used in a permit required confined space, the City department will:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting OSHA's requirement.
- Apprise the contractor of the elements, including the hazards identified and the department's experience with the space.
- Apprise the contractor of any precautions or procedures that the department has implemented for the protection of employees in or near permit spaces where the contractor's employees will be working.
- Coordinate entry operations with the contractor, if both the department's and contractor's employees will be working in or near the same permit spaces.
- Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in the permit spaces during operations.

**City of Urbandale
Permit Required Confined Spaces Inventory**

Date Reviewed: September 2021

Location or address	Type	Hazards-check all those that apply									
		CO	H ₂ S	OD	Fire	Elec.	Falls	Engulf	Chem.	Mech.	Other
(Example: 1 st and Main)	Utility hole		X	X			X		X		
(Example: Water plant)	Retention tank #1			X			X	X	X		
Citywide*	Sanitary Sewer Manhole(s)	X	X	X			X				
Citywide*	Storm Sewer Manhole(s)	X	X	X			X				
Citywide*	Storm Sewer Intake(s)	X	X	X			X				
Citywide*	Large Diameter Sanitary and Storm Sewers	X	X	X			X				
Citywide*	Water Meter Pits	X	X	X			X			X	X - Traffic
Citywide*	Sanitary Sewer Lift Stations	X	X	X			X				
170 th Street	Water Tower						X	X			
114 th Street	Water Tower						X	X			
70 th Street & Douglas	Streetscape Fountain – crawl space								X		
9401 Hickman Road – Public Works Facility	Garbage Trucks (body)			X			X			X	
9401 Hickman Road – Public Works Facility	Sweepers (debris body)			X			X			X	
9401 Hickman Road – Public Works Facility	Jetter Truck (debris body)			X			X			X	
9401 Hickman Road – Public Works Facility	Brine & Calcium Storage Tanks			X			X		X		
9401 Hickman Road – Parks/Public Works Facility	Water Storage Tank			X			X	X			
*These spaces are considered permit required until proven to be a non-permit space.											

Hazard Key: CO=Carbon Monoxide, H₂S=Hydrogen Sulfide, OD=Oxygen Deficiency, Engulf=Engulfment, Chem. =Hazardous Chemicals, Mech=Mechanical

Confined Space Entry Control Worksheet

This form is used to evaluate hazards and needed controls for developing a permit or Job Hazard Analysis specific to a confined space; check all that apply

Confined Space Entry Permit

Date and Time Issued: _____ Date and Time Expires: _____

Job Site/Space I.D.: _____ Job Supervisor: _____

Equipment to be worked on: _____ Work to be performed: _____

Entrant(s): _____

Attendant(s): _____

1. Initial Atmospheric (Air Monitoring) Check:

Time: _____ Testing Device & Serial Number: _____

Oxygen	_____ %	
Explosive	_____ % L.F.L. (Lower Flammable Limit)	
Toxic	_____ PPM	

Tester's signature: _____

2. Source isolation (No Entry):

Pumps or lines blinded,	N/A	Yes	No
Disconnected, or blocked	N/A	Yes	No

3. Ventilation Modification:

Mechanical	N/A	Yes	No
Natural Ventilation only	N/A	Yes	No

3.1. Atmospheric check after isolation and ventilation:

Oxygen	_____ %	>	19.5%
Explosive	_____ % L.F.L.	<	10%
Toxic	_____ PPM	<	10 PPM H ⁽²⁾ S (Hydrogen Sulfide)

Time: _____ Tester's signature: _____

4. Communication procedures (describe):

5. Rescue procedures (describe):

6. Attendant(s) & Entrant(s):

Successfully completed required training?	Yes	No
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7. Equipment:

Direct reading gas monitor - tested:	N/A	Yes
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Safety harnesses and lifelines for entry and standby persons:	N/A	Yes
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Hoisting equipment:	N/A	Yes
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Powered communications:	N/A	Yes
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SCBA's for entry and standby persons:	N/A	Yes
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Protective Clothing:	N/A	Yes
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Electric equipment (i.e. non-sparking tools):	N/A	Yes
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Written instructions and safety procedures have been received and are understood. This permit is not valid unless all appropriate items are completed.

Permit Prepared By: (Entry Supervisor) _____

Approved By: _____

Reviewed By (Confined Space Entrant(s)):

Printed Name: _____

Signature: _____

Periodic atmospheric (air monitoring) tests:

Oxygen _____% > 19.5%
Explosive _____% L.F.L < 10%
Toxic _____PPM < 10 PPM H⁽²⁾S (Hydrogen Sulfide)

Time: _____ Tester's signature: _____

Oxygen _____% > 19.5%
Explosive _____% L.F.L < 10%
Toxic _____PPM < 10 PPM H⁽²⁾S (Hydrogen Sulfide)

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Oxygen _____% > 19.5%
Explosive _____% L.F.L < 10%
Toxic _____PPM < 10 PPM H⁽²⁾S (Hydrogen Sulfide)

Time: _____ Tester's signature: _____

This permit must be kept at the jobsite.

Rescue Services Activated by Calling 9-1-1