

BEAR CREEK WATER & SANITATION DISTRICT  
CONFINED SPACE PROGRAM

1.0 SCOPE AND APPLICATION

- 1.1 Scope. This program provides for minimum safety requirements to be followed while entering, exiting and working in specifically designated confined spaces within the District's system of facilities.
- 1.2 Application: This program shall apply to all persons who enter any specifically designated confined space within the District's system of facilities, under any circumstance or for any purpose whatsoever.

2.0 IDENTIFICATION OF HAZARDS

- 2.1 Atmospheric Hazards. All sanitary sewer manholes, meter stations, P.R.V. stations and vaults within the District System of Facilities are non-ventilated confined spaces in which the normal atmosphere may be unsafe because of depletion of oxygen or because of the presence of toxic or flammable gases.
- 2.2 Physical Hazards. Persons entering sanitary sewer manholes, meter stations, P.R.V. stations and vaults are also at risk of engulfment by surge flows or flooding as well as the physical hazards which are manifest in the nature of the space being entered.

3.0 DESIGNATION OF PERMIT REQUIRED CONFINED SPACES

- 3.1 Designation. Based upon evaluation of actual and potential hazards, all sanitary sewer manholes, meter stations, P.R.V. stations and vaults within the District's system are designated Permit Required Confined Spaces.
- 3.2 Notification. Each designated Permit Required Confined Space in the District will be marked with a warning tag fastened to the top manhole step or in some other prominent location. The two-sided tag and fastener shall be made from plastic or other corrosion resistant material and shall conform to the full-size example attached as Exhibit A.

4.0 PERMIT REQUIREMENT

- 4.1 Entry Permits. Before each entry into any designated Permit Required Confined Space, a Confined Space Entry Permit must be obtained from the District and its requirements must be communicated to all persons directly participating in the entry. The permit document shall include:
  - 4.1.1 A permit number. The District will maintain a log, which contains the permit number, the entry requesting the permit, and the completed permit as returned to the District after actual entry is complete.

- 4.1.2 The date of entry, the manhole number, or other confined space designation, the location, and the type of work, which will be conducted in the confined space.
  - 4.1.3 Reference to the appropriate District Confined Space Entry Procedure. A copy of the Confined Space Entry Procedure will accompany the permit and be a part of the permit.
  - 4.1.4 A certification by the permittee that all provisions of the Confined Space Entry Procedure will be fully communicated to persons participating in the Confined Space entry, before entry activities, and that a copy of the Confined Space Entry Procedure will be present on the site for reference during the time of actual entry.
  - 4.1.5 Spaces for a log of personnel, events, and atmospheric test results, recorded in the field during pre-entry activity and while working within the confined space.
  - 4.1.6 Notice to the permittee that the original of the Permit document with completed record log must be provided to the Office Manager for the District within five (5) calendar days after the entry.
- 4.2 Exceptions. The Board of Directors of the District, at its own discretion, may issue blanket Confined Space Entry permission to its own employees, and to consultants and maintenance contractors and their respective employees to representatives of the Metro Wastewater Reclamation District and the Denver Water Board, subject to compliance with the provisions of the Confined Space Entry Procedure contained in this Program document. No permit shall be required for entry into a confined space, under emergency conditions, by trained personnel of any law enforcement agency, fire department or rescue service.
- 4.3 Duration of Permits. The permit shall be issued for a specific time period and only operations or work originally described in the “Purpose” section of the Permit shall be conducted in the Confined Space.
- 4.4 Revoking Permits. When conditions or work activity are different than those specified on the permit and such conditions could introduce a new hazard to the confined space, then the permit shall be immediately revoked.

BEAR CREEK WATER & SANITATION DISTRICT  
CONFINED SPACE ENTRY PROCEDURE

1. Locate the manholes, meter station, P.R.V. station or vault to be entered. Put on a hard hat and other personal safety devices as appropriate and required. Observe the surrounding area as to surface conditions and general traffic flow.
2. If the confined space is located within the right-of-way of a public street or highway, set up traffic control devices and proper signage in accordance with requirements of the Manual on Uniform Traffic Control Devices for Street and Highway Construction and Maintenance Operations of the U.S. Dept. of Transportation, Federal Highway Administration, or with the specific requirements or any applicable Right-of-Way permit.
3. Perform all function checks and calibration of monitoring equipment, detection devices, ventilation equipment and safety equipment.
4. Remove the manhole cover by use of appropriate tools and proper techniques. Place the removed manhole lid away from active traffic lanes. The person remaining on the ground surface will maintain a written log of circumstances associated with, and occurring during the confined space entry. The log will record the following minimum information:
  - a. Date of entry.
  - b. Time of entry.
  - c. Names of persons participating in the entry.
  - d. A record of all atmospheric gas readings taken preparatory to manhole entry and during the time any worker is within the manhole.
  - e. Pertinent remarks regarding the condition of the manhole, changes in water levels within the manhole, or other matters related to manhole safety.
5. Lower an atmospheric gas detection device (or its remote sensing unit) into the manhole and test the atmosphere at several levels for oxygen content, lower explosive limit (LEL) and Hydrogen Sulfide (H<sub>2</sub>S). The limits for these gases are as follows:

Oxygen	-	Between 19.5% and 23.5%
LEL	-	Less than 10%
H <sub>2</sub> S	-	Less 10 ppm

If any gas exceeds these limits do not enter the manhole. Ventilate the manhole for at least five (5) minutes or as necessary to bring the atmosphere into compliance with the above stated limits. If the gas meter continues to detect a hazardous atmosphere, **DO NOT ENTER THE MANHOLE**. Report the condition to the office manager of the District.
6. Ventilate the confined space continuously with power driven mechanical ventilating equipment.

7. Atmospheric testing with the gas detector shall be repeated every thirty (30) minutes while the manhole is occupied and the results of each test must be recorded on the Permit form.
8. Entry requires the use of a chest or full body harness with a retrieval line attached at the center of the back near shoulder level or about the head and adequate lifting capacity. The other end of the retrieval line must be attached to a mechanical device or to a fixed point outside the confined space. Adequate lifting capacity requires the use of a mechanical lifting device or two (2) persons outside the manhole opening, available to pull the confined space worker out manually with the attached retrieval line.
9. At least one (1) standby person on the ground surface shall remain in constant communication with the person inside the manhole and shall attend the attached retrieval line. Tension should be applied to the retrieval line by the person attending the retrieval line during entry and exit operations to help prevent falls.
10. All tools and small equipment shall be lowered and raised from the manhole using an appropriate bucket or tool bag and lanyard.
11. With changing conditions inside the manhole, such as an increase in water level, alarm of atmospheric tester, light-headedness of the work, etc., the work shall EVACUATE THE MANHOLE IMMEDIATELY.
12. In the event of an emergency where the worker inside the manhole becomes injured or immobilized and cannot exit without assistance, the person on the surface should do everything possible to remove the injured worker without endangering the life of the worker or the lives of others. If an immobilized worker within the manhole cannot be removed, persons remaining on the surface must NOT enter the manhole themselves.

Emergency medical and rescue services shall be requested, immediately  
by calling 911 or by contacting local fire or police authorities.

The circumstances surrounding any accident or injury to a worker participating in a confined space entry shall be reported to the office manager of the District as soon as practical.

Permit No.: \_\_\_\_\_

Date: \_\_\_\_\_

Duration: \_\_\_\_\_

BEAR CREEK WATER & SANITATION DISTRICT  
CONFINED SPACE ENTRY PERMIT

LOCATION, DESIGNATION and DESCRIPTION OF CONFINED SPACE:

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PERMITTEE:

PURPOSE OF ENTRY:

\_\_\_\_\_  
Name

\_\_\_\_\_

\_\_\_\_\_  
Address

\_\_\_\_\_

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_

\_\_\_\_\_  
Supervisor at Site of Entry

\_\_\_\_\_

ENTRY TO CONFINED SPACE WILL BE IN STRICT ACCORDANCE WITH ALL PROVISIONS OF THE CONFINED SPACE ENTRY PROCEDURE OF THE BAR CREEK WATER & SANITATION DISTRICT.

Permit issued by: \_\_\_\_\_

I certify that I have received a copy of the Confined Space Entry Procedure of Bear Creek Water & Sanitation District, that the Procedure will be fully communicated to all persons participating in the entry prior to entry activities and that all pre-entry and entry activities will conform to the Procedure.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

A copy of the Required Confined Space Entry Procedure must be present on the site for reference by entry participants during all pre-entry and entry activities.

NOTICE:

THE ORIGINAL OF THIS PERMIT DOCUMENT WITH THE INFORMATION ON THE REVERSE SIDE FILLED IN MUST BE RETURNED TO THE OFFICE MANAGER FOR THE DISTRICT WITHIN FIVE (5) CALENDAR DAYS AFTER THE ENTRY.

NAMES OF PERSON PARTICIPATING IN ENTRY:

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Date of Entry: \_\_\_\_\_

Time of Initial Entry: \_\_\_\_\_

Time of Final Exit: \_\_\_\_\_

RECORD LOG OF ATMOSPHERIC TESTS:

<u>Substance</u>	<u>Limits</u>	<u>Reading #1</u>	<u>Reading #2</u>	<u>Reading #3</u>	<u>Reading #4</u>
Oxygen	Between 19.5% & 23.5%				
Lower Explosive Limit	Less than 10%				
Hydrogen Sulfide	Less than 10 ppm				

Attach additional Record Log of Atmospheric Test sheets, if necessary.

REMARKS:

Personal safety conditions and/or events observed or experienced during pre-entry and entry activities:

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