

UPDATE LOG FOR SECTION 01000

| Date | Item(s) Changed | Page # |
|----------|--|--------|
| 06/22/09 | <p>Added:</p> <p>1.21 CONFINED SPACE ENTRY REQUIREMENTS</p> <p>When working in, or connecting to existing systems in operation, the required safety provisions for work in an operating system will be enforced, including provisions for working in confined air spaces. Contractor shall comply with EMWD's Confined space Entry Policy attached hereto (see Exhibit E).</p> <p>Added:</p> <p>Exhibit E, EMWD CONFINED SPACE ENTRY POLICY as an attachment</p> | 7 |
| 02/11/08 | <p>1.05 PRECONSTRUCTION SAFETY MEETING</p> <p>The Injury & Illness Prevention Program shall be submitted in Electronic Format (CD) as follows: Provide all information on a CD in searchable PDF format; PC compatible using Windows XP operating system. All information provided shall be consolidated to one portable document file (PDF) in the latest version of Adobe Acrobat, with a Table of Contents and Bookmarks for each major section.</p> | 3 |

Change Legend:

Added

~~Strike-out~~

Document is prepped for double-sided printing

Start your Print Range parameter @ page 3 for printing (or discard first 2 pages)

UPDATE LOG FOR SECTION 01000

| Date | Item(s) Changed | Page # |
|----------|--|--------|
| 06/22/09 | <p>Added:</p> <p>1.21 CONFINED SPACE ENTRY REQUIREMENTS</p> <p>When working in, or connecting to existing systems in operation, the required safety provisions for work in an operating system will be enforced, including provisions for working in confined air spaces. Contractor shall comply with EMWD's Confined space Entry Policy attached hereto (see Exhibit E).</p> <p>Added:</p> <p>Exhibit E, EMWD CONFINED SPACE ENTRY POLICY as an attachment</p> | 7 |
| 02/11/08 | <p>1.05 PRECONSTRUCTION SAFETY MEETING</p> <p>The Injury & Illness Prevention Program shall be submitted in Electronic Format (CD) as follows: Provide all information on a CD in searchable PDF format; PC compatible using Windows XP operating system. All information provided shall be consolidated to one portable document file (PDF) in the latest version of Adobe Acrobat, with a Table of Contents and Bookmarks for each major section.</p> | 3 |

Change Legend:

Added

~~Strike-out~~

Document is prepped for double-sided printing

Start your Print Range parameter @ page 3 for printing (or discard first 2 pages)

SPECIFICATIONS - DETAILED PROVISIONS
Section 01000 - General Safety Requirements

C O N T E N T S

| | | |
|--|---|----------|
| 1.01 | RESPONSIBILITY | 1 |
| 1.01A | SAFETY AND HEALTH..... | 1 |
| 1.02 | OTHER CODES AND STATUTES | 2 |
| 1.03 | SUBCONTRACTS..... | 2 |
| 1.04 | DIFFERING OPINIONS..... | 2 |
| 1.05 | PRECONSTRUCTION SAFETY MEETING | 3 |
| 1.06 | SAFETY PROGRAMS..... | 3 |
| 1.07 | SAFETY PROGRAM REVIEW | 4 |
| 1.08 | JOINT SAFETY POLICY MEETING | 4 |
| 1.09 | SAFETY PERSONNEL | 4 |
| 1.10 | SAFETY INSPECTION..... | 4 |
| 1.11 | ACCIDENT/INJURY/ILLNESS INVESTIGATION AND REPORTING | 5 |
| 1.12 | INVESTIGATION/REPORTING..... | 5 |
| 1.13 | MONTHLY ACCIDENT STATISTICAL REPORT | 6 |
| 1.14 | HOUSEKEEPING..... | 6 |
| 1.15 | HAZARDOUS MATERIALS AND HAZARDOUS WASTE | 6 |
| 1.16 | GENERAL | 7 |
| 1.17 | CERTIFICATION..... | 7 |
| 1.18 | EMWD LOCKOUT/TAGOUT PROCEDURE | 7 |
| 1.19 | EXPERIENCE MODIFICATION RATING | 7 |
| 1.20 | WORKERS COMPENSATION RECORDS | 7 |
| 1.21 | CONFINED SPACE ENTRY REQUIREMENTS..... | 7 |
| ATTACHMENTS | | 8 |
| • <u>EXHIBIT “A” – (EN-87) NOTICE OF UNSAFE CONDITION</u> | | |
| • <u>EXHIBIT “B” – (EN-84) SPECIFIC OPERATING SAFETY PROCEDURE</u> | | |
| • <u>EXHIBIT “C” – (EN-85) REPORT OF INJURY</u> | | |
| • <u>EXHIBIT “D” – (EN-89) CONTRACTOR MONTHLY SUMMARY OF OCCUPATIONAL INJURIES/ILLNESSES EXPENSE</u> | | |
| • <u>EXHIBIT “E” - EMWD CONFINED SPACE ENTRY POLICY</u> | | |

SECTION 01000 GENERAL SAFETY REQUIREMENTS

1.01 RESPONSIBILITY

The contractor is responsible for ensuring that all activities in connection with the work including, but not limited to, labor, materials, and equipment, conform fully with the standards referenced herein. This requirement applies to all activities performed, operated, maintained or constructed by the contractor, sub-contractor, supplier, or any other agent of the contractor performing work. Further, the contractor, his subcontractor, suppliers, and any other agents shall not require any employee, or other worker in connection with the performance of the contract, to engage in work under conditions which are unsanitary, hazardous, dangerous to an employee's health or safety or otherwise in violation of any applicable federal, state, or local law or regulation in regard to occupational safety.

1.01A SAFETY AND HEALTH

The Contractor shall conform to all applicable occupational safety and health standards, rules, regulations and orders established by local agencies, State of California, and California Division of Occupational Safety and Health Construction Safety Regulations (Cal OSHA), including obtaining permits required by California Code of Regulations, Title 8, Section 341 and 341 (a).

§1527. Washing Facilities, Food Handling, and Temporary Sleeping Quarters.

WASHING FACILITIES

- A. GENERAL. Washing facilities shall be provided as follows: A minimum of one washing station shall be provided for each twenty employees or fraction thereof. Washing stations provided to comply with this requirement shall at all times:
1. Be maintained in a clean and sanitary condition;
 2. Have an adequate supply of water for effective washing;
 3. Have a readily available supply of soap or other suitable cleansing agent;
 4. Have a readily available supply of single-use towels or a warm-air blower;
 5. Be located and arranged so that any time a toilet is used, the user can readily wash;
 6. When provided in association with a nonwater carriage toilet facility in accordance with Section 1526(c),
 7. Provide a sign or equivalent method of notice indicating that the water is intended for washing; and

General Safety Requirements
Section 01000 – 2

8. Be located outside of the toilet facility and not attached to it.
- B. EXCEPTION to subsection (a)(1)(F)(2.): Where there are less than 5 employees, and only one toilet facility is provided, the required washing facility may be located inside of the toilet facility.
- C. EXCEPTION to subsection (a)(1): Mobile crews having readily available transportation to a nearby toilet and washing facility.
- D. WASHING FACILITIES FOR HAZARDOUS SUBSTANCES. Where employees are engaging in the application of paints, or coatings, or in other operations involving substances which may be harmful to the employees, washing facilities shall be provided in near proximity to the worksite and shall be so equipped as to enable employees to remove such substances. Facilities provided to comply with this requirement shall at all times:
 1. Be maintained in a clean and sanitary condition;
 2. Have an adequate supply of water sufficient for effective removal of the hazardous substance from skin surfaces; and
 3. Have a readily available supply of soap, and where necessary to effect removal, special cleansing compounds designed specifically for removal of the hazardous substance from skin surfaces; and
 4. Have a readily available supply of single use towels or a warm-air blower.

1.02 OTHER CODES AND STATUTES

In addition to the standards and requirements detailed herein, contractors and subcontractors shall comply with applicable provisions of Federal, State, and municipal safety, health, and sanitation statutes and codes. In the event there is a conflict between the provisions of the Safety and Health Regulations for Construction promulgated by the U.S. Department of Labor in Title 29 CFR Part 1926, Occupational Safety and Health Act (OSHA), or the California Occupational Safety and Health Act regulations in the California Labor Code Section 6300 et seq. (Cal. OSHA), the more stringent provision shall prevail.

1.03 SUBCONTRACTS

Contractors shall include provisions for compliance with the health and safety requirements, as referenced in this Section 01000, in the terms and conditions of all contracts, subcontracts, supply contracts, and all other contractor arrangements for performance of the work.

1.04 DIFFERING OPINIONS

Differing opinions between the contractor and District on adequacy of existing or proposed protective measures, equipment, procedures, or devices shall be resolved as follows:

- A. Upon receipt of a written notice from the District regarding an issue in question, (see Standard Form Exhibit “A”), the contractor shall not start or continue the measure, procedure, equipment, or devices, or expose employees to associated hazards until the differences have been resolved.
- B. Upon resolution of the differing opinions, either with or without input from an independent professional safety engineer, Certified Safety Professional (CSP), or other safety expert, the questionable measure, procedure, equipment, or device shall be brought into conformance with the written agreed-upon solution. Only personnel required to complete remedial work shall be exposed to the associated hazard, and then only in a manner conforming to all safety requirements.
- C. Obtaining engineering data or retaining the services of an independent professional engineer to assist in resolving the issue(s) remains a contractor responsibility.

1.05 PRECONSTRUCTION SAFETY MEETING

Representatives of the contractor shall meet with the District prior to the start of construction to review the respective safety requirements and to discuss implementation of all health and safety provisions pertinent to the work under contract, including safety training status of equipment operators, etc. The contractor shall be prepared to discuss, in detail, the measures he intends to take to control the possible hazards incident to the major phases of the work under contract and to comply with contractual obligations. This meeting will be devoted to discussing the manner in which the contractor intends to administer his health and safety program and delegate the responsibilities for implementing the program.

A Specific Operating Safety Procedure (EN-84) and an Injury & Illness Prevention Program must be submitted to the District at the Pre-Construction conference for acceptance by the District prior to the start of construction. The Contractor shall identify any safety organization, safety team, or safety person within the Contractor’s organization, complete with contact name and telephone number.

The Injury & Illness Prevention Program shall be submitted in Electronic Format as follows: Provide all information on a CD in searchable PDF format; PC compatible using Windows XP operating system. All information provided shall be consolidated to one portable document file (PDF) in the latest version of Adobe Acrobat, with a Table of Contents and Bookmarks for each major section.

1.06 SAFETY PROGRAMS

The prime contractor shall prepare a comprehensive written safety program covering all aspects of onsite construction operations and activities associated with each respective contract. Further, unless adequately covered in the original plan, a supplementary detailed plan will be submitted prior to start of each major phase of work or when requested by the District.

General Safety Requirements Section 01000 – 4

In no case will onsite work commence until the program or appropriate supplementary submittals have been approved by the District. Initial and supplementary submittals shall include a timetable for completing the required, detailed, and specific operating procedures with hazard analysis. Approval by the District of initial and supplementary programs submitted by contractor only signifies that the submittals generally conform to the requirements contained and referenced herein, and shall not constitute any acceptance or other obligation of the District for the contractor's responsibilities for said programs. Said approval does not relieve the contractor of the responsibility of providing employees with a safe and healthful work environment, or complying fully with all the above requirements. For a project- specific safety plan outline for Contractor's use, see Exhibit "B" (Specific Operating Procedure - including Hazard Analysis).

1.07 SAFETY PROGRAM REVIEW

Following the above preconstruction safety meeting and development of the Safety Program, a second meeting shall be held to review the contractor's written safety program. The contractor's principal onsite representative, the general superintendent, and his safety representative shall attend this meeting.

1.08 JOINT SAFETY POLICY MEETING

The District, the contractor's principal onsite representative, and designated staff members shall participate in scheduled monthly safety meetings. These meetings shall be used to review the effectiveness of the contractor's safety effort, to resolve health and safety problems relating to current operations, and to provide a forum for planning safe future construction activities. Meeting minutes shall be prepared by the Contractor and maintained in a manner prescribed by the District.

1.09 SAFETY PERSONNEL

When the contract does not require the services of a full-time safety engineer, the contractor shall designate a competent and dependable supervisory employee, acceptable to the District, to administer this safety program. However, should the contractor's safety effort be considered inadequate, the District has the option to require the contractor to employ a full-time qualified safety engineer in lieu of a safety representative. The hiring of a full-time safety engineer shall be at the sole cost and expense of contractor and said hiring shall not entitle contractor to additional compensation.

1.10 SAFETY INSPECTION

The contractor shall provide for weekly safety inspections of the worksites, materials, and equipment by competent employees. Detailed written inspection records shall be maintained and available for review by the District.

Prior to the use of any gauges which monitor atmospheric hazards, the contractor's competent person will verify that the gauge is in current calibration. This will be documented on the District's resident inspector's daily report form.

1.11 ACCIDENT/INJURY/ILLNESS INVESTIGATION AND REPORTING

DEFINITIONS:

A. Serious Accidents/Incidents

Any occurrence of a job-related nature including, but not limited to, suicide or homicide attempts, heart attacks, and occupational injuries or diseases which result in:

1. An employee or agent of District, contractor, subcontractor, or supplier suffering death, permanent total disability, complete and/or permanent loss of an eye, hand, foot, or major organ.
2. Hospitalization for five or more days of an employee or agent of District and/or contractor, subcontractor, or supplier, or one or more employees in critical condition.
3. Fires or property damage resulting in a loss of \$25,000 or more.
4. Third party injuries, death, or substantial property losses that result or could result in claims against the District.

B. Nonserious Accidents/Incidents

All other personal and/or property damage accidents/incidents except first aid cases and property damage losses below \$2,500.

C. Potential Serious Accidents/Incidents

Accidental occurrences or near misses with the potential to be a serious accident/incident such as major equipment failures, contact with high voltage lines, spills of or personal contacts with excessive amounts of toxic or hazardous materials, slides, cave-ins, etc.

1.12 INVESTIGATION/REPORTING

- A. Serious accident/incidents shall be reported immediately to the District and appropriate contractor field supervisor. Providing or obtaining appropriate medical and emergency assistance and notification of coroner, safety, and law enforcement agencies, and family members remain a contractor responsibility. Except for rescue and emergency measures, the scene of the accident/incident shall not be disturbed or the operation resumed until authorized by District. The contractor shall assist and cooperate fully with the District in conducting the investigations of the accident/incident and assure availability of all information, personnel, and data pertinent to the investigation. The contractor shall, when ordered by the District, conduct or have conducted a separate and complete independent investigation of the accident/incident, and submit a comprehensive report of findings and recommendations to the District.

General Safety Requirements
Section 01000 – 6

The contractor shall arrange and be financially responsible for the independent investigation and any equipment or material inspections or tests, or diagnostic studies required by the District or contractor investigators. Further, Contractor's Report of Recordable Injury/Illness (See Exhibit "C") shall be completed and submitted to the District for each injured person.

- B. Nonserious accident/incidents will be reported immediately to the contractor's supervisor delegated authority to arrange for medical assistance and/or investigate the accident/incidents. Immediately following arrangements for required medical assistance, the responsible supervisor will investigate the accident/incident. Within three working days following the accident/incident, the contractor will submit to the District, a completed Contractor's Report of Recordable Injury/Illness (see Exhibit "C") for all personal injuries, and a comprehensive narrative report for property damage accidents.
- C. Potentially serious accident/incidents shall be reported immediately to the District. The contractor's involved equipment and/or worksite shall remain secured until the contractor has completed an acceptable comprehensive investigation. Within five days following the investigation, a detailed written investigation report will be submitted to the District.

1.13 MONTHLY ACCIDENT STATISTICAL REPORT

The contractor shall submit by the first day of each month a completed standard form entitled Contractor Monthly Summary of Occupational Injuries/Illnesses Experience (See Exhibit "D") or equivalent form acceptable to the District. Statistical cutoff dates can coincide with pay periods as long as the ending date of the current report is the beginning date of the following report.

1.14 HOUSEKEEPING

Good housekeeping, including provision and facilities for routine scrap removal, shall be maintained in all areas within the contractor's scope of operation.

1.15 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The Contractor shall supply a Material Safety Data Sheet (MSDS) for each chemical to be used in or during construction.

Handling, storage, use, and disposal of toxic materials of any nature shall be carried out in a manner so as not to contaminate or pollute water supplies, rivers, lakes, reservoirs, streams, or the atmosphere. Handling, storage, use and disposal of all such materials, including waste, garbage, and sewage, shall comply with Federal, State, and local regulations.

1.16 GENERAL

Intoxicating beverages and narcotics shall not be permitted or used on construction sites. Persons under the influence of alcohol or narcotics shall not be permitted on the site. Firearms shall not be permitted on the construction site without prior approval of the District.

1.17 CERTIFICATION

Design of major critical facilities, equipment, support structures, or systems, embankments, shoring systems, formwork (falsework) built or provided by the contractor for his use shall be certified as structurally suitable for the use intended under the specifications. This certification shall be made in writing by the manufacturer or a registered professional engineer competent in these fields and shall be submitted to the District prior to erection or use of such facilities, equipment or support systems.

1.18 EMWD LOCKOUT/TAGOUT PROCEDURE

The Contractor shall make himself familiar with the District's lockout/tagout procedure to isolate energy sources (mechanical, pneumatic, electrical, hydraulic, physical or chemical). The Contractor **MUST** coordinate through a qualified District representative (Inspector) a minimum of forty-eight (48) hours prior to requiring a lockout/tagout. The District Representative (Inspector) will arrange to have any energy source as described above locked out by an authorized employee in accordance with the District's procedure. In case there is any violation of the District's lockout/tagout procedure the Contractor will be directed to cease operations related to the unsafe condition, measure, procedure, equipment or device and will be issued a Notice of Unsafe Condition.

1.19 EXPERIENCE MODIFICATION RATING

The Contractor shall, prior to the Pre-Construction Safety Meeting, submit a current copy of the Experience Modification Rating for himself and any listed sub-contractor. This information will be reviewed at the Pre-Construction Safety Meeting.

1.20 WORKERS COMPENSATION RECORDS

The Contractor shall submit Workers Compensation Records for the past 2 years (Log and Summary of Occupational Injuries and Illnesses). This information will be reviewed at the Pre-Construction Safety Meeting.

1.21 CONFINED SPACE ENTRY REQUIREMENTS

When working in, or connecting to existing systems in operation, the required safety provisions for work in an operating system will be enforced, including provisions for working in confined air spaces. Contractor shall comply with EMWD's Confined space Entry Policy attached hereto (see Exhibit E).

END OF SECTION 01000

ATTACHMENTS

- [EXHIBIT “A” – \(EN-87\) NOTICE OF UNSAFE CONDITION](#)
- [EXHIBIT “B” – \(EN-84\) SPECIFIC OPERATING SAFETY PROCEDURE](#)
- [EXHIBIT “C” – \(EN-85\) REPORT OF INJURY](#)
- [EXHIBIT “D” – \(EN-89\) CONTRACTOR MONTHLY SUMMARY OF OCCUPATIONAL INJURIES/ILLNESSES EXPENSE](#)
- [EXHIBIT “E” – EMWD CONFINED SPACE ENTRY POLICY](#)

[PAGE LEFT INTENTIONALLY BLANK]

Exhibit "B"

| SPECIFIC OPERATING SAFETY PROCEDURE (INCLUDING HAZARD ANALYSIS) | | | |
|---|--|---------------------|----|
| PROJECT: | | SPEC. NO. | |
| SPECIFIC OPERATING PROCEDURE NO. | | | |
| OPERATION: | | PAGE | OF |
| GENERAL INSTRUCTIONS: | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| DATE: | | PERSONNEL REQUIRED: | |
| NOTE: SEE REVERSE SIDE FOR ADDITIONAL INFORMATION | | | |
| SAFETY EQUIPMENT AND APPAREL: | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| PROCEDURE DEVELOPED BY: | | APPROVED BY: | |

S.F. EN-84

| OPERATION SEQUENCE | ASSOCIATED HAZARD | EQUIPMENT, TOOLS OR FACILITIES | SPECIAL INSTRUCTIONS OR LIMITATIONS | REFERENCE |
|---------------------------|--------------------------|---------------------------------------|--|------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

1. **GENERAL:** Specific operating procedures (SOP) are designed as a planning tool. They are most effective when developed jointly by the supervisor and employees engaged in the specific activity and/or operation. They provide excellent reference material for toolbox meetings and for instructing new employees on respective assignments and responsibility.

Their effectiveness in reducing accidents and improving job performance is directly related to the efforts expended in their development and timely revision.

2. **ASSOCIATED HAZARDS:** For each job step, ask yourself what accidents could happen to the person doing the job step. You can get the answer by (1) observing the job, (2) discussing it with the operator, (3) recalling past accidents, or (4) a combination of the three. Ask yourself: can he be struck by or contacted by anything? can he strike against or come in contact with anything? can he be caught in, on, or between anything? can he fall? can he overexert? is he exposed to anything injurious, such as gas, radiation, welding rays, etc? (for example, acid, burns, fumes, dust).
3. **EQUIPMENT, TOOLS, AIDS, OR FACILITIES:** List type and number of tools and materials to be used, i.e., two jack hammers, one compressor, two 2" diameter hoses, 100 feet in length, etc.
4. **SPECIFIC INSTRUCTIONS OR LIMITATIONS:** For each potential accident or hazard, ask yourself how should the worker do the job step to avoid the potential accident, or what should he do or not do to avoid the accident. You can get your answers by (1) observing the job for leads, (2) discussing precautions with experienced job operators, (3) drawing on your experience, or (4) a combination of the three. Be sure to describe specifically the precautions a man must take. Don't leave out important details. Number each separate recommended precaution with the same number you gave the potential accident (see appropriate column) that the precaution seeks to avoid. Use simple do or don't statements to explain recommended precautions as if you were talking to the person.

For example: Only wirecore lifelines shall be used in highscaling operations. Block cable supported crane booms before removing section pins. Avoid such generalities as "Be careful," "Be alert," "Take caution," etc.

5. **REFERENCES:** Reference specific material i.e., a SOP on highscaling should reference "Safety Belts and Hardware," and "Lifelines," describe how to use a "Scaler's Hitch," etc.
6. **SAFETY EQUIPMENT AND APPAREL:** Specifically required safety equipment, devices, and apparel need to be listed, i.e., hard hat, eye and face protection, respirator protection, safety shoes, wearing apparel, hoist safety devices, air hose safety devices, etc.

[PAGE LEFT INTENTIONALLY BLANK]

SAMPLE OF PIPELINE SPECIFIC OPERATING SAFETY PROCEDURE

| | | | |
|---|-----------------|---------------------|----------------|
| SPECIFIC OPERATING SAFETY PROCEDURE (INCLUDING HAZARD ANALYSIS) | | | |
| PROJECT: | (Project Title) | SPEC. NO. | XXX |
| SPECIFIC OPERATING PROCEDURE NO. | | (Specify) | |
| OPERATION: | (Specify) | PAGE | OF |
| GENERAL INSTRUCTIONS: (Contractor's Name) will supervise and be responsible for preventing contact with raw Sewer or any other hazardous material and will also monitor and confirm minimum required trench slopes per OSHA Requirements. All soil types and trench slopes will be decided by our field foreman who is onsite competent person. | | | |
| DATE: | (Today's Date) | PERSONNEL REQUIRED: | (Specify Here) |
| NOTE: SEE REVERSE SIDE FOR ADDITIONAL INFORMATION | | | |
| SAFETY EQUIPMENT AND APPAREL: (Specify) | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| PROCEDURE DEVELOPED BY: | | ARRPROVED BY: | |
| (Signature) | | (Signature) | |

SAMPLE OF PIPELINE SPECIFIC OPERATING SAFETY PROCEDURE

| OPERATION SEQUENCE | ASSOCIATED HAZARD | EQUIPMENT, TOOLS OR FACILITIES | SPECIAL INSTRUCTIONS OR LIMITATIONS | REFERENCE |
|--|---|--|---|-----------|
| 1.Excavation,Pipe Installation, backfill & compact | Potential unstable existing soil conditions | Trenches will be sloped or shored per OSHA requirements | Hard hats must be utilized by all field personnel. Access ladders placed per OSHA requirements for access in and out of trenches. Trenches blocked and/or barricades as needed for public safety. | |
| 2. Mortaring & Bitchmastic Coatings | Possible skin contact | Safety Equipment to be utilized per requirements to meet field conditions. | MSDS will be available on site to review exposure effects and follow first aid instruction. | |
| 3. Traffic Control and lane closures | Public & Employee Safety | Arrow boards, Fencing, Traffic plates, proper construction signage. | Per requirements of OSHA and Cal-Trans traffic manual. Safety vests/orange shirts to be worn in all traffic areas. | |
| 4. Remove Concrete | Flying concrete debris during demolition | Hard Hats, safety goggles and dust mask. | Proper ventilation must be maintained during saw cutting existing concrete. | |
| 5. Hydrostatic Pressure Testing | High pressure testing equipment | Safety equipment to be utilized per requirements to meet field conditions. | MSDS will be available on site to review exposure effects and follow first aid instruction. | |

| OPERATION SEQUENCE | ASSOCIATED HAZARD | EQUIPMENT, TOOLS OR FACILITIES | SPECIAL INSTRUCTIONS OR LIMITATIONS | REFERENCE |
|-------------------------------|---|---|---|-----------|
| 6. Chlorination | Possible skin contact | Safety equipment to be utilized per requirements to meet field conditions. | MSDS will be available on site to review exposure effects and follow first aid instruction. Maintain adequate ventilation. | |
| 7. Asphalt Paving | Burns | Safety equipment to be utilized per requirements to meet field conditions. | MSDS will be available on site to review exposure effects and follow first aid instruction. Monitor all paving activities and implement safety requirement per field conditions for both employees and public safety. | |
| 8. Concrete repair | Possible skin contact & air borne concrete while chipping | Safety equipment to be utilized per requirements to meet field conditions. | MSDS will be on site to review exposure effects and follow first aid instruction. Maintain adequate ventilation. | |
| 9. Dust control & saw cutting | Vision Impaired | Hoses & cords kept to a minimum length. Wear dust masks and safety glasses. | MSDS will be available on site to review exposure effects and follow first aid instruction. Maintain adequate ventilation. | |
| 10. Cutting torches | Explosive/Gases/Fire | Fire Extinguisher | Fire watch/Laborer | |
| 11. Site Cleanness | Tripping | Keep tools organized and concentrated | End of work day pick up everything | |

S.F. EN-84

| OPERATION SEQUENCE | ASSOCIATED HAZARD | EQUIPMENT, TOOLS OR FACILITIES | SPECIAL INSTRUCTIONS OR LIMITATIONS | REFERENCE |
|---------------------------|--------------------------|---|---|------------------|
| 12. Emergency Vehicles | Getting to locations | Notify emergency services prior to construction | Instruct all employees on procedures for emergency traffic. | |

Exhibit "C"

REPORT OF INJURY

CONTRACTOR'S REPORT OF RECORDABLE INJURY/ILLNESS

Each work related fatality, injury/illness, first aid cases accepted, shall be reported on this form. The completed form will be submitted to the District within 3 working days from the date of the incident or onset of illness. Responsibility for completion and submission of this form for all onsite injury/illness to contractor, subcontractor, or supplier forces rests with the general contractor. All form terms are as defined on the reverse side.

| | | | |
|--|---|--|---|
| CONTRACT SPECIFICATION (Number and Title) | | DATE OF THIS REPORT | |
| EMPLOYER | | | |
| EMWD Resident Inspector | | | |
| INJURED EMPLOYEE'S NAME | | OCCUPATION | |
| AGE | DATE EMPLOYED | DATES OF PREVIOUS INJURIES | |
| DESCRIBE INJURY/ILLNESS | | | |
| | | | |
| | | | |
| DATE OF INJURY | TIME | ATTENDING PHYSICIAN | INJURY CLASSIFICATION |
| STARTED LOSING TIME (Never Date of Injury) | | DID INJURY RESULT IN DEATH OR PROBABLY PERMANENT DISABILITY? | |
| RETURN TO WORK (Date)* | | DATE OF DEATH | |
| WORKDAYS LOST TIME* | | DAYS OF RESTRICTED WORK OR TRANSFER TO OTHER JOB | |
| * Estimate date of return to full duty to avoid delay in submitting report (See reverse side for estimating instructions). | | | |
| DESCRIBE ACCIDENT (Include Who, What, Where, & How) | | | |
| | | | |
| | | | |
| SUPERVISORY OPINION | HOW COULD ACCIDENT HAVE BEEN PREVENTED? | | |
| | | | |
| | | | |
| | | | (Signature) FOREMAN OR IMMEDIATE SUPERVISOR |

NOTE: Information in this report is to be used for the prevention of accidents and is not intended as a basis for injury claims. Recordable injuries/illnesses and workdays lost and injury classification shall be as defined on reverse side of this form. **Information in this report shall also be recorded on CAL-OSHA form 200.**

[PAGE LEFT INTENTIONALLY BLANK]

DEFINITION OF TERMS

Work-related Injury/Illness: All injuries/illnesses to contractor, subcontractor, or supplier employees that result from an event or exposure on any contractor controlled worksite associated with the respective contract.

Medical Cases: Injuries/illnesses are defined as medical cases if: (1) they can be treated only by a physician or licensed medical personnel, (2) they result in damage or harm to physical structure of a nonsuperficial nature (e.g., hairline fractures), (3) they impair bodily functions (i.e., normal use of senses, limbs, etc.), (4) they involve complications requiring follow-up medical treatment.

The following are generally considered medical treatment:

- Treatment of **INFECTION**
- Application of **ANTISEPTICS** during second or subsequent visits to medical personnel
- Treatment of **SECOND OR THIRD DEGREE BURN(S)**
- Application of **BUTTERFLY ADHESIVE DRESSING(S)** or **STERISTRIPS** in lieu of sutures
- Application of **SUTURES** (stitches)
- Removal of **FOREIGN BODIES EMBEDDED IN EYE**
- Removal of **FOREIGN BODIES** from wound; if procedure is **COMPLICATED** because of depth of embedment, size, or location
- Use of **PRESCRIPTION MEDICATIONS** (except a single dose administered on first visit for minor injury or discomfort)
- Use of hot or cold **SOAKING THERAPY** during second or subsequent visit to medical personnel
- Application of hot or cold **COMPRESS(ES)** during second or subsequent visit to medical personnel
- **CUTTING AWAY DEAD SKIN** (surgical debridement)
- Application of **HEAT THERAPY** during second or subsequent visit of medical personnel
- Use of **WHIRLPOOL BATH THERAPY** during second or subsequent visit of medical personnel
- **POSITIVE X-RAY DIAGNOSIS** (fractures, broken bones, etc.)

ADMISSION TO A HOSPITAL or equivalent medical facility for treatment or prolonged observation

First Aid Cases: Cases (1) limited to one-time treatment and subsequent observation and (2)

involve treatment of only minor injuries, not emergency treatment of serious injuries. Further, any one-time treatment and follow up visit for the sole purpose of observation of minor scratches, cuts, burns, splinters and so forth which do not ordinarily require medical care are classified as first aid treatment. Such one-time treatment and follow up visit for the purpose of observation is considered first aid even though provided by a physician or registered professional personnel. Visits to a doctor for an examination or other diagnostic procedure to determine whether the employee has an injury is classified as a first aid case if no injury is discovered or medical treatment is rendered. Conversely, if treatment is described and medical care is provided even by someone other than a physician or registered medical personnel, injury is classified as medical. Other examples of first aid cases not requiring reporting unless they result in loss of consciousness, restriction of work, or motion, or transfer to another job are:

- Application of **ANTISEPTICS** during first visit to medical personnel
- Treatment of **FIRST DEGREE BURN(S)**
- Application of **BANDAGE(S)** during first visit to medical personnel
- Use of **ELASTIC BANDAGES** during first visit to medical personnel
- Removal of **FOREIGN BODIES NOT EMBEDDED IN EYE** if only irrigation is required
- Removal of **FOREIGN BODIES** from wound, if procedure is **UNCOMPLICATED**, and is, for example, by tweezers or other simple technique
- Use of **NONPRESCRIPTION MEDICATIONS AND** administration of single dose of **PRESCRIPTION MEDICATION** on first visit for minor injury or discomfort
- **SOAKING THERAPY ON INITIAL VISIT** to medical personnel or removal of bandages by **SOAKING**
- Application of hot or cold **COMPRESS(ES)** during first visit to medical personnel
- Application of **OINTMENTS** to abrasions to prevent drying or cracking
- Application of **HEAT THERAPY** during first visit to medical personnel
- Use of **WHIRLPOOL BATH THERAPY** during first visit to medical personnel
- **NEGATIVE X-RAY DIAGNOSIS**
- **BRIEF OBSERVATION** of injury during visit to medical personnel

S.F. EN-85

Note: The administration of a **TETANUS SHOT** or **BOOSTER**, by itself, is not considered medical treatment. However, these shot are often given in conjunction with the more serious injuries. Therefore, injuries requiring tetanus shots may be reportable for other reasons.

Illness Cases: Occupational illness of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases which may be caused by inhalation, absorption, ingestion, or direct contact.

Some conditions may be classified as either an injury or illness (but not both), depending upon the nature of the event that produced the condition. For example, a loss of hearing resulting from an explosion (an instantaneous event) is classified as an injury; the same condition arising from exposure to industrial noise over a period of time would be classified as an occupational illness. Similarly, irritation of the throat from exposure to chlorine fumes would be classified as an injury if it resulted from a ruptured tank and an illness if the exposure occurred over a period of time. The determination of illness or injury is based on the original event. Adverse reaction to a tetanus shot given for a laceration would be classified as an injury. Back cases should always be recorded as an injury. It should be noted that all occupational illnesses are reportable and recordable incidents regardless of the type of treatment provided.

Fatalities: Work-related fatalities are reportable and recordable regardless of the time between the injury and the death or the length of the illness. Lost workdays attributable to the incident are not counted and any charged should be removed from the record.

Lost Workdays: Lost workdays are defined as the number of workdays (consecutive or not), beyond the day of injury or onset of illness, the employee was away from work or limited to restricted work activity. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked even though able to work, e.g., vacation days, days off, or holidays are not counted. Termination of employment may stop the count of lost workdays if unrelated to the employee's injury or illness. If termination is related to injury/illness, an estimate of actual workdays lost shall be made. Retirements unrelated to injury or illness stop the count of lost workdays. Otherwise days lost are estimated. Lost

workday counts cease when injury or illness is determined as totally disabling. Lost workday count stops when position employee was in when injured is abolished due to work completion, e.g., a dozer operator lost workdays count would not continue beyond last day of dozer operations on the project even if the operator still could not perform the operator functions.

Restricted work: The number of workdays on which because of injury or illness: (1) the employee was assigned to another job on a temporary basis; or (2) the employee worked at a permanent job less than full time; Or (3) the employee worked at a permanently assigned job but could not perform all duties normally connected with it. Lost workday count stops when employee is permanently transferred to another permanently established position.

Contractor Controlled Worksite Associated with the Contract. The following and similar locations are considered contractor controlled worksites:

All areas within the boundaries of the construction site including shops, plants, storage areas, haul roads, borrow and fill areas.

All offsite locations (plants, shops, rock quarries, borrow areas, erection sites, etc.) used exclusively for supporting construction activities. All roads where traffic control is a contractor responsibility.

[PAGE LEFT INTENTIONALLY BLANK]

- Column 1. Name of General Contractor and General Specification No. only. Combine all subcontractor and/or supplier data under respective headings. Cumulative totals start from first day of onsite work under the specification.
- Column 2. Major classification or type of work for contractor (Water pipeline, sewer pipeline, pump station, treatment plant, lift station, etc.). Minor classification for supplier or subcontractor (concrete work, earthwork, repair work, etc.).
- Column 3. Average number of employees during reporting period. Include only onsite personnel. Number of subcontractor or supplier employees can be estimated by dividing number of estimated man-hours by 8 x number days of reporting period.

$$\frac{\text{(Number of man-hours)}}{\text{(8 x number days of reporting period)}}$$

- Column 4. Actual man-hours of onsite exposure. Do not include vacation time, holidays, down periods, etc.
- Column 5. Lost workdays include actual days from work, restricted work days and days worked in another assigned position. (For detailed explanation of lost workdays and restricted work, see back of Exhibit "C").
- Column 6. Total of fatalities, lost workday cases, restricted work cases or transfer to other job cases, and medical cases reported on all forms "Contractor's Report of Recordable Injury/Illness," submitted during the reporting period covered by this form.
- Column 7. Fatalities are charged to date of injury or onset of illness regardless of date of death.
- Column 8. Includes all cases submitted during this reporting period of form "Contractors Report of Recordable Injury/Illness," that show figures under headings entitled, "lost time, or restricted work or transfer to other job." (see back of Exhibit "C").
- Columns 9, 10, 11 Incident rates are define as the number of injuries/illnesses or lost workdays related to a common exposure base-100 full-time workers or 200,000 man-hours (100 workmen x 40 hrs/week x 50 weeks/year = 200,000). These rates are calculated as follows:

$$\text{Total Cases (column 9)} = \frac{\text{Total cases (column 6) x 200,000}}{\text{Man-hours of Exposure (column 4)}}$$

$$\text{Death and lost workday cases (column 10)} = \frac{\text{Deaths (column 7) and lost workday cases (column 8) x 200,000}}{\text{Man-hours of Exposure (column 4)}}$$

$$\text{Lost workdays} = \frac{\text{Lost workdays (column 5) x 200,000}}{\text{Man workdays of exposure (column 4)}}$$

[PAGE LEFT INTENTIONALLY BLANK]

EXHIBIT E
**EMWD CONFINED SPACE ENTRY
POLICY**



Eastern Municipal Water District
2270 Trumble Road
P.O. Box 8300
Perris, CA 92572-8300

Revision: June 2009

[PAGE LEFT INTENTIONALLY BLANK]

**EASTERN MUNICIPAL WATER DISTRICT
HUMAN RESOURCE MANAGEMENT**

POLICIES AND PROCEDURES

| | | |
|-------------------------|-----------------------------------|---|
| SECTION: | DATE: 07/01/08 | PREPARED BY: Rick West |
| PAGE: 1 of 30 | REVISION DATE: 06/12/09 | APPROVED BY: EMWD Safety / Risk Management |

TABLE OF CONTENTS

CONFINED SPACE PROGRAM OVERVIEW

- Purpose
- Scope and Application
- Definitions
- Program Requirements

CONFINED SPACE PRE-ENTRY PROCEDURE

- Purpose
- Pre-entry Instructions

PERMIT-REQUIRED CONFINED SPACE ENTRY PROCEDURE

- Purpose
- Entry Instructions
- Safe Entry into the Permit Space
- Removal of Unauthorized Entrants
- Duties
- Atmospheric Monitoring Equipment
- Ventilation Requirements
- Safety Equipment

APPENDIX A

- Checklist of Requirements for Entry, Working in and Exiting Confined Spaces

APPENDIX B

- Confined Space Evaluation Form and Determination Guideline

APPENDIX C

- Confined Space Permit

APPENDIX D

- Record of Gas Analysis

APPENDIX E

- Riverside County Fire Department Facilities with Confined Space Rescue Equipment

[PAGE LEFT INTENTIONALLY BLANK]

CONFINED SPACE PROGRAM OVERVIEW

1.0 PURPOSE

To establish a safe working procedure for District employees that meets or exceeds federal, state, or local rules and regulations. This program was developed in accordance to Cal\OSHA VPP Best Practices philosophy.

This Program is based on the regulatory requirements of the California Occupational Safety and Health Administration Title 8 California Code of Regulations (CCR) Article 108, Confined Space. The focus is to protect workers from exposure to hazards in confined spaces.

This policy shall be reviewed annually by the EMWD Safety Management Department.

NOTE: This EMWD policy meets and exceeds the requirements of Title 8 General Industry Safety Orders (GISO) and those of Title 8 Construction Safety Orders regarding Confined Spaces.

2.0 SCOPE AND APPLICATION

2.1 This policy contains specific requirements for practices and procedures to protect employees from those hazards of entry into and work within a confined space. This policy establishes that all confined spaces must be evaluated to determine whether it is permit or non-permit required prior to every entry.

3.0 DEFINITIONS

ATTENDANT

An individual stationed outside the confined space who is trained as required by this policy and who monitors the authorized entrants inside the permit required confined space. An attendant may monitor not more entrants nor more permit spaces than the entry permit specifically authorizes.

AUTHORIZED ENTRANT

An employee who is authorized by the District to enter a confined space to perform an assigned task. Authorized entrants may rotate duties, serving as attendants. Only trained persons may enter the confined space during the term of the permit.

BLANKING OR BLINDING

The absolute closure of a pipe, line or duct, by fastening across its bore a solid plate or "cap" which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached; and which is capable of withstanding the maximum upstream pressure.

BUMP TEST

Testing an atmospheric monitoring device with a known concentration of gases that the monitor is intended to test. The test is used to verify that the monitor is within calibration parameters.

CALIBRATION

A manual or electronic adjustment of an atmospheric monitoring device that does not pass the testing parameter requirements of the manufacturer.

CONFINED SPACE

A location must have all three of the following definitions to be a "Confined Space".

1. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
2. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
3. Is not designed for continuous employee occupancy.

DOUBLE BLOCK AND BLEED

The closure of a line, duct or pipe by locking and tagging a drain or vent which is open to the atmosphere in the line between two locked-closed valves.

EMERGENCY

Any occurrence, including a failure of monitoring device or hazard control, internal or external to the confined space, which could endanger the entrant or other employees.

ENGULFMENT

The surrounding and effective capture of a person by a liquid or finely divided solid substance.

ENTRY

An act by which a person intentionally passes through an opening into a confined space. The entrant is considered to have entered as soon as any part of the entrant's body breaks the plane of an opening into the space.

ENTRY PERMIT

A document established by the District, the content of which is based on the District's hazard identification and evaluation for a confined space and is the instrument by which the District can verify that all precautions have been met prior to entry

ENTRY PERMIT SYSTEM

The written or printed document established by EMWD. The permit will be signed by the Entry Supervisor and posted at the entrance to the confined space.

The entry permit will include the name of the Attendant, the authorized Entrants, the work to be performed, the tools and equipment being taken into the confined space, the specific types of personal protective equipment to be used by the Entrants, air monitoring readings, the date of entry, time of entry, time the permit is canceled and time the permit is scheduled to be canceled. Other information that the Attendant and/or Entry Supervisor deems to be necessary will be written on the permit.

ENTRY SUPERVISOR

An appropriately trained employee who has been assigned the responsibility of insuring a safe confined space entry. An entry supervisor shall not enter the confined space as an entrant to perform work.

EVACUATION

An unaided emergency exit out of a confined space. This action may result from the entrant's own decision or by a command from outside the space by the attendant.

FALL ARREST/RESCUE DEVICE

A winch type device that will quickly arrest an employee's fall and absorb much of the free fall energy. The fallen employee may then be winched to safety using the hand crank system of the device. The cable from this device will attach to the safety harness. The type(s) of fall protection equipment, including personnel winches, will be determined by the attendant and Entry Supervisor. The entrants will use the fall protection equipment when there is an exposure of a worker falling during entry or while exiting the confined space.

HAZARDOUS ATMOSPHERE

An atmosphere which exposes employees to a risk of death, incapacitation, injury or acute illness from one or more of the following causes:

- A flammable gas, vapor, or mist excess of ten percent of its lower explosive limit (LEL);
- An airborne combustible dust at a concentration that obscures vision at a distance of five feet (1.52m) or less.

- An atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- Carbon Monoxide in excess of 25 PPM;
- An atmospheric concentration of any substance for which a permissible exposure limit is published in subpart Z of 29 CFR Part 1910 or Title 8, Section 5155 and could result in employee exposure in excess of its permissible limit(s). When an air contaminant for which OSHA or CAL-OSHA has not determined a permissible exposure limit which may be present in the permit space atmosphere, the District shall consult other sources of information, such as Material Safety Data Sheets which comply with the Hazard Communication Standard Title 8, Section 5192 for guidance in establishing the acceptable environmental conditions for entry by their employees.
- Any atmospheric condition recognized as immediately dangerous to life or health.

HOT WORK PERMIT

The District's written authorization to perform operations which could provide a source of ignition, such as riveting, welding, cutting, burning or heating.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH

Immediately dangerous to life or health (IDLH) means any condition which poses an immediate threat of loss of life; may result in irreversible injury immediate-severe health effects; may result in eye damage; irritation or other conditions which could impair escape from the permit space.

IMMEDIATE-SEVERE HEALTH EFFECTS

Any acute clinical sign(s) of a serious, exposure-related reaction manifested within 72 hours after exposure.

NON-ENTRY CONDITION

Any condition or set of conditions whose hazard potential exceeds the limits stated in the entry permit.

NON-ENTRY RESCUE TEAM

A group of two or more employees designated and trained to perform non-entry rescues at confined spaces within the District.

NON-PERMIT CONFINED SPACE (NPCS)

A confined space that does not contain or, with respect to atmospheric hazards, would not normally contain any hazard capable of causing death or physical harm, and where all other serious hazards have been controlled.

Before declaring a confined space a NPCS, the confined space is to be treated as a Permit Required Confined Space, including testing of the atmosphere in the confined space.

OXYGEN DEFICIENT ATMOSPHERE

An atmosphere containing less than 19.5 percent oxygen by volume.

OXYGEN ENRICHED ATMOSPHERE

An atmosphere containing more than 23.5 percent oxygen by volume.

PERMISSIBLE EXPOSURE LIMIT (PEL)

PEL's are the allowable air contaminant level established by the U. S. Department of Labor, Occupational Safety and Health Administration; and the Cal/OSHA regulations.

PERMIT REQUIRED CONFINED SPACE (PRCS)

A confined space which must include one or more of the following conditions:

- Contains or has a known potential to contain a hazardous atmosphere.
- Contains a material with the potential for engulfment of an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls, or a floor, which slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard.

RETRIEVAL

Aided assistance in exiting the confined space not requiring entry.

RETRIEVAL LINE

An approved line or rope secured at one end of the worker by a full-body harness, and with its other end secured to either a lifting (or other retrieval) device, or to an anchor point located outside the entry portal.

SAFETY LINE

A line secured at one end of the worker by a full-body harness with the other end secured to a “fall arrest” device. The main function is to prevent injury in the event of a fall.

SHALL

Denotes a mandatory requirement.

SHOULD

A recommendation that is a sound safety and health practice; it does not denote a mandatory requirement.

SUPERVISOR

An individual who has the job title as an EMWD Manager or Supervisor. Or, an individual who is assigned to work with the Attendant during a confined space entry and has the authority to authorize a confined space entry or terminate a confined space entry.

THRESHOLD LIMIT VALUES (TLV)

TLV's are the recommended worker exposure levels of chemical and physical agents that are recommended by the American Conference of Governmental Industrial Hygienists (ACGIH). The TLV's are based on an 8 hour Time Weight Average (TWA).

TOXIC ATMOSPHERE

An atmosphere containing a concentration of a substance above the published or otherwise known safe levels.

VERTICAL RESCUE

Methodology to move the entrant to safety while all or a portion of the entrant's weight is supported by life-safety rope or wire. This methodology would include Diagonal Rescue where a portion of the entrant's weight is supported by a surface within the space.

WARNING BARRIERS

A physical system that prevents or provides adequate notice that entry into area is prohibited by non-authorized employees or members of the public. Acceptable barriers include cones, saw horses, delineators, temporary fencing, etc.

4.0 PROGRAM REQUIREMENTS

4.1 PRE-ENTRY EVALUATION TO DETERMINE CONFINED SPACE STATUS

Entry Supervisor shall evaluate permanent substructures and openings that meet confined space criteria, and identify and record the potential hazards associated with each one prior to all entry operations. This information will be made available to affected employees, their representatives and supervisors. Please see Appendix B for the Confined Space Evaluation Form.

4.2 HAZARDS IDENTIFICATION AND BASIC REQUIREMENTS

The District has established an entry permit program to ensure that entrants are protected from confined space hazards. Under the entry permit program, each department that issues entry permits shall:

- Hazard Identification
Identify and evaluate each hazard of the permit space(s), including determination of severity.
- Hazard Control
Implement the means, procedures and practices by which the confined spaces can be entered safely according to this policy.
- Employee Training
Ensure that employees attend required training prior to performing confined space entries.
- Equipment
Provide, maintain, and ensure the proper use of the equipment necessary for safe entry, including testing, monitoring, communication and personnel protective equipment.
- Non-Entry Rescue
Ensure that the procedures and equipment necessary to perform non-entry rescues from confined spaces are implemented and provided.
- Protection From External Hazards
Ensure that all pedestrians, vehicles or other barriers necessary to protect entrants from external hazards are provided.

4.3 PERMIT SYSTEM

The District shall prepare a permit(s) in a standardized form through which the user department identifies all conditions that must be evaluated to ensure safe entry into any confined space. Departments who authorize entry into a permit space shall include the following information on the checklist portion of the permit:

- Hazards of permit space.
- Measures for isolation, lock-out/block-out, purging, blocking or blinding, inerting, ventilating and flushing to remove or control hazards.
- Maintenance of acceptable environmental conditions by the person in charge of entry through verifying testing and monitoring equipment and procedures.

- Non-Entry Rescue equipment to be provided on-site which includes: communication procedures and equipment, and personnel protective equipment such as harness', safety lines and retrieval line.
- The identity of permit space, location, purpose and date of entry and duration.
- A list of authorized entrant, eligible attendants, and individuals eligible to be in charge of entry along with in entry supervisor's signature, verifying that all actions or condition for safe entry have been met.
- Upon completion of the entry covered by the permit, and after all entrants have exited, the permit space and all work has been performed, the permit shall be canceled.
- All hot work will require a pre-job with Safety and Risk Management before an entry permit is issued.

4.4 DEPARTMENT REQUIRMENTS

- Each affected Department shall be required to become familiar with this policy and ensure all aspects of the policy are implemented and followed by their employees. The following items are found in the District's policy and should be implemented by the individual departments to fit each specific application.
- Evaluation of each facility within the department's jurisdiction for the purpose of establishing its confined space designation prior to every entry.
- Document each pre-entry evaluation. Documentation should include a site description, location, configuration, initial gas detector readings, and initial classification. (i.e., permit required or non-permit required confined space). Please see Appendix B for the Pre-Entry Confined Space Evaluation Form.
- Prepare site/type specific confined space entry and rescue procedures for each type of confined space without regard to confined space classification.
- Ensure that each employee required to work within the policy is thoroughly trained as required.

4.5 ENTERING AND INSPECTION OF CONFINED SPACES

These precautions must be reviewed by employees working in confined spaces to ensure safe entry.

- Always test atmosphere with gas detector prior to opening or removing access cover. Refer to **CONFINED SPACE PRE-ENTRY PROCEDURE section 2.2** for instruction.
- Use appropriate tools or hoist when removing access covers to confined spaces.
- Access covers are heavy, awkward, and of different shapes.
- Prevent injuries by following written procedures.
- Eye protection would be required of all employees exposed to flying debris.

- Always clean sand and dirt from the edge of access cover rim.
- Before entering a confined space, always visually inspect the condition of the steps or rungs.
- Set up tripod.
- Enter the confined space slowly and cautiously.
- Test each step or rung with a gradual application of weight.
- Do not carry tools or other objects when entering or exiting a confined space.
- Always be careful not to look up.
- Never drop tools and supplies into a confined space. Pass by hand if possible or tie object to a hand line or place in a bucket. Use half hitches to prevent objects from falling from bucket.
- Never clutter access area to prevent objects from falling, bouncing, being pushed, or dragged into opening.

4.6 CONTRACTORS ENTRY INTO CONFINED SPACES

When contractor employees (not under the District's direct supervision) enter PRCS, ensure the following:

- Inform the contractor that the workplace contains confined spaces and that confined space entry must be in compliance with EMWD Confined space Entry Policy.
- Apprise the contractor of the elements of the confined space, including the known hazards and any experiences with the space.
- Coordinate entry operations with the contractor, when both District personnel and contractor personnel will be working in or near a confined space (the contractor shall have procedures for coordinating such entry operations, to prevent endangerment of the employees of any other employer);
- Debrief the contractor at the conclusion of the entry operations regarding any hazards confronted or created in the confined space during entry operations.

4.7 RECORDKEEPING

- A written record must be made of the results of each atmospheric test performed. Utilize Appendix D.
- Pre-Entry Confined Space Evaluation form shall be kept at the site for the duration of the work, and made accessible to affected employees and their representatives.
- A copy of the Confined Spaces Entry Permit must be posted on the job during confined space operations.
- The above documentation must be kept on file by respective departments for a minimum of three years.

4.8

TRAINING

- Employees who enter into or work inside a confined space (including both the initial entrants and standby employees) must receive training in the appropriate procedures and requirements described in this program. No person shall enter a confined space unless trained and qualified to do so.

- Supervisors shall also be trained in the following:
 - The possible toxics, flammable conditions, and oxygen deficiencies in potential confined spaces into which personnel must enter
 - Be knowledgeable of the type of operations employees will be performing in a confined space and of their impact on air quality, flammability, and/or availability of oxygen, and ensure that employees take appropriate precautions;
 - Provide appropriate approved equipment;
 - Ensure necessary forms are available to record the confined space activities; review completed records; ensure the records are filed; and provide affected employees and/or their representatives access to review them and record testing results.

4.9 JOINT USE FACILITIES

Prior to entry by District personnel into confined spaces, such as manholes which may be jointly owned or shared with another entity, the entry supervisor shall coordinate entry operations with other affected users or owners so that employees or operations of one employer do not endanger other employer's personnel.

CONFINED SPACE PRE-ENTRY PROCEDURE

1.0 PURPOSE

This Procedure establishes steps to identify and evaluate potential hazards prior to entry into any of the categories of confined spaces.

Note: Additional guidelines regarding PRCS entry are contained in the section titled Permit-Required Confined Space Entry Procedure.

2.0 PRE-ENTRY INSTRUCTIONS

When operations are to be conducted in a PRCS, or when operations that may impact air quality (such as welding, spray coating, abrasive blasting or use of solvents) are to be conducted, then safe entry conditions, hazard control, and personal protective equipment must be considered during the planning phase of such operations.

NOTE: *Supervisors may contact Risk Management during the planning phase of such operations to provide guidance on safe entry conditions, hazard control, and personal protective equipment.*

2.1 Supervisor Review

Before the start of work the supervisor must:

- Review the work assignment with employees, indicating any potential hazards involving the confined space(s).
- Describe the scope of work, equipment and materials needed, and any operating instructions required to complete the job. Identify any potential health and physical hazards or conditions, such as the history of spills, fall hazard, the use of solvents, welding operations or flooding within the work area, and methods to control those hazards.
- Coordinate confined space entry activities with other employers, such as contractors or sub-contractors so that no employees of any employer will be endangered during confined space operations.

NOTE: Examples of methods to control hazards are lockout and blockout points, clearance points, fall protection or ventilation.

2.2 Employee Review

The employee is responsible for:

- Understanding the nature of all potential hazards that will be reviewed at this time. If anything is not clearly understood, the employee should ask questions.
- Inspecting the safety equipment for confined space entry to ensure that it is in operational condition.
- Ensure that the atmospheric monitoring instruments (e.g., carbon monoxide, hydrogen sulfide, chlorine) are maintained in an operational status. Instruments shall be tested / calibrated according to the manufacturer's specifications.

- When the space is located such that work may encroach upon a public street or highway, establish a safe work area by erecting barricades, cones, warning signs and wearing appropriate reflective clothing.
- The communication system between the Attendant and the facility and between the Attendant and the authorized Entrants must be checked prior to entry.
- Energy sources (except for those necessary to perform the work at hand) that could present a hazard to those in a confined space shall be locked out and blocked out in accordance with the EMWD Lockout/Blockout Procedure. Additionally, the space shall be isolated to prevent dangerous gases or chemical substances from entering the confined space.
- All non-permit required, and permit-required confined spaces shall be considered unsuitable to support life until proven safe by atmospheric testing.

2.2 Atmospheric Testing

- Prior to any confined space entry, the atmosphere shall be tested with an appropriate, tested /calibrated direct reading instrument, for the following conditions in the order given:
 - Oxygen content;
 - Flammable gases & vapors;
 - Potential toxic air contaminants
- Test Atmosphere from Top to Bottom of Space:
 - Testing of the confirmed or potential confined spaces shall be conducted throughout the entire portion of the space to be occupied.
- Testing of Manholes
 - Prior to opening the manhole cover, insert the probe into the hole (if available) in the cover, and draw a sample of the atmosphere into the meter, allowing sufficient time to obtain a representative sample.
 - If the cover has no hole, crack open the cover only enough to insert a non-sparking item, such as a piece of wood or brass, then insert the probe.
 - If atmospheric conditions are acceptable, then remove the cover.

2.4 Guarding the Opening

When covers are removed, a railing, temporary cover, or temporary barrier that will prevent an accidental fall through the opening and protect each employee working in the space from foreign objects entering the space shall guard the opening.

2.5 Sampling

- For testing, insert the probe into the top of the confirmed, potential or non-permit confined space, and draw a sample of the atmosphere into the meter allowing sufficient time to obtain a representative sample. Sample collection procedures shall follow the manufacturers recommended procedure.

- When monitoring for entries involving a descent into atmospheres which may be stratified, the atmospheric envelope should be tested a distance of approximately four (4) feet in the direction of travel and to each side.
- If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.

2.6 Acceptable Atmosphere

If testing indicates an acceptable atmosphere, continuous ventilation is required prior to, and during any entry. Be sure to place the blower where fresh uncontaminated air is drawn into the structure. The ventilation shall remain in operation during the complete entry.

2.7 Unacceptable Atmosphere

If, after any needed ventilation, testing continues to indicate atmospheric contaminants outside of acceptable entry levels, the space shall not be entered. Refer to Permit Required Confined Space Entry Procedure section for additional information.

2.8 Safe Entry Into A Confined Space

If test results do not indicate an atmospheric hazard, the space can be entered, provided the following instructions are followed:

- Monitor the atmosphere periodically at fifteen minute intervals to ensure that no hazardous atmosphere exists and record the results; see appendix D
- Continuously ventilate;
- Lockout and isolate any equipment, pipes or lines located within the space (except for those necessary to perform the work at hand) which are not accessible before entry;

2.9 Safe Work in the Confined Space

The attendant will notify the entrant to exit the space when:

- The attendant recognizes any warning sign or symptom of exposure to a dangerous situation.
- The attendant detects a prohibited condition.
- An order to evacuate is given by the Attendant or the Entry Supervisor;
- An evacuation alarm is activated.
- The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
- The Entrant detects a prohibited condition.
- The Attendant detects a situation outside the space that could endanger the authorized Entrants

All entrants will exit from the permit space as quickly as possible whenever ordered to do so.

PERMIT-REQUIRED CONFINED SPACE ENTRY PROCEDURE

1.0 PURPOSE

This Policy establishes steps to evaluate identify and control potential hazards before and during an entry into a Permit Required Confined Space (PRCS). All requirements of this policy must be complied with to insure a safe confined space operation. This policy complies with the requirements of Title 8, Article 108, Confined Space.

NOTE: This EMWD policy meets and exceeds the requirements of Title 8 General Industry Safety Orders (GISO) and those of Title 8 Construction Safety Orders regarding Confined Spaces.

2.0 ENTRY INSTRUCTIONS

- When operations are to be conducted which may impact air quality (such as welding, spray coating, abrasive blasting or use of solvents) additional precautions are to be taken. Consideration should be given to safe entry conditions, hazard control and personal protective equipment during the planning phase of such operations.
- Prior to any entry into a PRCS, the entry supervisor shall assure that all provisions of a Confined Space Entry Permit (Appendix C) have been completed and the following specific provisions have been met:
 - *Supervisor Review of Hazards*
 - *Equipment Inspection*
 - *Instrument Calibration*
 - *Work Area Preparation*
 - *Lockout and Isolation*
 - *Atmospheric Testing*
 - *Ventilation*
 - Check List of Requirements" Appendix A

NOTE: *The supervisor of the employees may be the entry supervisor, or the responsibility of the entry supervisor may be delegated.*

- Assemble and test the retrieval equipment before entry into a PRCS.
- The *entry supervisor* is to check that the appropriate entries have been made on the Permit, and that the Permit specified tests have been conducted and the specified procedures and equipment are in place before endorsing the Permit and allowing entry to begin.
- When the Permit is signed, the authorized entrant(s) may enter(s) the PRCS.
 - NOTE:** Following the information specified in the Entry Permit, the attendant continuously maintains an accurate count of authorized entrants in the confined space.

- If the PRCS poses no actual or potential atmospheric hazards and if all serious safety and health hazards within the space are eliminated without entry into the space, the Permit Required Confined Space (PRCS) may be re-classified as a Non-Permit Confined Space (NPCS) for as long as the hazards remain eliminated.

NOTE: Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards. For example, carbon monoxide may still be generated in a space while being controlled by ventilation.

- The entry supervisor shall document the basis for determining that all hazards in a permit space have been eliminated, through a certification on the permit that contains the date, the location of the space, and the signature of the person making the determination. The permit will then remain posted for the duration of the entry.
- If hazards arise within a PRCS that has been re-classified as a NPCS, each employee in the space shall exit the space. The entry supervisor shall then re-classify the entry as a PRCS and a new permit will be required.

3.0 SAFE ENTRY INTO THE PERMIT SPACE

The types of permit spaces generally encountered in the District, include but are not limited too, sewer manholes, sewer lines, stilling wells, junction structures, valve vaults, meter vaults, pumping plant wet wells, vats, pits and various types of storage tanks.

- If test results do not indicate an atmospheric hazard, the space can be entered, provided the following instructions are followed:
Monitor the atmosphere continuously to ensure that no hazardous atmosphere exists; see section 6
 - Continuously ventilate; see section 7;
 - Lockout and isolate any equipment, pipes, or lines located within the space (except for that necessary to perform the work at hand) which are not accessible before entry.
- The Attendant communicates with authorized Entrants as necessary to monitor Entrant status and to alert Entrants of the need to evacuate the space.
- The Attendant monitors activities inside and outside the space to determine if it is safe for Entrants to remain in the space.
- The Attendant orders the authorized Entrants to evacuate the permit space immediately under any of the following conditions:
 - If the Attendant detects a prohibited condition;
 - If the Attendant detects the behavioral effects of hazard exposure in an authorized Entrant;

- If the Attendant detects a situation outside the space that could endanger the authorized Entrants;
 - If the attendant cannot effectively and safely perform all the duties required under Section 5.0 DUTIES.
- The entrant will alert the attendant whenever:
 - The Entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The Entrant detects a prohibited condition.
- All Entrants will exit from the permit space as quickly as possible whenever:
 - An order to evacuate is given by the Attendant or the Entry Supervisor.
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition.
 - An evacuation alarm is activated.
- The attendant will summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- The entry supervisor verifies, before operations commence, that rescue services are available and that the means for summoning them are operable.
- The attendant performs non-entry rescues as determined during pre-job planning.

4.0 REMOVAL OF UNAUTHORIZED ENTRANTS

- The attendant takes the following actions when unauthorized persons approach or enters a permit space while entry is underway:
 - Warn the unauthorized persons that they must stay away from the permit space;
 - Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and,
 - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
 - Remove authorized entrant from confined space if attendant cannot maintain communications.
- The entry supervisor removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- The entry supervisor has the authority to cancel the entry and cancel the permit.

- The entry supervisor determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

5.0 DUTIES

5.1 DUTIES OF THE AUTHORIZED ENTRANTS

The authorized entrants are required to:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- Properly inspect and use equipment as required by the permit.
- Follow responsibilities identified in entry instructions.
- Maintain communications with the attendant.
- Alert the attendant whenever:
 - A. The entrant recognizes any warning sign or symptom of exposure.
 - B. A prohibited condition is detected.
 - C. Exits the permit space whenever:
 - D. An order to evacuate is given by the attendant.
 - E. Recognition of a warning sign or symptom of exposure.
 - F. A prohibited condition is detected.
 - G. An alarm is activated.

5.2 DUTIES OF ATTENDANTS:

The attendants are required to:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Be aware of possible behavioral effects of hazard exposure on authorized entrants
- Continuously maintains an accurate count of authorized entrants in the permit space and ensures that the permit accurately identifies who is in the permit space;
- Remain outside the permit space during entry operations until relieved by another attendant;
- Communicate with authorized entrants as necessary to monitor entrant status and alert entrants of the need to evacuate the space;
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:
 - If the attendant detects a prohibited condition;
 - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
 - If the attendant detects a situation outside the space that could endanger the authorized entrants; or
 - If the attendant cannot effectively and safely perform all the duties required under the permit;

- Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
 - Perform non-entry rescues as determined during pre-job planning; and,
 - Perform no duties that might interfere with the Attendant's primary duty to monitor and protect the authorized entrants.

5.3 DUTIES OF ENTRY SUPERVISORS

The entry supervisors are required to:

- Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- Determine when to terminate the entry and cancel the permit;
- Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained;
- Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- Verify that rescue services are available and that the means for summoning them are operable; and,
- Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

5.4 RESCUE DUTIES

Departments are responsible to insure that these procedures are utilized by an employee working in confined space.

- Recognition of emergency situation.
- Notify EMS and/or Central Control/IOC of situation.
- May request additional employees if needed. NOTE: Employees may come from any department.
- Proper use of safety equipment.
- Required 1st-aid/CPR training.
- Non-Entry Rescue Procedures

6.0 ATMOSPHERIC MONITORING EQUIPMENT

Monitoring is a primary requirement when opening, entering and working in a permit space to insure the safety of those employees involved in permit entry. All monitors purchased by the District are required to be a full direct meter reading detector or instrument.

6.0 MONITORING REQUIREMENTS & RECORD KEEPING

- An initial test shall be made of the atmosphere within the permit space utilizing a 4 gas, gas detector to insure that the permit space can be safely opened.
- Turn detector on and allow a two minute warm-up period.

- For manholes or other covers that may have pry holes, insert probe into cover approximately twelve inches.
- Record combustible gas level on gas log. (see appendix D.)

NOTE: If a combustible gas reading of 20% L.E.L. (alarm should sound) or more is found, a verbal report must be made to your supervisor immediately.

- If a combustible level of 80% is found, do not open manhole, even if L.E.L. drops to less than 20%. Call supervisor to site immediately.
- For covers without holes test around seam, and monitor while slowly opening. Use an inert wedge (wood or brass) to prop lid open.
- Upon opening cover, a test shall be taken immediately and recorded on the log sheet.
- A record log shall be used to record the test results obtained with the detector. See Appendix D, "Record of Gas Analysis".
- A second test of the atmosphere within the permit space shall be made before entering the permit space and recorded in the logbook.
- Probes or personnel monitors to be at approximate level as entrant. If alarms sound, no entry is authorized until the cause is found and corrected.
- The monitor shall stay on continuously and an attendant or supervisor, at not more than **fifteen-minute intervals**, shall take readings as long as an entrant is within a permit space.
- A recording to that effect shall be made in the log. Refer to Appendix D.
- In hot environments please refer to EMWD Heat Illness policy and implement proper procedures to protect entrants from over exposure.

6.1 CALIBRATION REQUIREMENTS

Each department shall be responsible for complying with the requirements of this section.

- The manufacturer's requirements for calibration and testing shall be complied with.
 - Annual certification shall be performed by the manufacturer or by certified staff personnel.
 - Monitors shall be tested each day prior to use for proper calibration and operation using known concentration calibrating gases and recorded on the (record of gas analysis), (a bump test or calibration).
 - Records shall be maintained and turned in to Safety and Risk Management for record keeping on a yearly basis.

7.0 VENTILATION REQUIREMENTS

Ventilation is one of the most important rules of safety concerning confined space entry. Though ventilation can insure good quality air, it cannot reduce other hazards that are associated with permit space(s). The ventilation requirements that must be met prior to entry are as follows.

7.1 PRE-ENTRY REQUIREMENTS

- Various sizes of permit spaces are located through the District.
- When initial air sampling determines that the oxygen level is below 19.5% and/or the levels of contaminants are at or above the Permissible Exposure Limits (PEL's) or Threshold Limit Values (TLV's), the confined space must have 10 complete air changes before sampling the air inside the confined space again.

To determine how long it will take to achieve 10 complete air changes in the confined space, the following information must be known:

- the cubic feet of space inside the confined space
- the cubic feet per minute (cfm) the ventilator is rated for

Note: multiple bends in the ventilation hose will reduce the actual cfm capacity of the ventilating blower (each 90 degree bend reduces the rated CFM capacity of a ventilation blower by 50%).

To determine the cubic feet of space inside the confined space for square or rectangular spaces:

Multiply the Length x Width x Height. EXAMPLE: A confined space is 20' by 15' by 30'.

$$20' \times 15' \times 30' = 9,000 \text{ cubic feet.}$$

The rating of the ventilator shows the cubic feet of air the blower will discharge. For this example let's assume the ventilator has a rating of 1,500 cubic feet per minute (cfm).

To find out how long it will take to make one complete air change inside the confined space, divide 9,000 cubic feet by 1,500 cfm. The answer is 6. Therefore it will take six minutes to make one complete air change inside the confined space.

Ten (10) air changes are required. Multiply 6 minutes by 10 the required number of air changes in the confined space:

$$10 \times 6 = 60. \text{ It will take 60 minutes to achieve } 10 \text{ complete air changes.}$$

If the confined space is round, multiply Pi (3.14) times the Radius squared times the length of the cylinder. The radius is 1/2 of the diameter. The diameter is the vertical distance between two points of a circle.

Example: Pi (3.14) x radius squared x length of cylinder (pipe, tunnel, etc.) = cubic feet of space.

Assume a pipe has a 3' diameter and 30 feet long. One-half of 3' is 1.5 feet. The radius is 1.5 feet. 1.5 feet squared (1.5 x 1.5) = 2.25 square feet.

To simplify

$3.14 \times 2.25 = 7.07$ square feet (the actual number is 7.0686 but we rounded up).

square feet x 30' (the length of the cylinder) = 212 cubic feet.

To find out how long it will take to make one complete air change inside the confined space, divide 212 cubic feet by 1,500 cfm.

The answer is .14 minutes for one complete air change.

Ten complete air changes are required. Therefore 10 air changes x .14 minute per air change = 1.4 minutes.

Round up and let the ventilator push fresh air into the confined space for 2 minutes before testing the atmosphere inside the confined space again.

To achieve a greater efficiency of air exchanges, when it is possible, move the end of the hose around by using a rope. Pull the end of the hose up into the upper corners of the confined space. Also move the end of the hose around near the bottom of the confined space to move the gases or air around so it will be diluted or exhausted out of the confined space.

After 10 complete (or near complete) air changes have been made, lower the hose on the air monitor into the confined space and sample the air at different levels. The end of the air monitor hose should be lowered 2 to 4 feet each time to sample the air at different levels inside the confined space.

Continuous supply of fresh air shall be provided while entrant(s) is/are in the confined space.

7.2 WORK IN PROGRESS

- Continuous supply of fresh air shall be provided while entrant(s) is/are in the confined space.
- Entrant must exit permit space if blower stops.
- All blowers shall be a minimum of 1500 C.F.M.
- 10 Air exchanges per hour for a permit space is required.

7.3 RECORD KEEPING

- The entry supervisor shall document the time that the blower was started and when the blower was shut-off on the permit.

8.0 SAFETY EQUIPMENT

No employee shall perform or order to be performed any work in a permit space unless all the necessary safety equipment is available and all proper safety procedures are followed. Requirements for safety equipment and use are as follows:

8.1 FALL / RETRIEVAL DEVICE AND APPROVED SUPPORT DEVICE

- A fall/retrieval device and tripod shall be required for all top-opening covers for entry into a permit space.
 - Tripod
 - The tripod shall be capable of set-up on surfaces that are not level.
 - The tripod shall be capable of locking in place with safety chains attached to base of legs.
 - Non-slip feet on legs of tripod.
 - It is recommended that tripods are adjustable up to 9' (feet) tall.
 - Fall/Retrieval Device
 - Fall/retrieval device shall be of manual winch type.
 - Fall/retrieval device may have a "fall-arrest" capability.
 - Additional block to tackle hoist may be added for retrieval purposes.

8.2 PERSONAL PROTECTIVE EQUIPMENT

- Approved type safety harness with a 3/4 inch diameter manila safety line (a cable, or other approved safety rope may be substituted) connected to the harness shall be worn when entering, working in and exiting a confined space.
- A hard hat shall be worn at all times in a confined space.
- To provide as much body protection as possible, coverall or uniforms should be worn when working in a confined space.
- Special safety equipment such as boots, waders, dry suit, gloves, safety goggles/glasses and ear protection shall be worn as needed.
- A fall/retrieval device or other approved devices shall be provided for lifting employee(s) out of top opening confined spaces.
- A full body harness will be required with this program. This harness must meet ANSI Standard A10.14.
- Intrinsically safe electrical equipment is required for confined spaces.

8.3 EQUIPMENT INSPECTION

- All equipment needed for working in a permit space should be periodically inspected and repaired or replaced if necessary. It must also be inspected prior to each entry into a confined space by both the Entry Supervisor and the Entrant(s).

- If a necessary piece of equipment is in questionable condition, work shall halt until the equipment is repaired or replaced.
- Manufacturer recommendations shall be followed for all equipment.

9.0 PERMIT CLASSIFICATION SYSTEM

The “permit classification system” is based on existing or potential hazards relative to the confined space. The classification is based upon the characteristics of the space, oxygen level, flammability and toxicity. The classification shall be determined by the most hazardous condition of entering, working in, and exiting a confined space. Refer to check list of requirements for entry.

9.1 PERMIT REQUIRED CONFINED SPACE Permit Required Confined Space (PRCS) is one that presents a situation that may be immediately dangerous to life or health (IDLH).

- These include, but are not limited to, oxygen deficiency, explosive or flammable atmospheres, and/or concentrations of toxic substances.
- Special requirements for PRCS are as follows:
 - Two (2) attendants required outside PRCS at all times
 - One (1) attendant must maintain communication with entrant at all times; i.e. at manhole, hatch, opening, etc.,
 - Second attendant must remain on site.
 - Entrant shall utilize approved safety harness and lifeline/retrieval device.
 - Common types of PRCS are sewer manholes, sewer lines, stilling wells, junction structures, valve vaults, meter vaults, pumping plant wet wells, vats, pits and various types of storage tanks. Situations may arise that make Non - Permit Confined Space (NPCS) a PRCS.

9.2 NON- PERMIT REQUIRED CONFINED SPACE

A Non- Permit required confined space (low hazard) is one in which the potential hazard would not require any special modification of the work procedure except for the following:

- If no attendant is used, Central Control will be notified of location, entry time, estimated working time, and interval for safety checks. They will also be notified when work is completed.
- Entrant will have constant and reliable communications with Central Control (via hand held radio).
- Entrant will have safe a stable means of entry and exit (ladder, etc).
- Atmospheric testing, monitoring and ventilation are required (See Sections 6 & 7).

9.3 SPECIAL CONSIDERATION SPACES

- Any below grade facility or area with restricted access and is ventilated full time has the potential to become a confined space. Facilities with full time ventilation requirements will be equipped with alarm systems that activate

upon loss of ventilation. This alarm shall be visible from outside the building. Any facility that is in alarm status will be considered a confined space.

- Trenches and other earthworks are normally not considered confined spaces. Situations can arise though, that would make these structures confined spaces. A broken gas main, force main or sewer main may need to be classified as a confined space if a determination has been made that atmospheric hazardous are present.
- **Any confined space that cannot be entered according to the strict provisions and procedures of this policy can only be entered once a site specific written procedure has been developed. This procedure shall include the development of a JSA and must identify all hazards and the alternative measures of personal protection that will be utilized to protect the entrants in the confined space. The written procedure must be reviewed and approved by the Safety and Risk Management Department prior to entry operations.**