

FACE TO FACE

A New York State Fatality Assessment and Control Evaluation (FACE) Tailgate Training Guide for Health & Safety Professionals

MODULE 2: CONFINED SPACE AWARENESS TRAINING

PREVENTING DEATHS AND INJURIES TO PUBLIC WORKERS

NOTE: THIS TRAINING IS INTENDED TO RAISE AWARENESS OF CONFINED SPACE HAZARDS. IT IS **NOT** A PERMIT-REQUIRED CONFINED SPACE ENTRY TRAINING PROGRAM.

September 2008

CONFINED SPACE AWARENESS TRAINING PREVENTING DEATHS AND INJURIES TO PUBLIC WORKERS

Training Curriculum Contents*

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* This curriculum is not intended to train you to enter and work in a confined space, but to help you identify confined spaces so that you stay out.

I. Introduction and Course Preparation Tips

INTRODUCTION

This guide will help you run a safety course on identification of confined spaces and the hazards in them to help prevent deaths and injuries to workers who may encounter confined spaces on their job. It includes examples you can share with workers, questions for discussion, and take away messages. The safety course is broken into 5 different sections:

- A. Getting Started
- B. Example
- C. Discussion
- D. Talking Points
- E. Take Away Messages

Each section includes tips you can use when presenting the material. The course should take about 30 minutes to complete. Instructor comments have been shaded gray for easy reference.

Additional materials have been provided in the Appendices of this binder for your review.

COURSE PREPARATION TIPS

Before beginning the training:

- 1) Identify the person at your company/worksite who is responsible for evaluating whether any permit-required confined spaces* are present. Make sure this person has had permit-required confined space entry training and knows the potential confined spaces and hazards in the spaces workers may encounter.
- 2) Get to know your company's safety rules about:
 - ✓ Entering or working in confined spaces
 - ✓ Communicating hazards to workers
 - ✓ Personal protective equipment
 - ✓ Reporting safety incidents
 - ✓ Employee consequences for failure to abide by safety rules
- 3) Make a list of possible confined spaces your employees may encounter.
- 4) Read through this training guide and review supporting materials.

*Permit-required confined spaces meet the definition of a confined space but also have one or more hazards that could make escape or rescue difficult.

II. Training Curriculum

A. Getting Started

The goal of this training is to help workers recognize a confined space and hazards in them and to avoid entering a confined space. During the first part of the training, you will be giving your workers background information about how to identify a confined space as well as the hazards that can be present in confined spaces. Additional examples have been included in the “Appendices” section of your binder. The question and facts below can help you provide background information to workers.

Provide your workers with a copy of the “Safety Checklist For Confined Spaces” located on page 6. Read aloud the “Hazard Warning” to workers and the questions and answers below.

HAZARD WARNING!

DO NOT enter confined spaces as you are putting yourselves at risk of serious injury or death.

WHAT IS A CONFINED SPACE?

- Is large enough for an employee to enter and perform assigned work;
- Has a limited or restricted means of entry or exit; and
- Is not designed for continuous occupancy by the employee.

Every year, many workers in the U.S. are injured or killed by entering or working in confined spaces.

WHAT ARE SOME EXAMPLES?

- Sewers
- Tunnels
- Manholes
- Boilers
- Tank Cars
- Cisterns
- Pits
- Silos
- Storage Bins

WHEN MIGHT WORKERS ENCOUNTER CONFINED SPACES?

- Inspection, repair, maintenance
- New construction
- Emergency rescue

WHAT ARE THE HAZARDS THAT MAKE CONFINED SPACES DEADLY?

- Hazardous air conditions (such as flammable gas, too little oxygen, too much oxygen, airborne combustion dust, etc.)
- Liquid or solid materials than can engulf an entrant (such as sand, grain, etc.)
- Conditions that can trap or suffocate an entrant (such as inwardly converging walls, floors which slope downward, etc.)
- Mechanical hazards (such as gears, conveyors, mulchers, etc.)
- Electrical hazards
- Temperature extremes
- Poor visibility, lack of lighting
- Falling objects
- Falling, tripping, insecure footing
- Other hazard that would make escape or rescue from the area difficult

WHAT IS A PERMIT-REQUIRED CONFINED SPACE?

Any space that meets the definition of a confined space (see page 4) AND:

- Contains or has the potential to contain hazardous air conditions;
- Contains a material with the potential to engulf someone who enters the space;
- Has an internal configuration that might cause an entrant to be trapped or suffocated; or
- Contains any other recognized serious safety or health hazards.

QUESTION FOR GROUP (READ ALOUD):

About how many workers in the U.S. are killed each year after entering or working in a confined space?

- a) 5
- b) 10
- c) 50
- d) 100

ANSWER (READ ALOUD):

Around 100 workers are killed in confined spaces each year in the United States. These workers leave behind countless family members. Around 60% of workers who die in confined spaces are co-workers or rescue personnel who have rushed to help the first worker. The tragedy here is that all of these deaths can be prevented.

SAFETY CHECKLIST FOR CONFINED SPACES

HAZARD WARNING!

DO NOT enter confined spaces as you are putting yourself at risk of serious injury or death.

Here are some simple ways you can help protect yourself and your co-workers:

- ✓ Know how to identify a confined space.
- ✓ When in doubt, never enter an area that could be a confined space without first speaking with a supervisor or safety representative.
- ✓ Do not rely on your senses to determine if a confined space has no hazards. A number of hazardous gases are both colorless and odorless.
- ✓ NEVER enter a confined space to try to rescue another worker.



**DO NOT RELY ON YOUR SENSES TO DETERMINE
IF A CONFINED SPACE IS SAFE!**

II. Training Curriculum (cont.)

B. Real-Life Example 1 and Discussion

A useful way to train workers about safety hazards is to present them with real life examples. Read the example below aloud to employees. A copy of the full report upon which this example is based has been included in the “Appendices” section—“City Engineer Killed in Landfill Manhole when Retrieving Flow Meter”. After reading the example aloud, use the questions in the “Discussion” section to get workers to talk about why the accident may have happened.

EXAMPLE 1 (READ ALOUD):

In May 2003, a 32-year-old male city engineer collapsed in a manhole in New York while attempting to retrieve a flow meter. On the day of the incident, the victim, a co-worker, and a student intern drove to a landfill to replace a battery for a flow meter that had been placed in the manhole. They opened the manhole cover with a pickaxe and the victim began to lift the meter out of the manhole when it fell to the bottom. The victim quickly descended into the manhole to retrieve the meter. As he was about to climb the ladder out of the manhole he lost consciousness. The co-worker called 911 on his cell phone and the fire department responded within minutes. The victim was removed from the manhole and was transported to a nearby hospital where he was pronounced dead. At the time of the recovery, the oxygen concentration at the bottom of the manhole was only 2.1% (should be above 19.5%) and the flammable vapors exceeded 60% of the lower explosive level (should be less than 10%).

II. Training Curriculum (cont.)

B. Real-Life Example 1 and Discussion (cont.)

Questions can be a good way to get people thinking about a lesson. During this part of the training, discuss what caused the confined space fatality you just read. Listed below are questions you can ask and some of the answers you are likely to receive.

Because some workers might be hesitant to answer right away, you may want to read one of the answers given below. Then, ask workers whether they think the answer you gave was correct. However, don't give an answer right away. It is best to wait at least 10 seconds after you ask a question before you give an answer. People remember things better when they hear them many times or both hear and see it. If possible, write down the answers workers give to questions. Or, if writing is not possible, repeat the answers aloud.

QUESTIONS AND ANSWERS (READ ALOUD):

1. Was the manhole a Confined Space?

- Was it large enough for an employee to enter; *Yes*
- Was it designed for limited or restricted entry; and *Yes*
- Was it designed for continuous human occupancy? *No*
This space was a confined space.

2. Were there hazards in this confined space that made it a permit required confined space?

- *Yes, the space contained a hazardous atmosphere (low oxygen and flammable vapors).*

3. Should the engineer have entered the manhole when he dropped the flow meter?

- *No, it contained a hazardous atmosphere.*

4. Should the co-workers have tried to rescue the victim?

- *No, they may have been injured or killed too by the hazardous air conditions.*

5. Some hazards are not apparent to the senses such as oxygen deficiency. If you don't see, smell, taste, hear or feel any hazards should you enter a confined space?

- *No. Never enter a confined space with out the proper training and equipment.*

6. Are you at risk?

- *Discuss actual work location and situations you encounter.*

II. Training Curriculum (cont.)

C. Real-Life Example 2 and Discussion

A useful way to train workers about safety hazards is to present them with real life examples. Read the example below aloud to employees. After reading the example aloud, use the questions in the “Discussion” section to get workers to talk about why the accident may have happened.

EXAMPLE 2 (READ ALOUD):

A foundry employee was working the graveyard shift performing maintenance on a conveyor drive chain unit. The maintenance involved spraying the drive chain with a degreasing solvent containing methyl chloroform (chemical name 1,1,1-trichloroethane). Methyl chloroform is heavier than air. Exposure to methyl chloroform can damage central nervous, lung and cardiovascular systems. The conveyor chain unit was housed in a pit that was 28’ long, 14’ wide and 5’ deep with a ladder on one side for access. He sprayed for an hour before the dinner break. During the break, he reportedly complained to his co-workers that the vapors were bothering him. He returned to the pit and continued spraying after the break.

At the end of the shift, the victim was found lying on his side approximately ten feet from the ladder while the nozzle was still spraying. There were about 10 and 20 gallons of solvent on the floor around the victim. A supervisor first entered the pit through the ladder trying to rescue the victim. He was immediately overcome by the vapor. He fell to his knees, but was able to stand up and climb back up the ladder. The supervisor and a co-worker then attempted to enter the pit while holding their breath, but again had to leave the pit. On the third attempt, they managed to remove the victim out of the pit. They started resuscitation and continued until the emergency medical service arrived. The victim was pronounced dead at the scene. The direct cause of death was determined to be inhalation of methyl chloroform.

II. Training Curriculum (cont.)

C. Real-Life Example 2 and Discussion (cont.)

Questions can be a good way to get people thinking about a lesson. During this part of the training, discuss what caused the confined space fatality you just read. Listed below are questions you can ask and some of the answers you are likely to receive.

QUESTIONS AND ANSWERS (READ ALOUD):

1. Was the pit a confined space? Why or why not?

Yes, it meets the three criteria for a confined space

Review the three criteria of a confined space:

- *Large enough to enter fully (the pit was 28' long, 14' wide and 5' deep);*
- *Not for continuous human occupancy (it was designed to hold the chain unit); and*
- *Having restricted access (there was a ladder attached to the wall).*

2. Was the pit a permit required confined space? Why or why not?

Yes, it meets at least one of the criteria for a permit required confined space

Review the criteria of a permit required confined space:

- *Contains or has the potential to contain hazardous air conditions;*
- *Contains a material with the potential to engulf someone who enters the space;*
- *Has an internal configuration that might cause an entrant to be trapped or suffocated; and*
- *Contains any other recognized serious safety or health hazards.*

3. What went wrong?

- *No confined space awareness training;*
- *No permit required confined space program; and*
- *Risky rescue could have resulted in a multiple fatality.*

4. What would you do if you were assigned to perform the maintenance job in the pit?

5. What would you do if you were the supervisor when you saw the victim lying in the pit?

- *Do not attempt to rescue the victim by entering the pit.*
- *Call 911.*
- *Make sure no one goes down the pit.*
- *Open all the windows.*

II. Training Curriculum (cont.)

D. Talking Points

The goal of this part of the training is to get workers talking about their own experiences with confined spaces. Listed below are questions you can use to get people talking and questions you can use to get people to provide more details. You may also want to include information on the consequences for employees who do not follow established safety rules (e.g., verbal warning for first infraction, written warning, etc.).

QUESTIONS (READ ALOUD):

Have you or anyone you know ever had an accident or near-miss accident that involved a confined space?

- *What went wrong?*
- *What could have been done to avoid the accident?*

What are some of the work activities you and your co-workers do that involve confined spaces?

- *Discuss.*
- *Are there other ways to perform the work activity that do not involve entering the confined space?*

Have you ever observed others engaging in risky behavior when working around confined spaces?

- *Discuss.*
- *Were there other ways to perform the work activity that would have eliminated the risky behavior or not involved entering the confined space?*

II. Training Curriculum (cont.)

E. Take Away Messages

The training is nearly complete. Before wrapping up, provide workers with a list of things they can do to protect themselves by reviewing the “Safety Checklist for Confined Spaces” (found on page 6) aloud. These are the key messages you will want workers to have and remember. Once you have finished reviewing the information, ask if anyone has any comments about the advice. Finally, thank workers for their time and ask them to complete the evaluation form located on the last two pages of this manual.

Evaluation forms should be returned to you. Completed forms should then be send to the NY FACE program. The evaluation will help us to improve this program and make it more useful to workers.

**New York FACE Program
New York State Department of Health
Flanigan Square, Rm. 230
547 River St.
Troy, NY 12180**

Or fax to (518) 402-7909

CONFINED SPACE HAZARDS: HAZARDOUS ATMOSPHERE

THINGS OR PROCESSES THAT CAN CREATE A HAZARDOUS ATMOSPHERE

- Aerosols, dust, fumes, mist, gases, vapors, radiation
- Chemical reactions
- Decomposition of organic matter
- Cleaning reagents
- Welding, spray painting, grinding, sand blasting
- Stored products/chemicals
- Leaks and Spills
- Charging batteries

TYPES

- Oxygen deficiency: level below 19.5%
 - Can occur when oxygen is consumed by individuals, decomposing organic matter, chemical reactions, and combustion
 - Can only be identified with an air monitoring device
- Oxygen enrichment: level greater than 23.5%
 - Can be caused by leaking oxygen cylinders or lines
 - Extreme fire hazard!!
 - Can only be identified with an air monitoring device
- Carbon Monoxide
 - Very toxic, colorless, odorless, combustible gas
 - Can be caused by gas powered internal combustion engines, improperly vented furnaces, boilers, hot water tanks
 - Can only be identified with an air monitoring device
- Hydrogen Sulfide
 - Flammable, colorless gas—rotten egg odor
 - Can be caused by petroleum products processing, decay of sulfur-containing materials
- Methane
 - Colorless, odorless, flammable gas
 - Can be caused by decomposition of organic matter
 - Can only be identified with an air monitoring device

CONFINED SPACE GUIDELINES

Information for SUPERVISORS

Responsibilities:

Know hazards that may be faced during entry including information on the type of exposure, signs or symptoms and consequences;

Verify that acceptable conditions for entry exist;

Verify emergency plans and entry conditions such as permits, tests, procedures, and equipment before allowing entry;

Terminate entry when operations are completed or a prohibited condition arises;

Verify that rescue services are available and that the means for summoning them are operable;

Take appropriate measures to remove unauthorized entrants;

Determine at appropriate intervals that acceptable entry conditions are maintained; and

Ensure that appropriate equipment for safe entry is available including:

- ◆ Personal protective equipment
- ◆ Testing, monitoring, ventilating, communications, and lighting equipment
- ◆ Barriers and shields
- ◆ Ladders
- ◆ Retrieval devices





FATALITY ASSESSMENT AND CONTROL EVALUATION

City Engineer Killed in Landfill Manhole
When Retrieving Flow Meter
Case Report: 03NY027

SUMMARY

On May 28, 2003, a 32-year-old male city engineer collapsed in a manhole while attempting to retrieve a flow meter and was pronounced dead after he was transported to a hospital. On the day of the incident, the victim, a co-worker (an assistant engineer) and a student intern drove to a landfill to replace a battery of a flow meter that had been placed in a manhole. Once they arrived at the site, the victim opened the manhole cover with a pickaxe. The manhole was 7'4" deep and 24" in diameter at the point of entry. There were four iron rungs mounted into the cement wall of the manhole to form a ladder. The flow meter was attached to the top rung that was 34 inches below the manhole opening by a "U" shaped spring loaded handle. The victim used a hook made of a wire hanger to catch a string that was looped and tied around the handle of the flow meter. When he was pulling and lifting the meter, the weight of the flow meter caused the wire hook to straighten and the meter fell to the bottom of the manhole. The victim quickly descended into the manhole to retrieve the meter. Once at the bottom, the victim picked up and placed the flow meter on the top rung. Just as he was about to ascend, he lost consciousness and collapsed in the bottom of the manhole. The assistant engineer immediately called "911" on his cell phone. The fire department arrived at the site and immediately started the confined space rescue procedure. The victim was extricated from the manhole in approximately 20 minutes. He was transported to a nearby hospital where he was pronounced dead. According to the fire department monitoring data, the oxygen concentration at the bottom of the manhole was 2.1% and the flammable vapors exceeded 60% of the lower explosive level (LEL) at the time of the rescue.

New York State Fatality Assessment and Control Evaluation (NY FACE) investigators concluded that to prevent similar incidents from occurring in the future, employers should:

- ***Implement a confined space entry program for all workers who are or could be exposed to confined space hazards;***
- ***Provide immediate training and periodic refresher training to all employees who may be exposed to confined space hazards;***
- ***Evaluate the sewer flow monitoring procedure and modify it to reduce workers' risk;***
- ***Assign a trained safety and health professional to oversee the implementation and maintenance of the city's safety and health programs;***

- *Establish a centralized safety committee with both management and employee representatives to assist in the development, implementation, and oversight of the safety and health programs.*

INTRODUCTION

On May 28, 2003 at approximately 2:30 PM, a 32-year-old male city engineer collapsed after entering a manhole to retrieve a flow meter. He was extricated from the manhole by the fire department and transported to a hospital where he was pronounced dead. New York State Fatality Assessment and Control Evaluation (NY FACE) staff initially learned of the incident through a newspaper article on May 29, 2003. On June 17, 2003, two NY FACE investigators conducted an on-site fatality evaluation. During the site visit, the investigators met with the representatives of the city government that employed the victim, interviewed the witnesses to the fatal incident, and inspected the landfill manhole where the fatal incident occurred. Additional information was provided by the city police and fire departments and the regional office of the Public Employees Safety and Health Bureau (PESH) of the New York State Department of Labor (NYSDOL). The police report and Medical Examiner's report were also reviewed.

The victim's employer, a city government, employed a total of 150 full-time and 70 part-time employees at the time of the investigation. Non-managerial employees were represented by four labor unions. The victim was classified as managerial personnel and was not represented by a union. At the time of the incident, the city did not have a safety and health professional on staff to oversee the implementation and maintenance of the city's safety and health programs. All the safety and health programs were administered and maintained by individual department managers. The city did not have an active safety committee at the time of the incident. According to the city administration, the engineering department where the victim worked did not have a confined space program nor did it provide employees with awareness training on confined space hazards.

INVESTIGATION

One of the tasks performed by the engineering department was to monitor the city's sanitary sewer. Material from the city's sanitary sewer was treated by a water treatment plant in an adjacent town. As required by the town, the city had to monitor the sewer flow rate. The flow rate was monitored by battery-operated flow meters that were placed in three manholes: two located on a city street and one in an inactive landfill. The monitoring procedure that started in the summer of 2002 included replacing the rechargeable batteries every Wednesday and downloading the flow rate data every Friday.

The fatal incident occurred in the landfill manhole. The landfill was formerly a solid waste management facility that was operated by the city until 1985 when it ceased operation. The manhole was a primary location that received the total leachate flow from the entire landfill. The flow meter had not registered any leachate flow since the monitoring started until the date of the incident when the monitoring was temporarily suspended.

On Wednesday, May 28th, 2003, the day of the incident, the victim drove the assistant engineer and the intern to the manhole locations to replace the flow meter batteries. Prior to the incident, they had finished changing batteries on two of the three flow meters. At approximately 2:30 PM, they

drove to the landfill to replace the last battery. They parked the city vehicle at the landfill entrance and walked approximately a quarter mile through the field toward the manhole located on the south side of the landfill. The victim was carrying a pickaxe and the intern the spare battery. Once they arrived at the manhole, the victim mentioned that there should be a wire hanger lying on the grass somewhere that he used to assist in lifting the meter out of the manhole. He searched and found the hanger. The victim then opened the manhole cover with the pickaxe.

The manhole was 7'4" deep and its inner diameter was 24" (Figure 1). It looked dry at the time of the incident according to the witnesses. There were four iron rungs mounted into the cement wall of the manhole to form a ladder. The flow meter (Figure 2), weighing approximately 15 pounds, was attached to the top rung (34 inches below the manhole opening) by means of a "U" shaped spring loaded handle. A string was looped and tied around the handle of the flow meter.



Figure 1. The landfill manhole where the fatality occurred.

After removing the manhole cover, the victim proceeded to retrieve the flow meter. He knelt next to the manhole opening and reached down with the wire hanger that was bent on one end to hook the string on the flow meter handle. The victim leaned over and across the manhole opening when trying to hook the string, which took a couple of seconds. He then pulled the string toward himself on an angle to disengage the spring-loaded flow meter handle. He successfully freed the meter from the rung and started lifting the meter with the wire hanger. The weight of the flow meter caused the wire hook to straighten and the meter fell to the bottom of the manhole. The plastic cover of the meter appeared to have come open. Although the battery bounced out of its case and the two bottles of desiccants fell out of their holders, they were all still attached to the meter. According to the

witnesses, the victim commented that the meter did not look too damaged. He then quickly climbed down into the manhole to retrieve the meter.



Figure 2. The flow meter that was used to measure the flow rate in the manhole.

Once at the bottom, the victim made a comment about a foul odor in the manhole. He then knelt down, picked up the flow meter, turned around toward the ladder, and placed the meter on the top rung. While he grasped the top rung with both hands as if in preparation to ascend, his arms began to shake violently and he lost consciousness and collapsed backwards onto the floor of the manhole.

According to both witnesses, the entire incident from the time that the victim entered the manhole until he collapsed took only a minute or less. The assistant engineer immediately called “911” on his cell phone while the intern ran to the street to call for help. The fire department arrived at the site within four minutes and immediately started the rescue procedure by following the confined space rescue protocol. The victim was extricated from the manhole in approximately 20 minutes, and transported to a nearby hospital where he was pronounced dead. According to the fire department monitoring data taken at the time of the rescue, the oxygen concentration at the bottom of the manhole was 2.1% and the flammable gas or vapor exceeded 60% of the lower explosive level (LEL).

CAUSE OF DEATH

The cause of death was reported as asphyxia with methane gas.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: *Employers should implement a confined space entry program for all workers who are or could be exposed to confined space hazards.*

Discussion: At the time of the incident, the engineering department did not have a confined space entry program, nor were there any effective measures in place to prevent the workers from entering permit-required confined spaces. Employers should conduct a worksite inspection to identify and then appropriately mark all confined spaces. A confined space entry program should then be developed and implemented that would include:

- evaluation to determine whether entry is necessary or whether the task can be performed from the outside;
- issuance of a confined space entry permit by the employer;
- posting of confined space entry warning signs;
- testing the air quality in the confined space when entry is necessary, to ensure:
 - ✓ oxygen levels of at least 19.5%,
 - ✓ flammable range of less than 10% of the lower explosive limit (LEL),
 - ✓ absence of toxic air contaminants;
- training of workers and supervisors in the selection and use of:
 - ✓ respiratory equipment,
 - ✓ environmental test equipment,
 - ✓ lifelines,
 - ✓ rescue equipment,
- training of employees in safe work procedures in and around confined spaces;
- training of employees in confined space rescue procedures;
- use of proper ventilation in confined spaces;
- monitoring of air quality prior to entering confined spaces.

Recommendation #2: *The employer should identify the workers who are exposed to confined space hazards and provide immediate employee training and periodic refresher training.*

Discussion: The employer should identify the workers who are potentially exposed to confined space hazards through job hazard analysis and provide immediate training to those employees. The employer should ensure that the workers understand the nature of the confined space hazards and are familiar with the standard confined space entry procedures. The training should be provided before an employee is assigned the specific tasks. Refresher training should be provided at least annually or whenever there is a change in assigned duties, a change in confined space operations, or a change or update in the confined space entry procedures.

Recommendation #3: *The employer should evaluate the sewer flow monitoring procedure and modify it to reduce employee exposures to the confined space hazards.*

Discussion: The employer should evaluate and modify the flow monitoring procedure to reduce the risk by implementing feasible engineering controls. For example, the flow meter may be placed outside a manhole to avoid confined space entry; and downloading data and battery replacement may be performed at the same time, instead of on different days. At the time of the incident, the victim used a regular pickaxe to open the cover of the manhole where the flammable gas and vapor concentration exceeded 60% of LEL. Spark proof tools should be used for manhole cover removal and inside the manhole to reduce the fire and explosion hazard. Proper sturdy tools should be used to retrieve the flow meters. When installing the engineering controls, the confined space entry procedures should be strictly followed.

Recommendation #4: *The employer should assign a trained safety and health professional to oversee the development, implementation, and oversight of the city's safety and health programs.*

Discussion: At the time of the fatal incident, all the safety and health responsibilities were placed at the department level. The employer should assign a trained safety and health professional who has the knowledge in recognizing, evaluating and controlling specific occupational hazards to oversee the city's safety and health programs. The chain-of-command and individual responsibility and accountability should be clearly defined.

Recommendation #5: *The employer should establish a centralized safety committee with both management and employee representatives to assist in the development, implementation, and oversight of the safety and health programs.*

Discussion: A safety committee is an important component of a comprehensive safety and health program. A functioning safety committee can be an effective tool in identifying occupational hazards and implementing control and preventive measures. A citywide safety committee with both management and employee representatives should be established. The committee should conduct monthly meetings and periodic workplace safety and health inspections.

Keywords: *manhole, oxygen deficiency, confined space*

REFERENCES

Code of Federal Regulations [2002]. 29 CFR 1910.146. Permit-required confined spaces. Washington, D.C.: U.S. Government Printing Office, Office of the Federal Register.

NIOSH [1994]. Worker deaths in confined spaces. Cincinnati, OH: U. S. department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Division of Safety Research. DHHS (NIOSH) Publication 94-103.

The Fatality Assessment and Control Evaluation (FACE) program is one of many workplace health and safety programs administered by the New York State Department of Health (NYS DOH). It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), the NYS DOH FACE program collects information on occupational fatalities in New York State (excluding New York City) and targets specific types of fatalities for evaluation. NYS FACE investigators evaluate information from multiple sources. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. The FACE program does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program.

Additional copies of the Confined Space Awareness Training as well as information on the New York State FACE program can be obtained from:

New York State Department of Health FACE Program
Bureau of Occupational Health
Flanigan Square, Room 230
547 River Street
Troy, NY 12180

1-866-807-2130

www.health.state.ny.us/nysdoh/face/face.htm



STATE OF NEW YORK DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Richard F. Daines, M.D.
Commissioner

The New York State Fatality Assessment and Control Evaluation (NY FACE) program would like to know if this NY FACE Tailgate Training program was helpful to you. Please answer the questions below and return the survey to your training instructor. Your input and opinions will help strengthen our program and allow us to provide better information to you and others in the future. If you have any questions, or would like to report a work-related fatality, please call The Bureau of Occupational Health, toll-free at 1-866-807-2130.

Please help us improve our efforts to prevent worker fatalities by answering the following questions about our NY FACE Tailgate Training program.

1. How would you rate the NY FACE Tailgate Training program?

Excellent Good Fair Poor

2. How would you rate the amount of information in the course?

Too Much About Enough Not Enough

3. Did you learn anything new or useful during the Tailgate Training?

Yes No

4. What did you like most about the Tailgate Training?

5. What did you like least about the Tailgate Training?

6. How likely are you to change some of your work behaviors based upon what you learned during the Tailgate Training?

Very Likely Somewhat Likely Somewhat Unlikely Unlikely

7. Would you be interested in other safety trainings like this one related to your job?

Yes No

If yes, do you have any suggested topics?

8. Had you ever heard of the NY FACE program before attending this training?

Yes No

If yes, where did you hear about it?

Thank you for your time. If you are interested in other NY FACE reports, please visit our web site at: www.nyhealth.gov/nysdoh/face/face.htm