FACE TO FACE

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

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MODULE 2: CONFINED SPACE AWARENESS: PREVENTING DEATHS AND INJURIES TO WORKERS

NOTE: THIS MATERIAL IS INTENDED TO RAISE AWARENESS OF CONFINED SPACE HAZARDS. IT IS **NOT** A CONFINED SPACE ENTRY OR RESCUE TRAINING PROGRAM.

CONFINED SPACE AWARENESS: PREVENTING DEATHS AND INJURIES TO WORKERS

Curriculum Contents*

*** THIS CURRICULUM IS NOT INTENDED TO TRAIN YOU TO BE AN ENTRANT OR ATTENDANT IN A CONFINED SPACE ENTRY OR TO PERFORM A RESCUE. THIS TOOL WILL HELP YOU TO IDENTIFY CONFINED SPACES SO THAT YOU WILL STAY OUT.**

I. Training Curriculum

A. GETTING STARTED- Why is Confined Space Awareness a Concern?

An average of 100 confined space related deaths occur each year in workplaces in the United States. The main cause of the fatalities is workers entering oxygen deficient or toxic atmospheres. More than 60% of the documented deaths occur among would-be rescuers. Accidents that happen in confined spaces are often fatal. This is why this topic is of such concern.

The goal of this awareness material is to:

- **Help workers to recognize what a confined space is, to identify the associated hazards and to clearly understand that they should NEVER enter a confined space unless they have received appropriate training and the entry is in accordance with the employer's written confined space entry program.**

- **Assist employees in understanding the correct emergency response in a confined space incident. A confined space workplace emergency situation may generate spontaneous reactions that may lead to multiple fatalities. It is critical that workers know they should NEVER enter a confined space to rescue someone unless they are qualified Confined Space Rescue personnel. CALL 911 immediately! Don't waste time.**

During the tailgate discussion, you will be providing your workers with information to identify confined spaces as well as the hazards that can be present in confined spaces. An additional example has been included in the Appendix section of this guide.

Read the "Hazard Warning" to workers as well as the questions and answers in Section B. Provide your workers with a copy of the "Safety Checklist For Confined Spaces" located on page 8.

B. DEFINITIONS /HAZARDS

HAZARD WARNING!

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

Every year, many workers in the U.S. are injured or killed by entering or working in confined spaces. Confined spaces can be found in many workplace settings. The hazards are generally determined by what is stored inside the space, by what processes may be taking place inside the space as well as the structure of the space. Hazards are generally atmospheric (air) or physical in nature.

WHAT IS A CONFINED SPACE?

ALL THREE CONDITIONS MUST BE MET**:**

1. Is large enough for an employee to enter and perform work;

2. Has a limited or restricted means of entry or exit; AND

3. Is not designed for continuous occupancy by the employee

WHAT ARE SOME EXAMPLES?

- Sewers, Utility Vaults, Manholes, Storm Drains, Septic Tanks
- Tunnels
- Degreasing Tank
- Boilers, Furnaces
- Tank Cars
- Cisterns
- Drained Swimming Pools
- Pits, Pipelines, Pumping Stations
- Silos, Storage Bins
- Trenches, Shafts

WHEN MIGHT WORKERS ENCOUNTER CONFINED SPACES?

- As part of their work tasks:
  - Inspection, repair, maintenance
  - New construction
  - Emergency rescue

WHAT MAKES CONFINED SPACES DEADLY?

- Hazardous air conditions such as:
  - Too little oxygen
  - Too much oxygen
  - Flammable atmospheres, such as from methane or solvents
  - Airborne combustion from dust or explosive gases
  - Toxic chemicals such as hydrogen sulfide, carbon monoxide, or solvents
  - Welding fumes

- Physical Hazards such as:
  - Solid materials than can engulf and suffocate an entrant (loose material such as sand, grain, silage, sawdust, coal)
  - Liquid materials that can engulf and drown an entrant (water, sewerage)
  - Space configurations that can trap an entrant (inwardly converging walls, sloping floors)
  - Mechanical apparatus (gears, conveyors, mulchers)
  - Electrical power
  - Temperature extremes
  - Poor visibility, lack of lighting
  - Falling objects that can strike workers
  - Fall and trip hazards (from lack of firm footing, obstacles, slick surfaces)
  - Other hazards that would make escape or rescue from the area difficult

ACTIVITY:

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 many family members and friends. Around 60% of workers who die in confined spaces are people who rush in to help the first victim. The tragedy is that **all of these deaths can be prevented**.

DISCUSSION QUESTION FOR GROUP (READ ALOUD): What are examples of possible confined spaces in our workplace?

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.
- ✓ NEVER enter an area that could be a confined space. Contact your supervisor or safety representative if you have any questions about a space to be entered.
- ✓ Do not rely on your senses to determine if a confined space has hazards. A number of hazardous gases are both colorless and odorless.
- ✓ NEVER enter a confined space to try to rescue another worker. Call 911.

DO NOT RELY ON YOUR SENSES TO DETERMINE IF A CONFINED SPACE IS SAFE! TRAINED ENTRANTS USE GAS METERS and SENSORS to DETERMINE LEVELS OF SPECIFIC GASES.

C. 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 and one of his co-workers, as well as 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 descended into the manhole to retrieve the meter. As he was about to climb the ladder out of the manhole, he lost consciousness. This happened so quickly, he lost consciousness in seconds. 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%).

C. 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 may want to 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 on a large writing board. Or, if writing is not possible, repeat the answers aloud.

QUESTIONS AND ANSWERS (READ ALOUD):

1.Q: Was the manhole a confined space?

A:

1. ***Was it large enough for an employee to enter?*** *Yes*
2. ***Was it designed for limited or restricted entry? and*** *Yes*
3. ***Was it designed for continuous human occupancy?*** *No*

All three conditions were met. This space was a confined space.

2.Q: What hazards were in this confined space?

A: The space had a hazardous atmosphere of low oxygen level and flammable vapors and was immediately dangerous to life and health. Other physical hazards might include falls.

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

A: No. You should NEVER enter a confined space unless you are a trained and qualified Confined Space Entrant and your employer has permitted this entry in accordance with the company's Confined Space Entry Program.

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

A: No, they too may have been injured or killed by the hazardous air conditions. NEVER enter a confined space to rescue another worker. They immediately called 911 as they should have. Remember in hazardous atmospheres, time is critical; only minutes are available.

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

A: No, NEVER enter a confined space unless you are a trained, qualified Confined Space Entrant. It is impossible to tell by smell or some other sense that the air is safe for entry. Many hazardous gases are colorless and odorless.

- ***Not all chemicals or contaminants have an odor (e.g., carbon monoxide)***.
- ***Some chemicals or contaminants can only be detected when such large quantities are present that your health is already in danger (e.g., ethylene oxide, isocyanates)***.
- ***Your nose can become desensitized to strong odors and you may no longer smell it (e.g., hydrogen sulfide)***.

6.Q: What risks have you encountered in your work activities?

- **Discuss the actual work locations and situations you or your co-workers have encountered.**

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

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 the central nervous, lung and cardiovascular systems. The conveyer 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 to 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.

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

A: 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 designed for continuous human occupancy (it was designed to hold the chain unit); and***
- ***Limited or restricted access (there was a ladder attached to the wall).***

2.Q: What went wrong?

A:

- ***The employee should not have been working in the pit. He had experienced warning symptoms, but didn't report them to his supervisor or to the safety representative. He went back into the pit despite not feeling well.***
- ***Co-workers didn't stop the employee from going back into the pit.***
- ***No one had received confined space awareness training***
- ***There was no confined space program***
- ***A risky rescue could have resulted in a multiple fatalities***

3.Q: What would you do if you were the supervisor and you observed the victim lying in the pit?

A:

- ***Call 911 immediately.***
- ***Do not attempt to rescue the victim by entering the pit.***
- ***Ensure no one goes down into the pit.***

4.Q: Have you ever been in a similar situation of risk?

- **Discuss actual situations you or your co-workers have encountered.**

D. Talking Points

The goal of this part of the review 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).

QUESTIONS (READ ALOUD):

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

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

E. Take Away Messages

Review the "Safety Checklist for Confined Spaces" aloud (found after Section B "Definitions/Hazards"). 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 next page.

Evaluation forms should be returned to you. Completed forms should then be sent 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
Corning Tower, Room 1325
Empire State Plaza
Albany, NY 12237

Or fax to (518) 402-7909

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 and Injury Prevention 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: be www.health.ny.gov/environmental/investigations/face/

Appendix

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 confines 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

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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 information regarding the New York State FACE program can be obtained from:

New York State Department of Health FACE Program
Bureau of Occupational Health and Injury Prevention
Corning Tower, Room 1325
Empire State Plaza
Albany, NY 12237
1-866-807-2130

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