



NYC Department of Environmental Protection
Bureau of Water & Sewer Operations, Environmental Health & Safety (EHS)

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Environmental Health & Safety News for BWSO!



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“For any DEP employee to enter a permit-required confined space, a fully functional and calibrated 4-gas meter has to be on-site as well as a tripod and harness designed for escape and retrieval.”

– BWSO EHS Staff



Environmental Protection
BUREAU OF WATER & SEWER OPERATIONS
ENVIRONMENTAL HEALTH & SAFETY DIVISION

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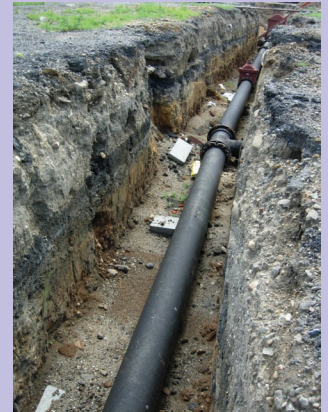
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Permit Yourself to Work Safely— Confined Space Safety Procedures

DEP BWSO workers are sometimes faced with the task of entering sewer manholes and other confined spaces as part of their daily assignments. A confined space, as defined by the Occupational Safety & Health Administration (OSHA), is a space that has the size and configuration that makes it possible for a worker to enter and perform work, has limited or restricted means of entry and exit, and is not designed for continuous occupancy. Many workplaces contain areas that fall within the category of confined spaces. Confined spaces include, but are not limited to, underground storage vaults, tanks, storage bins, manholes, pits, silos, process vessels, and pipelines.

A permit-required confined space is particularly dangerous because it contains or has the potential to contain a toxic or hazardous atmosphere; contains a material that has the potential to engulf an entrant; has walls or floors that converge inward or slope downward and taper into a smaller area, which can have the potential to trap or asphyxiate an entrant; or generally contains any recognized safety or health... **Continued on Page 3**

Did you know that the construction of the Training Center is in full swing?



Read more on Pages 3 & 4.

Petroleum Bulk Storage Tanks: A Closer Look at Leak Detection Monitoring



www.paintsquare.com

Nationwide, there are thousands of Petroleum Bulk Storage (PBS) tanks— NYCDEP BWSO manages 55 of those permitted tanks. In order to prevent leakage, strict regulatory requirements have been established by the U.S. Environmental Protection Agency (EPA) and the NYS Department of Environmental Conservation (DEC). Petroleum releases from storage tanks can seriously impact public health and the environment by contaminating soil, groundwater and surface water, and creating fire and explosion hazards. Because of the serious consequences which may result from the release of petroleum, leak detection of both aboveground storage tanks (AST) and underground storage tanks (UST) is of the utmost importance.

Leak detection allows a tank owner to detect leaks from any portion of the tank or piping that routinely contains petroleum. BWSO must carefully monitor fuel inventories, secondary... **Continued on Page 2**



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TAKE QUIZ ON PAGE 4**

Petroleum Bulk Storage Tanks: A Closer Look at Leak Detection Monitoring

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containment and product levels within tanks. Secondary containment is a barrier between the tank or piping and the environment. The area between the inner and outer barriers, called the interstitial space, must be monitored manually or electronically for evidence of leaks. Automatic tank gauging systems use monitors installed in the tanks which record product levels and temperature. BWSO must continually monitor fuel levels to determine whether there are unexplained losses or gains or the presence of water which could indicate leakage. Regulations require owners of PBS tanks to conduct inventory reconciliation. Inventory reconciliation is like balancing a checkbook; it involves taking daily measurements of tank contents, recording the amount of product pumped each day, recording tank deliveries and reconciling all these data periodically. Poor data collection will produce incorrect or inconclusive results. If the 'checkbook' or inventory reconciliation doesn't balance, this may indicate tank or pipe leakage.

It takes more than equipment to maintain compliance with the leak detection regulations. Facility personnel must monitor our electronic leak detection monitoring systems and report any system alarms, warnings or malfunctions. Every two years the leak detection system is carefully tested by a certified contractor to ensure that the equipment is functioning and capable of detecting petroleum leaks. Records of all leak detection monitoring, system maintenance and system testing are maintained at the facility to ensure regulatory compliance.

With effective leak detection equipment and dedicated personnel, BWSO can respond quickly to signs of leaks, minimizing the extent of the environmental impact and the cost of clean-up.

For more information on PBS tanks and leak detection, refer to the Petroleum Bulk Storage Tank and Container Management Policy.

Safety Items Available at GS-1



For tasks identified as having a potential splash hazard, BWSO EHS and Field Operations Management have found an alternative option to the fully enclosed face shield. The surgical mask decreases the chance of sewage or catch basin debris' inadvertently entering an employee's mouth and nose when he or she is conducting sewer entries and cleaning or flushing manholes, catch basins and sewer lines. Please note that employees have the option to use either

the surgical mask with goggles **OR** the fully enclosed face shield with safety glasses when performing tasks identified as having a splash hazard.



Whip checks have been purchased by Field Operations to prevent hose whip in the event of the accidental separation of a coupling or clamp device. When a pressurized air hose becomes loose, it whips violently, creating a potentially dangerous situation. Spring loaded loops at the cable ends are easily opened to pass over the couplings and provide a firm grip on the hose. Whip checks should be used when an employee connects an air hose to any pneumatic power tool such as an air saw, jackhammer, air pump or pneumatic impact gun.

Strategic Plan Initiative #23— Effective EHS Training for All

As highlighted in the 2011-2014 DEP Strategic Plan, one of the Agency's strategies for worker safety, public health, and environmental protection is to "ensure effective EHS training and education for all employees." Effective EHS education means that employees not only retain important information, but also learn how to think about safety as it applies to their jobs.

Even prior to the inception of the Strategic Plan, BWSO EHS training staff has made delivering effective training its main goal. Achieving this goal is not as simple as just creating and delivering training. The training staff must study the job hazards and determine the types of training needed; improve upon the existing curriculum; gather feedback from our workforce to help determine what types of training is most effective; study injury trends and institute prevention methods as well as other strategies.

Our EHS trainers and curriculum development staff are always looking to increase opportunities for hands-on training specific to operational proficiency and safety. This effort was one of the main factors in recognizing the need for a more effective EHS equipment training program. As a result, EHS has focused on developing equipment training for all applicable BWSO staff.

Effective equipment training does not only help prevent injuries and minimize equipment damage, it also prevents pollution. Bureau metrics show that there is a correlation between the introduction of equipment training for the catch basin machine and the decrease in hydraulic spills. Presently, flusher truck training is available to all affected employees (see pictures below), and we are currently developing training on the use of the vactor truck, boom truck and other machinery.



The EHS trainers and curriculum development staff have not limited themselves to just safety training. Throughout the years, we have also realized the need for additional education opportunities for those who are responsible for delivering high-quality water to NYC, such as our treatment plant and distribution operators. We have introduced courses and new learning tools for water plant operators in subjects such as hydraulics, watershed protection, filtration, ultraviolet disinfection, leak detection, and distribution system maintenance and repair.

The goal for BWSO EHS is not only to provide EHS awareness but to develop an effective training program that covers the safe and effective use of all equipment utilized by bureau staff, and to offer classes that provide our operators with the knowledge and skills needed to keep delivering the best drinking water to our city.



"You guys might wanna stay out of there for a while."

UPCOMING TRAINING: August – September

1. EHS Awareness/ Hearing Conservation/ Workplace Violence Prevention Training
2. Ultraviolet Disinfection
3. HAZWOPER Refresher
4. Traffic Work Zone Safety
5. Flusher Truck Training
6. Boom Truck Training

Questions?
Contact Nelson Leon at
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Permit Yourself to Work Safely— Confined Space Safety Procedures – Continued from Page 1

hazard that can potentially harm or injure an entrant. Not following the OSHA confined space standard can have dire consequences. The following three incidents are examples of how a lack of confined space procedures can result in tragedy. On June 7, 2011 in Durham, NC, two employees from Triangle Grading and Paving Inc. died while working in a water system manhole—one of them apparently died trying to rescue the other. The men were laying water lines in the system. Officials are not sure what happened but the local fire department and hazmat found that the 12' deep hole had insufficient oxygen to sustain life. A similar situation occurred last year on September 6 in



“Local fire department and hazmat found that the 12' deep hole had insufficient oxygen to sustain life.”

Tarrytown, NY, when a firefighter and a sewer worker died after entering a sewer manhole while they were responding to a report of a sewer backup. The firefighter had entered the manhole to retrieve the sewer worker who was overcome by the fumes within the space. Both men were not wearing any protective respirators while they were in the hole. On June 29, 2009 another confined space incident occurred in Queens, NY, where a father and son died. The workers were employed by Royal Waste Services, Inc. and

were contracted by the sewer plant to unclog a drain at the bottom of an 18' deep x 3' wide drywell. The son was trying to unclog the well with a long plunger-like device when he apparently lost his footing and fell into the well. His father, who was working with him, climbed down the hole to rescue him. Both were overcome by toxic fumes. A third man who was working with the father and son also climbed down the hole when he noticed there was no response from the two men; he too was overcome by the fumes in the hole. Firefighters rushed to the scene to retrieve the three men trapped within the hole—all three men were pronounced dead at the scene. Firefighters monitored the atmosphere within the confined space and recorded readings of hydrogen sulfide (H₂S) of up to 200 parts per million (ppm)! The firefighter who retrieved the bodies from the hole wore a respirator and body suit designed to protect him from exposure to hazardous materials.

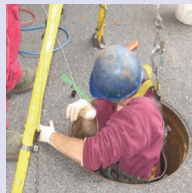
In all three incidents that occurred, there was no evidence that any measures were taken by the employees to monitor the atmosphere before they entered the confined space or while they were working inside the space. They also did not wear the appropriate personal protective equipment (PPE) and did not use specialized equipment designed for escape such as a tripod and harness.

Fortunately for us such incidents are prevented here at DEP BWSO. The Agency has a Confined Space Entry Policy, which is modeled after OSHA's permit-required confined spaces standard, 29 CFR 1910.146. The space must first be evaluated and classified. It may be classified as a permit-required confined space, non-permit confined space, or not a

confined space depending on the characteristics of the space. Per the DEP policy, all sewer manholes are classified as permit-required confined spaces because of the potential atmospheric hazards as well as the engulfment hazards presented by large amounts of water within the sewer system. For any DEP employee to enter a permit-required confined space, a fully functional and calibrated 4-gas meter has to be on-site as well as a tripod and harness designed for escape and retrieval. Employees are required to complete an entry permit and to don the appropriate PPE, which usually consists of a body suit, hard hat, safety boots, and other identified task-specific PPE. At the scene of the entry there must be a designated person to be the attendant who will stay by the hole and monitor the entrant who is inside, and an entry supervisor who is tasked with calling off the entry when necessary and concluding the entry once the assigned task is completed. While the entrant is within the confined space the atmosphere is constantly monitored using the 4-gas meter, which is designed to alarm when elevated levels of a hazardous atmosphere are detected.

By following DEP's confined space policy and procedures, incidents can be prevented. For more information on confined space safety, please refer to the Confined Space Entry Policy.

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A Sneak Peek inside the Training Center!

On Tuesday, July 26, 2011, EHS reporters, Julie Bae and Geysa Gonzalez, got a sneak peek inside the BWSO Training Center. The project commenced on June 1, 2011. A Queens Repair crew, consisting of Angelo Spena, Supervisor, and Construction Laborers Jean Jeanty, Moses Sookoo, and Randolph Bacchus, began the construction of the Training Center at the DEP lot across the street from Queens Repair. The crew received a sketch of the layout which detailed the length and placement of each pipe, gate, and hydrant. Under the direction of Supervisor Spena, the crew installed 143 feet of ductile iron pipe, 6 valves, and 3 hydrants. When the work was complete, the crew pressure-tested the water connection by opening a valve to allow water to flow through the main, and not a single leak was detected—a great success! Below is a sneak peek inside the first construction phase of the Training Center.



11:20 AM: Moses informed the EHS reporters that the work started here where the crew installed a 16" x 8" wet connection. This task involved cutting an 8" hole into the 16" water main. A backhoe assisted with digging the trenches and moving materials inside the excavation.



11:41 AM: Moses pointed out that this is called a three-way connection. He explained that if any of the joints leak, then workers will have to tighten each bolt until the leak stops.

A Sneak Peek inside the Training Center!

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An EHS reporter asked what an employee would learn at the Training Center.

New apprentice laborers will receive operational and safety training on the tools and equipment utilized by Field Operations crews, as well as hands-on instruction on specific maintenance and repair tasks that they will need to perform out in the field. The Training Center will also provide continuing education to BWSO employees to keep them up-to-date on the latest training efforts and to promote a safe work environment.

For example, Jean pointed out the gate valve and explained that an employee at the Training Center will learn how to operate the valve to complete a shutdown in the event of a water main break. Once the shutdown is complete, the pipe is isolated and the repair can be performed on the pipe. Since this water main is 8" in diameter, the gate will be opened/closed manually. If the pipe was bigger, like a 20", then a gate device would be used to open/close the gate.



11:54 AM:

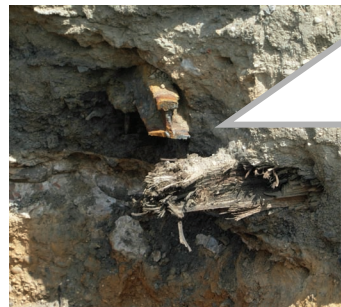
Jean informed the EHS reporters that this piece is called the "reducer." It connects the 8" pipe to the 20" pipe.



12:05 PM: An EHS reporter asked about the blocks. Moses answered that a cap was placed at the end of the pipe and then backed. If the cap is not backed with the blocks, it can blow off. Moses stated "we also add the blocking behind hydrants to ensure they don't blow off."



12:16 PM: One of the challenges the crew faced was when they found a train track underneath the ground while excavating. The tracks were once used to deliver coal to the building on the Queens Repair property. It took the crew (with help from a contractor) 2 days to remove the track from the trench.



In the next construction phase the crew will add sewer pipes. After all the sewer pipes are connected, the crew will back fill the excavation. Streets, sidewalks, and catch basins will be built. Manhole covers will be placed where the gates are located. Once complete, the Training Center will resemble an actual city street.



Jean Jeanty (middle) has worked for DEP for 13 years, Randolph Bacchus (left) for 12 years, and Moses Sookoo (right) for 10 years. With Jean being from Haiti, Moses from Trinidad, and Randolph from Guyana, this Queens Repair crew is also known as the Island Crew. The three have worked together at Queens Repair for 10 years. As Construction Laborers, their responsibilities include, but are not limited to, fixing water mains, sewers, hydrants, and main line gates. The crew members unanimously agreed that the construction of the Training Center is one of the most challenging jobs they have experienced at DEP.

TAKE THIS QUIZ: SUBMIT CORRECT ANSWERS FOR A CHANCE TO WIN A FREE GIFT CARD
BE SURE TO INCLUDE YOUR FULL NAME AND WORK ADDRESS. FAX: (718) 595-5541 AND/OR
EMAIL: BWSOEHS_suggestions@dep.nyc.gov

1. The NYS DEC PBS regulations are triggered once a facility has a total stationary tank storage capacity over:

- A) 55 gallons
- B) 1,320 gallons
- C) 1,100 gallons
- D) 10 gallons

2. OSHA does not have a regulatory training requirement for which of the following:

- A) Forklift
- B) Backhoe
- C) Gantry Crane
- D) Scaffolding

3. A Confined Space Entry Supervisor may also serve as an attendant or as an authorized entrant if:

- A) there are two entrants.
- B) the individual is trained and equipped as required by the Confined Space Entry Policy.
- C) there are no atmospheric hazards present in the space.
- D) None of the above

Answers for June 2011 Newsletter Quiz: 1) C 2) B 3) D

Editors:

Julie Bae & Karen L. Marino

We'd love to hear from you!

E-mail us at:

BWSOEHS_suggestions@dep.nyc.gov