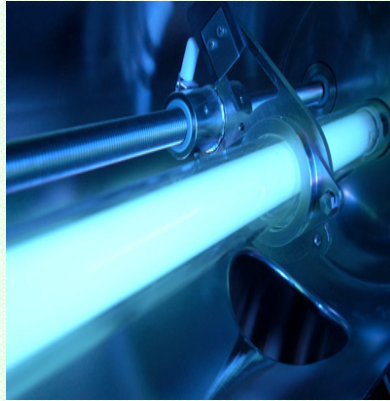


NYC Department of Environmental Protection
Bureau of Water & Sewer Operations, Environmental Health & Safety

59-17 Junction Boulevard, 3rd Floor
Flushing, New York 11373-5108

What Does the Team of Water and UV Light Create? Improved Water Quality!

The New York City (NYC) Department of Environmental Protection (DEP) is in the process of adding a new disinfection system to protect the Catskill-Delaware watershed, a critical step in avoiding the need for filtration (known as Filtration Avoidance Determination from a regulatory standpoint). Chlorine is currently the only means of disinfection being used by many municipalities, but in order to provide secondary disinfection in addition to chlorine, alternative and complementary systems are in growing demand. One example of such an alternative is UV disinfection.



Chlorine is very capable of eliminating many types of pathogens which are responsible for causing gastro-intestinal and other diseases in humans. These diseases have been virtually eliminated today in the United States thanks to the prevalence of Chlorine. *Life* magazine has stated that the "filtration of drinking water and the use of chlorine [are] probably the most significant public health advances of the millennium."

So, What's the Problem with Chlorine?

Some protozoa and organisms are chlorine-resistant. The most common of these resistant organisms are *Cryptosporidium* and *Giardia Lamblia*. While these organisms are not generally life-threatening to healthy people, they can cause serious disease or death to immune-compromised, elderly, or other vulnerable populations.

Continued on Page 3

In this issue:

What Does the Team of Water and UV Light Create? Improved Water Quality!	1
Steps to Safety: Part Two – Avoiding Injuries by Proper Truck Cab Entry/Exit	1
Dear BWSO Colleagues...	2
Safe Holiday Parties and Alcohol	2
Ring in the New Year with the New NYC Fire Code!	2
Upcoming Training	2
Anatomy of an Investigation: The Minneapolis I-35W Bridge Collapse	3
Employee Profile: Ray Navarro, Stationary Engineer, Electric	4

Remember the Minneapolis Bridge Collapse?

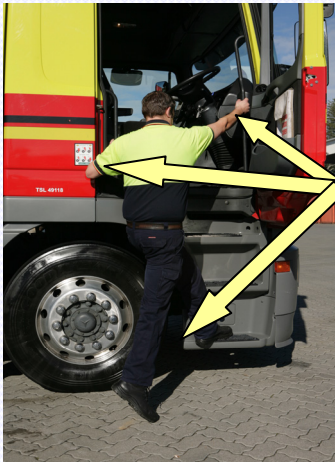
See article on page 3



"An interesting case study which reinforces the importance of the continuity of checks and balances."

Steps to Safety: Part Two – Avoiding Injuries by Proper Truck Cab Entry/Exit

In the last issue of *The Conduit*, we featured articles on ladder safety and on the importance of not only reducing the number of injuries, but also changing the thought processes and conditions that frequently precede serious injury. Perhaps you can recall a time when you unthinkingly compromised your own safety in the name of efficiency? We are all, at times, absent-minded, lazy or pre-occupied. That's when we make mistakes!



This is what is meant by the "3 point system". The worker is exiting by facing the cab, holding onto the grab bars with both hands, and firmly planting his foot firmly on the step. This configuration will minimize the chances of twisting, losing balance or slipping while exiting or entering the truck cab.

Did you know that in the last two years, BWSO has recorded 22 injuries related to falls off trucks? Of those, 14 were recordable and resulted in more than 215 lost work days (in addition to a lot of unnecessary pain!). Proper entry/exit practices would have drastically reduced the severity of these injuries.

more than 22% of vehicle operator injuries are related to slips and falls from the vehicle, second only to vehicle accidents. A study conducted by Liberty Mutual Insurance showed that the *impact* of falls experienced by subjects who **DID NOT** use the cab grab bars was an average of 12 times their

body weight. Such impact is serious enough to break bones and result in serious injury. When subjects fell while using the grab bar and steps, impact was only 1-2 times their body weight.

Another startling finding from a related observational study was that 91% of drivers exited the cab the wrong way...facing towards the outside, rather than towards the cab. This act alone is the leading cause of exit injury.

Continued on Page 3



December's Quiz is full of Recycled Questions!

See Page 4!



BUREAU OF WATER & SEWER OPERATIONS
ENVIRONMENTAL HEALTH & SAFETY DIVISION

Dear BWSO Colleagues:

Our Bureau Environmental Health and Safety newsletter, *The Conduit: EHS News for BWSO*, is one of several ways of maintaining open communication with you throughout the year. We hope you continue to see the newsletter as a source of good EHS information, updates and education.

The goals of *The Conduit* are to:

- ❖ Keep you up-to-date on EHS news, both within and outside of BWSO. We continue to enhance the quality and size of our network to ensure that we cover the latest events and news.
- ❖ Review key Occupational Safety & Health Administration (OSHA) standards and regulations.
- ❖ Provide a mechanism for feedback and critiques on articles and the overall EHS program. To enable you to voice your opinions, our new suggestion program equips you with suggestion cards, mailboxes, and a new e-mail address: BWSOEHS_suggestions@dep.nyc.gov
- ❖ Recognize your accomplishments and challenges!
- ❖ Provide a forum for learning which is interesting.

In 2009, we will continue to provide you with bi-monthly newsletters to keep you abreast of EHS programs and policies. Remember too, that your Bureau EHS Specialists are always available to help out or answer a question. We hope that you will take advantage of these opportunities and voice your views to help ensure that we provide the best possible EHS assistance.

For those of you who have offered feedback, we thank you. All others, we hope to hear from you soon. Please remember that EHS program effectiveness is dependent on YOU and Bureau EHS working together. You are the primary source of our best ideas, initiatives and learning. Keep up the great work!

On behalf of the entire BWSO EHS Division...I offer our sincerest wishes for a safe, happy and healthy holiday season. We look forward to working with you in the coming year.

Persis D. Luke, Director, BWSO EHS

UPCOMING TRAINING

1. Respiratory Protection
2. CPR – Initial Training
3. CPR – Refresher
4. Chainsaw Use/Safety

Questions? Contact Nelson Leon x5544 or e-mail at neleon@dep.nyc.gov

★ Safe Holiday Parties and Alcohol ★

The holiday season is a time for celebration and cheer. During the holidays, traffic accidents and deaths increase dramatically because of alcohol consumption. Fortunately, there are several steps you can take to avoid being involved in an alcohol-related accident—or having a guest who is involved in one.

Before reading on, it is important to note that as DEP employees, drinking any amount of alcohol and then driving a city vehicle is strictly prohibited.

Your body takes about one hour to rid itself of a half ounce of alcohol. So, if you drink alcohol during the holidays try to follow the *one-one rule*:

one drink per hour. Also, try to encourage people around you to do the same and discourage your guests from indulging in straight-shot drinks.

Be sure you supply plenty of snacks which can help absorb alcohol in the stomach, and stop serving drinks one hour before the party ends.

Consider serving mixed drinks made with

“It is important to note that as DEP employees, drinking any amount of alcohol and then driving a city vehicle is strictly prohibited.”



juices instead of carbonated beverages since carbonation accelerates the effects of alcohol. Make sure there are plenty of nonalcoholic beverages in plain view so that your guests have a choice.

Encourage your guests to choose designated drivers before they come to your party. Most important, don't let your guests, friends or relatives drive after they have been drinking.

Designated drivers must be willing to stay sober and drive others home. If you plan on attending holiday parties and drinking alcohol, follow the same guidelines as outlined for your guests.

- **Don't drink alcohol in excess of the one-one rule.**
- **Never drink alcohol on an empty stomach.**
- **Don't drink if you are pregnant, trying to conceive, using medication or if you have had difficulty drinking moderately in the past.**
- **Feel free to refuse alcohol for any reason—regardless of pressure to drink.**

Excerpted from Holiday Safety At the Top of Your List, 1996 Coastal Training Technologies Corp.

Ring in the New Year with the New NYC Fire Code!

The NYC Fire Department's (FDNY) revision to the century-old Fire Code has arrived! The four-year revision project ended earlier this year, and the revised Code came into effect on July 1st, 2008. The Code (which does include parts of the old Code) sets fire safety requirements that govern a vast range of activities from the storage, handling, and use of hazardous and combustible materials to emergency preparedness.

According to the FDNY Commissioner, the revised Code gives a “more specific and detailed treatment” of different situations and includes a series of comprehensive new safety standards.

The revised Fire Code is modeled after the International Fire Code (IFC), and is also in line with the revised NYC Building Code. The Fire Code elaborates on the operation and maintenance of buildings and their systems, while the Building Code covers the design and construction of buildings, including their fire safety systems.

“Together, the new Fire and Building Codes will improve safety while also making it easier for construction professionals, designers, property owners, businesses, and others to work here more efficiently and understand their obligations under the law,” Mayor Bloomberg said in a statement earlier this year.

The revised Fire Code applies to all persons and places in NYC. Everyone must comply with its prohibitions and fire safety requirements. Persons and businesses that conduct or supervise the activities regulated by the Fire Code may also be required to obtain permits and certificates that

authorize them to engage in those activities. For instance, in order to store a certain quantity of flammable/combustible liquids on site, a permit must be obtained and there must be at least one employee with a Certificate of Fitness (COF) to supervise the storage of material.

The requirements of the Fire Code are extensive, and determining their applicability to BWSO operations can be daunting. Bureau EHS is working to determine which revisions to the Fire Code directly apply to our facilities in order to ensure that we are in full compliance. We will communicate with you about this issue over the next several months. If you have any questions regarding how the new Fire Code will affect your facility, please contact your Bureau EHS liaison.

For more information visit:
<http://www.nyc.gov/html/fdny/html/firecode/faq.shtml>.



Anatomy of an Investigation: The Minneapolis I-35W Bridge Collapse

As New Yorkers, we often find ourselves driving over one of many bridges in order to navigate around New York City. Crossing over the rivers and bays that define the shape of our great city is so routine, we rarely think about the planning and engineering that went into building, not only our city's bridges, but all bridges across the U.S.

In August of 2007, the city of Minneapolis was hit with a devastating tragedy when one of its most highly traveled bridges collapsed during rush hour. The I-35W Bridge, an eight lane, 1,907-foot-long highway overpass that spanned the Mississippi River, collapsed with 456 feet of the main span falling 108 feet into the river. More than a year later, (November 2008), the National Transportation Safety Board (NTSB) issued a ruling regarding the causes of the bridge collapse, concluding that there were two primary factors:

1) The steel gusset plates (see below) that held the bridge beams together were undersized and had erroneously been designed to half the required thickness (0.5" instead of 1.0") that would be required to support the intended load of the bridge.

2) Contributing to that design error was the fact that at least 2 inches of concrete/paving had been added to the road surface of the bridge over time increasing the dead load by 20%.

At the time of the collapse, the bridge was undergoing (another) resurfacing, and was overburdened with supporting the extra weight of the construction equipment and materials just above the weakest point in the bridge.

This perfect storm of conditions "triggered a cascading effect that led to the failure of the span, and in effect pushing the structure beyond its capacity."

Additionally, the NTSB investigators concluded that "the bridge engineers and inspectors did not have a system in place to double and triple check that all factors and safety features of the bridge were sound."

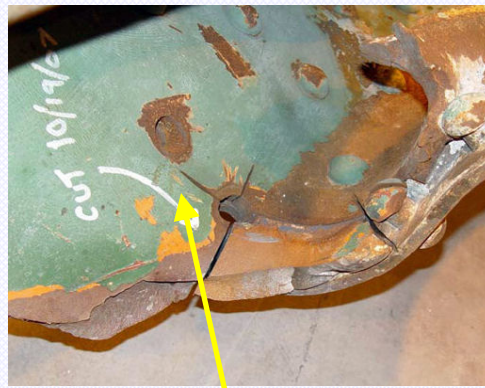
Gusset Plate



Lessons Learned

This is an interesting case study which reinforces the importance of the continuity of checks and balances, not only in structural design and construction, but in the years of maintenance, inspection and testing that follow. Attention to detail is paramount. What would have been the ending of this story had the design firm double-checked its design calculations on the gusset plates? What if the bridge inspectors had put two and two together and had attributed the stress signs of the gusset plates to their design, not just the years of use?

Sources: NTSB, CNN and Minnesota Public Radio Transcripts.



Failed Plate

Steps to Safety: Part Two – Avoiding Injuries by Proper Truck Cab Entry/Exit Continued from Page 1

So what can YOU do to prevent a serious injury? It's simple....

1. **THINK** before you enter or exit the cab of your vehicle!
 2. **ALWAYS** enter and exit the cab facing the truck cab. It is tempting to jump, step or hop out of the cab facing forward. Don't do it!
 3. Use the "three point rule" – always keeping three points in contact with the vehicle by way of grab handles and steps. For example, at least two hands and one foot or two feet and one hand. (See photo on Page 1).
 4. When you transfer weight from the ground to the vehicle step or platform, look for ice, oil, sand or other potentially slippery material. Make sure surfaces are as clean and dry as possible.
 5. Make sure your footwear is in good condition. All Safety Shoes provided to employees have slip resistant soles.
- If you notice any conditions or defects on your vehicle that will compromise your safety (e.g. missing grab handles, bent steps, loss of friction on steps, etc.), let your supervisor know immediately.

Feel free to contact EHS by phone or e-mail if you have any questions, comments and/or ideas on vehicle safety. We want to hear from you.

What Does the Team of Water and UV Light Create? Improved Water Quality! Continued from Page 1

UV disinfection, if administered effectively, provides a more effectual way to ensure elimination of these organisms from our drinking water, while also reducing our dependence on chlorine. UV disinfection passes relatively benign UV rays, which have wavelengths between 100 and 300 nm with high energy levels (between visible light and x-rays) through the water. The sun emits UV rays, which are responsible for the warming and burning of our skin if we are over-exposed. There are no health risks from working around UV light as long as there is no direct contact with the eyes or prolonged contact with skin. Safety controls are built into the equipment and process.

How Does UV Disinfection Work?

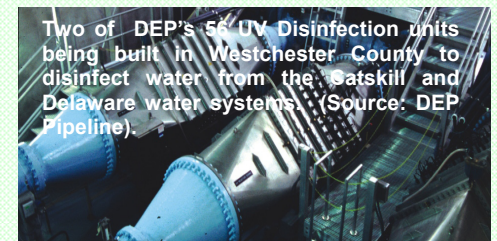
In order to kill micro-organisms, UV rays must actually strike the cell of the organism. UV energy penetrates the cell wall, passes through the cell body, and disrupts the DNA. This process disables the cell and prevents it from multiplying. UV, unlike filtration, does not actually remove organisms or other dissolved materials, so it is most effective for water that has already been filtered or meets

low turbidity criteria. It also differs significantly from chemical treatment in that UV treatment does not alter the water chemically. Nothing is being added to the water, except energy!

The Catskill-Delaware UV disinfection facility, which is currently under construction, will be the largest UV disinfection facility in the world and will be able to process slightly more than 2 billion gallons of water a day. It is estimated that this facility will eliminate 99.9% of Cryptosporidium, and reduce the volume of chlorine needed by the DEP to deliver the safest and highest quality of water to residents of New York City.

For more information:

http://pipeline/subsections/capital_projects/pdf/catde_uv.pdf



Two of DEP's 56 UV Disinfection units being built in Westchester County to disinfect water from the Catskill and Delaware water systems. (Source: DEP Pipeline)

Ray Navarro – Stationary Engineer, Electric



Ray Navarro is a Stationary Engineer, Electric at New Clove Pump Station in Staten Island, New York. Ray has been serving as the facility Safety Officer since the inception of the EHS Safety Officer Program. Ray began his career with the NYC DEP as an Oiler in 1981 and was later promoted to Stationary Engineer in 1985. Throughout his career, Ray has worked at various BWSO Pumping Stations, such as Clove, 179th Street, Jerome, and Mosholu. In addition to Ray's Stationary Engineer responsibilities, which includes operating and maintaining the pump station's equipment and supervising employees, Ray takes safety very seriously and works hard to comply with all EHS regulations.

Q: Where are you from?

A: I am from Staten Island, and I am a native New Yorker.

Q: Where did you attend school?

A: I attended New Dorp H.S. The former Staten Island Tech!

Q: Do you have any hobbies and/or interests? What do you like to do in your spare time?

A: I enjoy watching my kids play sports. In my spare time, I enjoy playing golf.

Q: So, prior to working for DEP, where did you work?

A: After graduating from New Dorp H.S., I joined the U.S. Air Force and worked as a heavy equipment mechanic for four years. After the U.S. Air Force, I found a job as an Oiler for outside construction and worked at Giants Stadium and the Sports Complex out in New Jersey.

Q: WOW, you were in the U.S. Air Force! How did you become a heavy equipment mechanic?

A: In the Air Force, everyone takes an aptitude test and the scores revealed that I was mechanically inclined.

Q: So, how did you choose a career at DEP?

A: I heard about DEP from fellow Oilers and took the civil service exam to become an Oiler for DEP.

Q: What are your responsibilities as a Stationary Engineer, Electric? What does the Electric part mean in your title?

A: There are 4,000 volts in the facility needed to operate the equipment. It's dangerous! In this title, you need to know how to deal with electricity. Stationary Engineers, Electric perform maintenance on the equipment, motors, and pumps at the facility. My responsibility is to supervise the men here, operate the equipment – which is to maintain the water pressure distributed to houses and buildings throughout Staten Island, and maintain the equipment.

Q: What types of EHS duties have you participated in?

A: I am the main Safety Officer for this facility. I try to make sure safety regulations are followed. For instance, making sure the proper PPE is worn, performing facility inspections, updating the Compliance Tracking System (CTS), performing audit preparations, and attending the safety meetings. Our main thing here is lockout-tag out due to the high voltage. We have to make sure that the electricity, pumps, and diesel engines don't come on when personnel are working on the equipment. Also, we have to ensure the diesel engines work properly to pump water to NYC

even when there is no electricity. These diesel engines would be activated to provide water to the city during a blackout.

Q: Have you ever supervised during a blackout?

A: Yes, I was supervising here during the August 2003 blackout.

Q: What do you enjoy most about your job?

A: In the beginning, I enjoyed traveling to the different facilities, seeing the different structures, and learning how each facility operated. Working at Central Park Reservoir was enjoyable because I got to see the civil war structures. I also enjoy working with the men here.

Q: Do you feel as if you have achieved and/or met your career goals here? If not, how satisfied are you in your career?

A: Yes, I feel that I met my goal when I became an Engineer.

Q: What is your greatest achievement?

A: My greatest achievement in life is my marriage of 27 years to my wife, and my two kids.

Q: Any words of wisdom, advice or motto to share?

A: "Don't take things for granted and just use common sense!"

NYC Department of Environmental Protection

Environmental Health & Safety Division
Bureau of Water & Sewer Operations
59-17 Junction Boulevard, 3rd Floor
Flushing, NY 11373-5108
Phone: (718) 595-5343
Fax: (718) 595-5541
E-mail:
BWSOEHS_suggestions@dep.nyc.gov

James J. Roberts, P.E.

BWSO, Deputy Commissioner

Persis D. Luke

Director, Environmental Health & Safety

Occupational Health & Safety:

Fred Chyke-Okpuzor, Manager

Adenike Bamgboye

Marc Blaise

Lovely Desir

Alexander Grabarnik

Jacqueline Hincapié

Sandra Knight-Lemons

Fernando Park

Vyacheslav Repik

Lal Sarju

John Sloane

John Townsend

Environmental Compliance:

Shay McAtamney, Manager

Harry Singh, Acting Manager

Matthew Dominick

Nicholas Minunni

Jane Weber

Melissa Whitley

Program Development:

Karen Marino, Manager

Education, Training & Administration:

Nelson Leon, Supervisor

Jenny Lai

Michele Moorgen

Andrea Shivcharran

Allan Straker

Audits & Communications:

Esther Rodriguez, Supervisor

Julie Bae

Sheldon Hudson

Jennifer Jones

Editor: Andrea Shivcharran

Co-editors: Julie Bae, Karen Marino & Persis D. Luke

Questions/Comments?

E-mail us at:

BWSOEHS_suggestions@dep.nyc.gov

TAKE THIS QUIZ: SUBMIT CORRECT ANSWERS FOR A CHANCE TO WIN FREE DUNKIN DONUTS GIFTCARDS WITH \$10 VALUES!

BE SURE TO INCLUDE YOUR FULL NAME AND WORK ADDRESS. FAX: (718) 595-5541 OR EMAIL: BWSOEHS_suggestions@dep.nyc.gov

- If excavations exceed _____, a Competent Person shall determine the potential for hazardous atmosphere/oxygen deficiency (e.g. based on nearby landfills or hazardous substances storage).
a) 2 feet b) 4 feet c) 5 feet d) None of the above
- In cases of _____, a supervisor must fill out an Incident Investigation Report (IIR).
a) Medical treatment b) First aid
c) Absence d) Hospitalization of 2+ employees
- When reporting a spill, EH&S requires the following information:
a) Material spilled.
b) Time lost (in work hours) as a result of the spill
c) Approximate quantity of material spilled
d) A and C
e) All of the above
- According to OSHA, which of the following is NOT an acceptable protective support system for an excavation?
a) Sloping b) Benching c) Plastering d) Shoring

Answers for November 2008 Newsletter Quiz: 1) D 2) A 3) C 4) C