V.I.E.W.S.

VIEWS & INFORMATION ON ENVIRONMENTAL AND WORKPLACE SAFETY

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Excavation and Trenching

Open excavations and trenches are synonymous with construction and DEP sure has plenty of 'em! They can pose serious hazards to both those "in the hole" as well as those in their immediate vicinity. Some hazards may be obvious, while others are not so easy to spot. Cave-ins are the biggest danger and present the highest risk of fatalities. DEP EH&S has developed an Excavation and Trenching policy to ensure that *all employees* can recognize and avoid unsafe conditions. Following are some basics on excavation and trenching safety and some key points of the new policy.

> It's important to remember that, just because a competent person is on the job, it doesn't mean you can go in without knowing the hazards and using required safety procedures before working in excavations

Definitions

An **excavation** is defined as "any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal."

A **trench** is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).

HAZARDS

What's so dangerous about excavations? Get a load of these hazards.

Buried utilities: Every year, excavating machinery disrupts existing gas, water, electric, and communication conduits, resulting in costly damage, delays, injuries – and worse. For this reason, all reasonable efforts must be made to locate and mark out buried utility lines before work begins. All excavators are required by New York State Law to call a central service 2 to 10 days prior to excavation (in NYC, "One Call Center," 1-800-272-4480). This service will contact utility companies who will send their own representatives to the site to mark out the locations of utilities. Even if the utilities are marked out, these markings are not always accurate and may not include every line in the area. Test pits and hand excavation may be required to determine precisely what is in the ground.

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Inside this issue

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Hazardous Communication: Right to Know

Chemicals have so much become a part of the fabric of our daily existence that it would be difficult to imagine life without them. But what has also become well known is that some chemicals come with a big price tag in the way of Physical or Health Hazards, or both. The best away to remain free of the hazards of chemicals is to avoid using them at all. But this may not be always feasible in modern work environments. Obviously then we must find a way to work with them safely.

Far from being just vague expressions of desirable, altruistic intents, there are very definite laws governing employee use of hazardous chemicals, both in State and Federal regulations. The State Law is designated 12 NYCRR part 820 also known as Right to Know and the Federal Law 29 CFR 1910.1200. As we shall see, these laws work together to protect workers from chemical hazards.

Far from being just vague expressions of desirable, altruistic intents, there are very definite laws governing employee use of hazardous chemicals, both in State and Federal regulations.

Whenever employees are asked to work with hazardous chemicals, there are three questions that they must ask themselves:

- How can this chemical hurt me ?
- What must I do to protect myself from them ?
- Where can I find answers to both of the above questions ?

The first step in using chemicals safely is to recognize those chemicals that might be hazardous to health or physical safety.

The Hazard Communication / Right to Know standard is made up of six key elements:

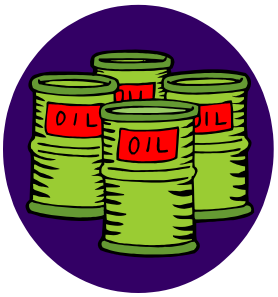
- Materials Inventory. A list of all the hazardous chemicals in the work area.
- Material Safety Data Sheets (**MSDS**). A detailed description of each hazardous material in the facility.
- Labeling. Labels which identify the material and warn of their hazards **must** be present on the containers of all chemicals..
- Training. All employees must be trained to identify and work safely with hazardous chemicals.
- Written program. A written Hazard Communication Plan must be developed to tie all of the above together.
- Employee rights: A statement of the rights of employees under this Law must be published.

Information and communication are at the heart of the standard. Before hazards can be communicated they must be *evaluated*. The first duty in hazard communication lies with the manufacturer, who must document the various hazards of the chemical and write a statement about how to protect oneself from it. Each chemical produced or sold by them must have a proper label on it and must be accompanied by a viable MSDS.

HAZARDS OF CHEMICALS

These fall in two classes:

Physical Hazards: corrosiveness, flammabilty, explosiveness, pyrophoricity, and oxidising character are the usual physical hazards.
Health Hazards. Toxicity, carcinogenic character, mutagenic and teratogenic nature, corrosive nature are the usual heath hazards.



Corrosiveness occurs in both hazards. The Radioactive nature of certain chemicals is a special form of health hazard, dealt with by separate, very detailed standards, both in Federal and State regulations,

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Excavation and Trenching

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Buried utilities can pose engulfment, atmospheric or other potential hazards even after the actual digging is completed. If a live water or gas main in a trench leaks or breaks while workers are in the excavation, escape may be difficult or impossible.

Cave-ins: Excavations in soils, which are not properly supported or sloped, could result in a collapse. Often a trench wall will stand for a period of time until a trigger, such as a vibration, overloading or rain event causes a failure.

Falls and falling objects: Edges of excavations may require barriers or guardrail systems to protect workers or the public from falling in. Workers in the hole may be subject to falling loads or debris.

Heavy machinery: Heavy equipment poses many potential hazards including the overloading of excavation support, vibration, noise, overhead loads and moving buckets and arms.

Traffic zones: Excavations in roadways subject to motor vehicle traffic must be adequately guarded for the protection of both the workers and public motorists. Besides, setting your new water line through a Volkswagen is not such a great idea.

There are many more potential hazards as well, most of which are compounded by the low lying and often confining dimensions of excavations.

Competent Person

In order to control the hazards, first you have to be able to spot 'em. All excavations and trenches must have a designated **Competent Person** who *can identify the hazards and has the authority to promptly correct them.* This person will be designated by the DEP supervisor or, in the case of work done by contractors, by the contractor's management. Responsibilities include:

- Ensuring all other necessary programs (e.g., Lock Out Tag Out, Confined Space, Work zone/Traffic safety, etc) are implemented as required;
- Conducting soil classifications upon starting work and during the project;
- Determining proper sloping/benching/shoring systems;
- Performing inspections of excavations and adjacent areas;
- Advising all employees in the excavation to immediately exit the trench if there are warning signs of trench failure.

General Requirements

Once the hazards are recognized, there are many ways to control them. Some of the basic requirements include:

- All excavations or trenches 5 feet or greater in depth shall be appropriately benched, shored, or sloped according to the procedures and requirements set forth in OSHA's Excavation standard, 29 CFR 1926.650, .651, and .652.
- All excavations or trenches 20 feet or greater in depth must have a protective system designed by a registered professional engineer.
- If excavations exceed 5 feet, a ***Competent Person*** shall be present whenever personnel enter the excavation.
- Trenches 4 feet or more in depth shall be provided with a stairway, ladder, ramp or other safe means of egress within 25 feet of any worker.

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Hazardous Communication: Right to Know

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which lie outside the scope of what is commonly understood as Hazard Communication / Right to Know.

The bare 12 NYCRR part 820, or the State Right to Know Law, addresses only TOXIC chemicals. We have already seen that there are many more hazards of chemicals than just toxicity. Wherever a state regulation does not go far enough or falls short of protecting employees completely, the greater, more complete Law, which in this case is the Federal Law, is automatically enforced. So by complying with the Federal Law we are, at the same time, complying with the State Law. This is very much the case with the DEP Hazcom / RTK regulation.

Product Labeling

ALL chemicals must come with a label on them. Whereas the actual format might differ from company to company, the labels must contain similar types of information. It should be easy to find out at a glance what the chemical is, what its hazards are, and what basic steps you can take to protect yourself when using it.

In addition, some symbol indicating hazard class and degree of hazard must be on the label. The NFPA has developed a very useful device whereby color coded squares are coupled with a numeral indicating type and degree of hazard. Red stands for fire hazard; Blue stands for health hazard, and Yellow stands for reactivity hazard. Each of these colored squares also contains a number on a scale from 0-4 where 0 stands for no hazard and 4 stands for maximum hazard. These colored squares will be found on most labels.

MSDS

While labels are a useful way to be informed about hazardous chemicals, there will be times when you will need more information than is contained on a label. This need can be answered by the Material Safety Data Sheet or the MSDS.

The **MSDS** provides detailed information about one specific hazardous chemical. An MSDS contains the following information:

- Identity (name of the chemical). Accompanied by the address of the manufacturer / vendor and contact telephone number.
- Physical hazards.
- Health hazards (this will include a mention of target organ or organs, if applicable).
- Routes of entry into the body.
- Exposure Limits.
- Carcinogenic character (if any).
- Safe handling procedures.
- Control measure for exposure control, like Personal protective equipment.
- First Aid and Emergency measures.
- Special instructions, if any.

Physical Hazards

Corrosive, flammable, and explosive chemicals and those that are oxidisers and pyrophoric need specialized handling procedures as well as personal protective equipment. Incompatibility of certain chemicals, one with another, must also be kept in mind in storage procedures. All this information can be obtained from a MSDS and should be followed very carefully.

Health Hazards

Even the deadliest health hazard is not a problem as long as it has not entered the body. So an understanding of how a chemical can enter the body is very important. There are three main **Routes of Entry**: **Inhalation , Ingestion, and Through the skin.** The MSDS will inform us whether the chemical has one or more routes of entry. ALL the routes of entry detailed therein must be guarded against or barred to keep one safe from the chemical from entering the body. All except ingestion can be accomplished through appropriate PERSONAL PROTECTIVE EQUIPMENT (PPE). The PPE for inhalation hazard are called respirators. These range from dust masks to self contained breathing apparatus systems. Proper evaluation must be carried out before deciding whether

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to use air filtering or air supplying respirators.
PPE for other parts of the body are safety spectacles, face shield, hard hat, hearing protection, foot protection, and hand protection.

Control Measures

Control measures follow three principles:

Engineering Controls: Changes are made to the structure or facility or equipment in such a way that the hazard is contained or minimized or eliminated. A good example is improved ventilation or providing localized ventilation to sweep inhalation hazards away from the vicinity of the employee.
Administrative Control: Changes are made to the procedures in such a way that the hazard is controlled or minimized. Product substitution and limiting access to hazardous areas are two good examples of administrative control.
Personal Protective Equipment: When the above two are not feasible, PPE ***must*** be given to the workers to protect themselves. There must always be an attempt to effect changes by engineering controls and administrative controls *before* resorting to PPE.

Employee Rights

Certain rights pertain to employees regarding the Hazcom/ RTK law:

- The right to be informed of the existence of the law and what it means.
- The right to be informed of the hazards of the chemicals employees might be exposed to during the course of their work duties.
- The routes of entry of hazardous chemicals.
- The target organs of the hazard.
- The permissible exposure levels (PEL).
- How employees can protect themselves from the hazards of the chemical.
- Where to find the MSDS and the Hazard Communication Plan.
- Training to protect employees from the hazards and how to read and understand the MSDS.
- The right to have the MSDS supplied within 72 hours (not counting weekends and holidays) of requesting it.
- The right to be told that ALL the above are employee rights.

At the same time that Training for Hazcom / RTK is given in the agency each year, in accordance with Union requirements under contractual agreement with the Mayor's Office, training is also given for:

ERGONOMICS / COMPUTER STATION SAFETY

Office Safety

While relatively safe from the usual hazards that operational locations are prone to, office environments are by no means immune to hazards. Dangers lurk in unlikely places. Uneven floor surfaces, ill placed furniture, lack of organization, bad house-keeping, overloaded electrical outlets, these can result in very substantial injuries.

They can be prevented by proper care in the arrangement of furniture, maintenance of flooring and carpeting, good housekeeping, and inspection of electrical cables and wiring. Physical hazards that result in trips and falls or cuts can be effectively controlled with minimal thought.

Chemical Hazards

A survey turned up three chemicals that might be called **remotely hazardous**, which are used frequently in offices. These are copier toner cartridges, white-out or liquid paper, and glues.

Employees are informed of their rights concerning the possible hazards of these chemicals in the relevant MSDS on their floor, posted at appropriate locations. The MSDS also tells employees whom they should ask for more information.

Video Display Terminal Safety

By Video Display Terminals (VDT) we mean the whole complement of personal computers and their ancillary equipment, such as the key board, mouse, and document holder as well as the computer chair or seat where the operator spends most of his or her time while at work at the station.

(More on VDT's at page 7)

EH&S Training at Con Edison

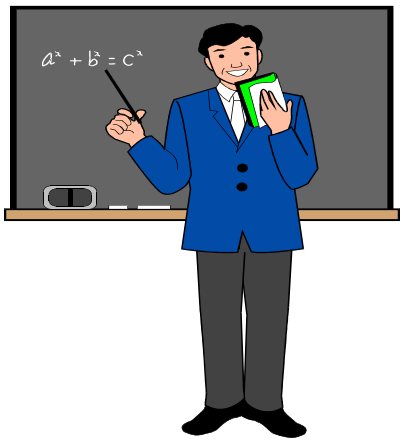
By Les Taub

How do you train almost 2,000 DEP employees on 25 Health & Safety and Environmental topics, and provide competency training in ten of those topics for up to 1,500 employees, all within a 12-month period? This was the challenge facing the agency's Office of Environmental Health and Safety Compliance last spring as we reviewed our compliance action plan. Luckily, we had a partner – **Con Edison**.

DEP (specifically, the Bureau of Water and Sewer Operations) entered into a contract with Con Ed in June 2003, for Con Ed to provide EH&S training to DEP employees at Con Ed's training center in Long Island City as well as at other locations requested by DEP. Under the provisions of the contract, DEP can purchase any materials developed by Con Ed for this training. The term of the contract is three years, with an option for two one-year renewals.

The first step was to devise a schedule and curriculum. The 25 Health & Safety and Environmental topics and ten competency classes were arranged into two six-month sessions, A and B to meet CAP deadlines. *(See the chart on page 8.)*

Session A commenced at Con Ed on July 8, 2003, when Commissioner Ward, Deputy Commissioner Doug Greeley of BWSO, and Assistant Commissioner Gerould McCoy, the Agency's Compliance Officer, addressed the class to underscore the Agency's focus on the EH&S program. (Subsequent classes



saw a DEP-produced video on the same topic, featuring those three officials and BWS Deputy Commissioner Mike Principe). Session A finished in December, overlapping with the first Session B competency classes.

Con Ed's awareness classes combine lecture, discussion, PowerPoint presentations, and videos. Class participation is encouraged. Participants are arranged in teams, and every question, answer, and comment from team members earn points for their team. The classes conclude with a Jeopardy-style quiz game, and the competition can become quite intense. Members of the winning team receive safety-oriented prizes, such as safety glasses, glow sticks, and cooling rags.

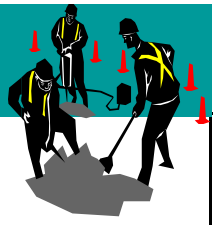
Competency classes combine lectures with hands on training and demonstrations. Some of these classes are at DEP facilities, allowing training on the actual equipment. For example, the Session A Crane and Hoist classes were held at the Hillview Reservoir and at the Douglaston, New Clove and 179th St. Pumping Stations. Upcoming Lock-Out/Tag-Out and Hot Work classes will take place "on-site."

OEHSC and bureau staffs work closely with Con Ed to ensure that the course materials comply with DEP's programs and procedures. OEHSC and Bureau EH&S staffs monitor the classes on a periodic basis.

The feedback from DEP employees on the content and delivery of the classes conducted to date has been very positive. They are very impressed with Con Ed's training staff (who, by the way, are very impressed with the enthusiasm of our employees).

(Les Taub is Director of Training for DEP's EH&S Unit.)

Excavation and Trenching



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- Trench and excavation sites located in an area of vehicular traffic must be protected with cones, signs, and barricades in accordance with DEP's Work Zone Safety manual and U.S. DOT regulations. High visibility traffic vests must be worn as required.
- If excavations exceed 4 feet, a ***Competent Person*** shall determine the potential for hazardous atmosphere/oxygen deficiency (e.g. based on nearby landfills or hazardous substances storage). If such potential exists the ***Supervisor*** shall notify ***Bureau EHS*** to arrange for testing the atmosphere in the excavation before employees enter.
- If there are signs of chemical or petroleum contamination of soil or water in an excavation (e.g., odor or sheen), a ***Supervisor*** shall contact ***Bureau EHS*** to arrange for an environmental assessment. Unauthorized DEP personnel should not remove or transport contaminated material.
- Unsafe water accumulations must be eliminated before working in a trench/excavation.

It's important to remember that just because a competent person is on the job, it doesn't mean you can go in without knowing the hazards and using required safety procedures.

Before working in excavations be sure to read and understand all requirements in the DEP Excavation and Trenching Policy.

Video Display Terminal (VDT) Safety

For those employees who spend twenty (20) hours or more at a VDT station per week, certain conditions apply which follow the principles of Hazard Control. (See page 5.)

- **Engineering Control:** When buying new equipment such as monitors, key boards and chairs, search must be made for the best possible ergonomic solutions to such problems as repetitive stress disorders, glare, eye strain, and discomfort in back rest or bad posture. Purchase of glare reducing screens for the monitor must be encouraged.
- **Administrative control:** An employee with an insuperable concern with the safety of his or her work station or the operation at a VDT may be considered for alternative assignment upon medical evaluation and approval.
- Two hours of continuous work at a VDT station may be broken by an alternative work break of fifteen minutes to relieve visual or muscular strain.
- Employees who work 20 hours or more per week on VDT's are entitled to request eye examination vouchers from their union.
- Relocation and re-placement of VDT stations to neutralize glare and adjust angles of natural light entering the work place.
- **PPE:** Elbow rests and wrist rests should be readily available where these can alleviate some of the symptoms of muscular skeletal disorders.

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OEHSC

The **Office of Environmental, Health and Safety Compliance (OEHSC)** has been established to coordinate and enhance agency-wide environmental and occupational health and safety management activities. Its mission is to provide support and direction in complying with relevant federal, state, and local standards, guidelines, and regulations as well as to monitor the effectiveness of agency-wide environmental, health and safety policies.

The goal of the Office of Environmental, Health and Safety Compliance is to promote pro-active compliance strategies through the preparation and revision of procedures, programs, and employee training (specifically tailored to Agency operations), while assessing hazards, preventing violations, and maintaining safe and sensible work practices.

Con Ed EH&S Training Topics

Session A July-Nov.'03	Session B Dec. '03 – June '04
OSHA Awareness I • Personal Protection Equipment • Occupational Noise • Confined Space Entry • Emergency Action Plans • Fire Prevention Plans • Overhead & Gantry Cranes • Respiratory Protection • Universal Waste Mgmt. • Hazard Comm. • Hazardous Chemicals • Lead Awareness • Spill Prevention	***OSHA Awareness II*** • *Control of Hazardous Energy ("LOTO")* • Bloodborne Pathogens • Scaffolding • Welding • Powered Platforms • Ergonomics • Occupational Health • Handheld Tools • *Recordkeeping & Posting* ***General Environmental Awareness I*** • Waste Management • Hazardous Waste Mgmt. • Env. Incident Report & Response
Competency Classes • Confined Space Entry • Overhead & Gantry Cranes • Respiratory Protection • Excavation & Trenching • Hazardous Waste Management	**Competency Classes** • Control of Hazardous Energy - "LOTO" • Scaffolding • Blood Borne Pathogens (BWS Only) • How Work/ Fire School • Powered Platforms