

Excellence in Salt Storage: A Statewide Mindset

2005 award winning Connecticut salt storage facilities

By Bill Eyberse

The letter reads, “Congratulations! Your winter maintenance materials storage program has been determined to be one of the select few judged to be one of the finest examples of environmental excellence in storage throughout North America for the year 2005.”

Recently, the Salt Institute (www.saltinstitute.org) awarded the State of Connecticut Department of Transportation (CONNDOT) a total of ten 2005 Excellence in Salt Storage Awards. District II, in eastern Connecticut, stands out from the rest of the state by receiving nearly half of the 2005 Awards for Excellence in Salt Storage. Over the past five years, District II has received 17 Excellence in Salt Storage awards. District II’s plan is to have every salt storage facility within the district receive the award and, with

only five salt sheds remaining, this may be accomplished by 2007. Statewide, CONNDOT has received 38 Excellence in Salt Storage awards.

But just how did CONNDOT get to this point? What was the incentive to have a program that grew to its current level? How much work was involved? And how did a mindset of best management practices develop into a program that rivals many others?

CONNDOT is comprised of four maintenance districts. District I covers the Hartford area and Connecticut River Region, District II covers the eastern third of the state from the Rhode Island border to the Connecticut River, District III covers the Bridgeport-New Haven I 95 corridor, from the New York State line north to its border with District II, and District IV covers the northwest corner of the state, that includes the Litchfield hills. Statewide, CONNDOT maintains just over 5,700 miles of roads and an additional 357 miles of roads within various state agencies.

Application Process

The Excellence in Salt Storage Award application has four main criteria. The first is storage of materials. To be eligible for the award, the facility must have been in use for at least one winter season. A list of materi-

als stored on site, as well as their quantities, is included. Sodium chloride, abrasives, mixes, or other deicing materials used by CONNDOT are purchased in quantities based upon a ten-year history. For the 2005–2006 winter season the ten-year history for salt usage for District II is 21,858 tons of salt. Statewide, the ten-year history is 108,450 tons of salt. Also included in the application is a copy of CONNDOT’s snow and ice policy, which dictates storage and use requirements, application rates, and equipment maintenance as they pertain to abrasives and chlorides.

The next criteria reviewed by the Salt Institute is the agency’s safety program. An abbreviated copy of the CONNDOT safety program is included with the application as well as a schedule of all safety meetings and tailgate talks. Tailgate talks are weekly meetings held at every maintenance facility. Other items of concern regarding the salt storage facility are interior and exterior lighting, security at the facility, and any safety citations from any regulatory agency. Connecticut has a state-run Occupational Safety Health Administration (OSHA) program that covers all municipal and state employees and their regulations must be at least as stringent as Federal OSHA’s programs.

The last two parts of the application are housekeeping and environmental, which go hand-in-hand. Without good housekeeping procedures and practices, the environmental issues will become problematic.



2005 award winning East Lyme satellite salt storage facility.

How Things Got Started

The EPA adopted regulations in 1992 requiring individual states to develop and implement stormwater control plans for industrial facilities. Soon after, the Connecticut State Legislature passed Connecticut General Statute 22A-430b, which outlined and defined stormwater pollution control for industrial facilities. In 1995 Connecticut General Statute 22A-430b was amended by Public Act 91-263 to include a majority of CONNDOT facilities based on the type of work conducted at those sites (fleet operations) or because salt and sand/salt mixes were stored on site. This regulation gave the Connecticut Department of Environmental Protection (DEP) the authority to develop the "General Permit For The Discharge of Storm Water Associated With Industrial Activity."

The timing seemed right. CONNDOT was paying for municipal water lines to be installed in a few communities because of salt contamination in private wells that was caused by antiquated storage practices, as well as buying bottled water for residences outside the service area of a municipal water system. In 1995, CONNDOT was supplying water to about 50 families statewide. Now CONNDOT had federal and state laws with which to comply.

Some of the requirements of the permit called for the development and implementation of site-specific Storm Water Pollution Prevention Plans (SWPPP) for each affected facility. Each site had to have a physical copy of the plan on site, available for review by the SWPPP team, site employees, and enforcement agencies. Each plan had to be certified by a professional engineer. Enforcement of the legislation would be the responsibility of the DEP Bureau of Water Management, and the EPA. Fines of up to \$25,000 per violation per day could be levied if elements of the plans are not followed.

Stormwater Pollution Prevention Plan

When the stormwater program first started, a variety of licensed professional

engineering firms were contracted to perform site reviews and develop plans that would meet the minimum requirements of the General Permit for the Discharge of Stormwater. The plans define the best management practices to be followed at each facility. The plans identify areas of concern and minimum standards that have to be met. A majority of the plans have been broken down into seven sections, discussion on some of which follows.

A SITE DESCRIPTION AND POLLUTION PREVENTION TEAM MEMBERS. This section of the plan identifies team members and their responsibilities. Team members may include the garage supervisor, crew leaders, the clerk, and one or more additional employees. Responsibility for updating and/or compliance with the plan falls upon each employee at the garage.

A DESCRIPTION OF THE KNOWN POLLUTANT SOURCES. In this section, a list of potential pollutants that are stored on site are identified, and an inventory of those materials is compiled. The list is varied, but common items found at every maintenance facility are identified, such as fuel, motor oil, antifreeze, paints, hydraulic fluids, and cleaners. Salt storage is also included in the inventory. Salt that is exposed to the weather may result in stormwater contamination that could result in a release of salt to the environment. At this time, all salt and sand/salt mix is stored either under a protective structure or covered by a waterproof tarp.

Outside storage includes fuel and heating oil tanks as well as dumpsters, scrap metal piles, cold patch, creosote, and guide rail hardware. Outside storage also includes cold storage areas where seasonal equipment is stored. Items such as tractors, mowers, and trucks stored outside all have the potential for a spill or leak.

MONITORING PROGRAM. A discharge monitoring program is required at all maintenance and repair facilities. Concern with run-off is obviously from the nature of work taking place at these



Crew leader Dan McBride inserts a hydrocarbon absorbent pillow.

locations. CONNDOT's Office of Environmental Compliance is responsible for over-seeing the monitoring program. Facility outfalls are sampled annually during the first half hour of a qualifying storm event. The sample is then tested for a variety of pollutants. Results from the above-noted testing are then sent to the DEP.

MEASURES AND CONTROLS. Now that all of the potential sources of pollutants have been identified, it only makes sense to prevent contaminated run-off. This section is the core of the stormwater plan. Without good housekeeping practices, the entire stormwater plan will fall apart and be meaningless.

Items such as cold patch, creosote wood, pressure-treated wood, and guide rail post all are required to be covered from the weather and stored on a paved surface. Inert materials such as topsoil, gravel, sand, and wood chips are stored to prevent the movement of sediment into the stormwater run-off. Erosion controls incorporated include temporary vegetation to stabilize the stockpile or hay bales at the base of the stockpile and around catch basins to contain the sediment.

Salt and sand/salt mixes are required to be in the designated shed at all times. All spills of sand and salt that occur during the loading of trucks on snow and ice operations are to be swept up as soon as possible after a snowstorm. During the winter season, hay bales are removed from the sand piles and are placed around catch basin tops to minimize the amount of sand entering the drainage system.



2005 award winning Plainfield salt storage facility.

No drums in any state (open, closed, empty, or full), or containment pallets are allowed to be stored exposed to the weather. Every effort is made to keep all drums under a protective structure and properly disposed of as soon as practical.

Minor spills are immediately cleaned up with a clay-based absorbent material. All spills are to be cleaned up immediately and reported to the District Office and to CONNDOT's Office of Environmental Compliance. Uncontrolled releases require the use of a hazardous waste clean up contractor.

Drip pans are available at each site to collect fluids from leaks. Oily wastes are kept separate from other wastes, and dirty rags are stored in a covered container. Hydraulic equipment is kept in good condition and repaired as required. Drips should be cleaned as soon as noticed and the use of drip pans incorporated if necessary.

All 55-gal drums of liquid storage are confined to a containment pallet or, at newer facilities, in a secondary containment area located within the garage. All dumpsters must be covered and have their drain plugs intact.

Depending on the facility, washing of vehicles varies. No exterior washing of equipment is allowed. However, if the facility has either a holding tank or an oil/water separator and is connected to a sanitary sewer system, then washing of equipment is allowed on site within certain areas of the garage.

PREVENTIVE MAINTENANCE. Preventive maintenance is a common-sense approach in trying to minimize

the amount of pollution from entering the drainage system. Some of the practices employed by the CONNDOT are labor intensive but again, a mindset has developed that provides for a cleaner environment.

Every April and October a comprehensive site compliance evaluation occurs. Everything discussed under Measures and Controls above is inspected as well as fueling stations, equipment storage areas, the gross particle separators, and the oil/water separators are inspected for compliance and necessary repairs or maintenance. The monitoring of underground storage tanks takes place weekly.

Quarterly, a team of two CONNDOT employees perform garage inspections. These inspections are predominately designed to prevent regulatory agency citations and correct deficiencies found during the inspection. During the quarterly garage inspections, teams also review the Storm Water Pollution Prevention Plan to make sure all of the training and inspections are up to date, thereby providing another level of checks and balances within the system.

The gross particle separators are inspected for accumulations of sand and debris that has entered the drainage system, the water is drained from the separator, the solids are vacuumed out, and water is put back into the separator. Hydrocarbon absorbent pillows are located in the middle chamber of the gross particle separator. These pillows absorb oil, gas, grease, or hydraulic fluids that may have made their way into the drainage system. They are inspected and replaced if necessary and then disposed of properly.

If a minor spill were to occur on site, then there is a plan to respond. Each garage has at least one "Spill Kit." The spill kit includes, at a minimum, clay-based absorbent, broom, and a non-sparking shovel. The location of the spill kit is known by all employees at each facility, and it is up to every employee to make sure that the spill kit is fully stocked.

Training for the Stormwater Pollution Prevention Plans takes place annually in April. Team members discuss all of the potential pollutants, housekeeping and spill prevention, and response procedures. New employees receive a stormwater walk-through within 30 days of their hiring and more formal training during their new employee orientation training. Every CONNDOT maintenance employee is trained to the Hazardous Material Awareness level as required by OSHA Standard 29 CFR 1910.120 (q)(6)(i).

The Salt Institute encourages the safe and environmentally-friendly storage of salt, and a good stormwater plan can cover all of the bases necessary to prevent unnecessary pollutants from leaving the site. Unsupervised run-off can lead to polluted waterways and contaminated drinking supplies. Obviously, contaminated drinking water can lead to long-term health problems for local residents, who, incidentally, are our neighbors, family members, and taxpayers.

Environmentally, runoff can travel great distances underground, affecting groundwater supplies and contaminate brooks and streams, further impacting surface water. As stewards of the environment, it is our responsibility to do everything possible to prevent further contamination and to mitigate present conditions. With a strong plan, a committed workforce, and a general change in mindset, CONNDOT leads the way. **GE**

Mr. Eyberse is a Transportation Planner II with the Connecticut Department of Transportation, District II, Norwich, CT.

ACKNOWLEDGEMENTS: Wayne T. McAllister, Director, District II Maintenance; Marcella Maiorano, Supervising Planning Manager, District II Planning; Russ Morin, Transportation Planner II, Maintenance Headquarters Newington; Denise Young, Engineer III, Environmental Compliance; Sue Baillargeon, Lead Trainer, District II Training; Kevin Darling, General Supervisor, East Great Plains Maintenance Garage, District II; John Hayman, General Supervisor, Waterford/East Lyme Maintenance Garage, District II; Dan McBride, Crew Leader, East Great Plains Maintenance Garage, District II.