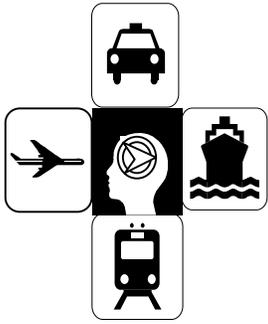


JERSEY DOT'S

"Turning Problems into Solutions"



Need a solution?
Think Jersey DOT

Tech Brief

Salt Runoff Collection System

FHWA-NJ-2003-026

November 2008

SUMMARY The research plan was designed to develop a program to bring the NJDOT in compliance with the new stormwater regulations of the NJDEP. It was apparent to all that the path to be taken for compliance would best be served by not allowing discharge off any of the DOT sites.

RESEARCH APPROACH The proposed research investigated methods to control the impact of salt runoff to the environment. The search accomplished the following initiatives:

- Performed a detailed search of current state-of-the-art practices in the control of salt runoff. These included Best Management Practices (BMPs) as well as design practices of storage facilities and related equipment.
- Developed a database of environmental issues associated with salt runoff from salt storage facilities.
- Developed a database of the 84 facilities, through site visits and information provided by the NJDOT and published data, with regard to their design, service area, environmental sensitivity of the receiving waters, operating practices, and other issues as detailed in this proposal.
- Compiled a compendium of all available designs and operating practices and equipment for the operation of salt storage facilities.
- Based upon the compendium of methodologies selected, developed, for selected sites requiring remediation, which solutions would work in the most cost effective way that also fits within the constraints of the facility.

FINDINGS Early into the contract, at a meeting with NJDEP's stormwater management representatives and the project manager, it was established that the best approach for the NJDOT's 84 maintenance yards to achieve compliance in 2009 would be to develop and demonstrate best management practices on each site by sealing off all stormwater discharges via storm drains, and to minimize salt loss from the site due to truck washing operations and loading of salt due to truck deliveries to the salt storage domes (domars). This approach would eliminate the need to secure permits, which in the opinion of NJDEP, could prove to be costly and time consuming for the NJDOT.

We conducted a study of the state-of-the art in truck washing technology and related costs, and its potential application to NJDOT's yard maintenance facilities. The study included visitations to a number of existing truck washing facilities in the tri state area. In addition, NJIT was asked to review and render opinions regarding problems that existed at a few NJDOT maintenance yard sites where alleged salt runoff from the NJDOT sites were impacting on neighboring properties.

The NJIT team has developed cost estimates for the seven truck washing approaches presented to the three regional directors. The costs for the seven processes follow:

- (1) Outdoor Pad with a Power Washer
- (2) Heated Outdoor Pad with a Power Washer, Radiant Heaters & Air Blowers for Drying
- (3) Power Washer in a Heated Building
- (4) Truck Washing Done at other DOT Sites
- (5) Truck Washing Done at other non-DOT Sites
- (6) Develop a Closed-recycled System
- (7) Automatic Truck/Vehicle Wash System

CONCLUSIONS & RECOMMENDATIONS A review of the data compiled from the 84 yard maintenance sites visited indicated that most of the sites were in good condition, and were constructed within the past 10 to 15 years. Those sites where compliance with the stormwater regulations could currently be difficult to achieve exhibited one or more of the following conditions: no central water and wastewater systems to tie into the respective NJDOT sites; outdated salt storage sheds constructed of wood in lieu of domars or barns; the site

surface either being poorly paved (i.e., numerous cracks), or not paved over the entire site; and neighboring properties with residential uses and/or other sensitive receptors serviced by individual groundwater wells or commercial uses such as landscape nurseries which could be potentially vulnerable to salt runoff from the NJDOT sites. The sites that require upgrading or maintenance are cited in the report under the section, Synopsis of the Database and should be attended to as budget becomes available.

In order to minimize impacts associated with future sites used for yard maintenance purposes, the following criteria should be considered:

- Design the sites with barns for salt storage purposes wherein all salt deliveries and truck loading and unloading of salt during winter operations can be conducted in a closed environment.
- The sites and its surrounding land uses should be serviced by central water and sewage systems.
- The neighboring land uses should be in an industrial zoned area where feasible. One should not site a yard in close proximity to residential zones and/or other sensitive receptors.
- The site should be designed with a wash bay specifically dedicated for truck washing purposes.
- The site topography should be such that any accidental spills can be readily directed to the sanitary sewer system.

If the above criteria are considered in future site selections, it will virtually mitigate against future problems associated with neighboring properties.

FOR MORE INFORMATION CONTACT:	
NJDOT PROJECT MANAGER:	Edward Kondrath
PHONE NO. 609-530-2058	
e-mail ed.kondrath@dot.state.nj.us	
UNIVERSITY PRINCIPAL INVESTIGATOR	Robert Dresnack & Eugene Golub
UNIVERSITY: NJIT	
PHONE NO. 973-596-2469	
e-mail Robert.dresnack@njit.edu	

A final report is available online at <http://www.state.nj.us/transportation/research/research.html>

If you would like a copy of the full report, please FAX the NJDOT, Division of Research and Technology, Technology Transfer Group at (609) 530-3722 or send an e-mail to Research.Division@dot.state.nj.us and ask for:

Report Title
NJDOT Research Report No: FHWA-NJ-2003-026