



MATES

MATERIALS AND TECHNOLOGY ENGINEERING AND SCIENCE

Published by the Materials and Technology Division of the Michigan Department of Transportation

Issue No. 11

September 1987

ENVIRONMENTAL COMPLIANCE - A QUICKENING ACTIVITY AT MDOT

With each year's passing, both at the Federal and State levels, higher priority has been placed upon protecting the environment. Because environmental issues were not vigorously addressed in the past, we have inherited a number of problems that require immediate attention. It is becoming increasingly difficult for our Department to carry out its mandated function of building and maintaining a state transportation system without changing or modifying some of the ways that we conduct our business.

There are many environmental laws and rules both at the Federal and State level that affect MDOT. They cover a broad range of areas which include: air quality, noise levels, endangered species, wetland preservation, erosion and sedimentation control, liquid and solid waste, hazardous waste, surface and ground water discharges, etc. There are at least 25 separate published sets of rules with considerable overlap and some contradictions among them, making their interpretation and application complex. The purpose of these rules is to ensure development and implementation of programs that will protect human health and the environment from improper practices. It is important to note, therefore, that although the Department strongly supports proper resource management and environmental protection, there is also a matter of obeying the law.

Departmental concern and activity was accelerated a short while ago by unanticipated citations by the Federal Environmental Protection Agency (EPA) issued to two of our maintenance garages for violations of the Resource Conservation and Recovery Act. These citations dealt mainly with improper storage, handling, and disposal of hazardous waste—mainly paints, solvents, and herbicides. As a result of these citations, Director Pitz formed an Environmental Task Force to investigate the whole area of environmental compliance.

This task force then formed an Environmental Compliance Team consisting of representatives of a number of Departmental Bureaus and Divisions to collect facts regarding the EPA citations and develop adequate responses to them; determine if other facilities were in violation and develop steps to bring them into compliance; identify other environmental compliance issues that are current problems; review environmental statutes and regulations in terms of MDOT operations; and recommend future internal control and compliance procedures. The following issues were identified by the team as MDOT's major current compliance problem areas: hazardous waste, surface and ground water discharges, underground storage tanks, and pollution incident prevention plans.

Hazardous Waste

A waste is any solid, liquid, or contained gaseous material that is no longer used; and is to be either recycled, thrown away, or stored until there is enough to treat or dispose of. A waste management program must be designed to control these materials from their generation to ultimate disposal; from 'cradle to grave'—and after the grave as well,

for the Department is responsible for them forever. Should the waste we generate and 'safely dispose of' cause future clean-up problems, we will still be responsible for them!

The four classes of hazardous waste are ignitable (catch fire easily); corrosive (burn skin on contact or corrode standard container types); reactive (can catch fire or explode when exposed to water or air); and toxic (poisonous). Typical hazardous wastes generated at MDOT facilities include spent solvents, degreasers, paints, pesticides, and herbicides.

Hazardous waste regulations differ depending on the amount generated; the more you generate, the tougher the regulations. It is MDOT's policy to manage its hazardous waste in such a manner that it will never exceed the status known as a 'Small Quantity Generator,' a category that specifies that the amount of hazardous waste generated in one month is from 220 to 2,200 lb. By not exceeding this quantity, and thus entering the next higher category, the Department can dispose of its hazardous waste in a cost-effective and practical manner. This is not to say that this doesn't involve more work, as the Small Quantity Generator regulations require that MDOT evaluate waste and keep records of evaluations; meet the quantity and time limits for waste accumulation; use U. S. DOT shipping name and number; package and label hazardous waste properly; use the uniform hazardous waste manifest; follow Michigan Liquid Industrial Waste regulations; ship waste to a licensed hazardous waste disposal facility to store, treat, incinerate, recycle, or landfill; or be sure any disposal to a sewer line is authorized; obtain Federal EPA Generator ID; use transporters who have EPA ID; use proper containers and tanks for accumulated waste; maintain waste records for three years; and meet emergency preparedness requirements.

MDOT not only generates these wastes at some of its facilities, as noted earlier, but also indirectly acquires them by taking ownership of railroads and other transportation facilities that we now operate under lease arrangements, by purchasing property for right-of-way whose prior owners have improperly handled waste, or by having contractors on MDOT projects generate hazardous waste. Who is responsible for clean-up? To date, regulatory agencies involved in the issue have held the present owner responsible (except in the case of owner/contractor, or owner/lessee, where there is a joint liability).

Cleaning up hazardous waste sites can be difficult and expensive. If the material is confined and leakage has not occurred, it involves relatively straightforward, but somewhat expensive, disposal through a licensed facility. If, however, the ground and ground water are thought to be contaminated, extensive sampling and testing are required, along with a hydrogeological study to define the contamination limits. If ground and ground water are contaminated, clean-up generally involves removal and proper disposal of the soil and purging of the ground water, and these are expensive processes. Compounding the problem is the fact that there is only one licensed landfill that can accept solid hazardous waste in Michigan.

Testing Laboratory
U of M 1913

Research Laboratory
MSU 1939

Investigation and Research Division
1924

Testing and Research Division
1933

Materials and Technology Division
1985

When hazardous waste first became a major issue within MDOT the extent of our problem had not been determined. A consultant was hired to compile a hazardous waste inventory at 184 sites. These included maintenance garages, sign shops, Uptran sites, some construction offices, rest areas, travel information centers, District offices, etc. Of the 184 sites, 111 reported some hazardous waste!

Surface and Ground Water Discharge

Existing regulations require that Discharge Permits be obtained from the Department of Natural Resources (DNR) for any discharge of contaminated waste or waste effluents into or onto the ground. This is done to prevent the intrusion of pollutants into surface or ground waters. MDOT is involved in surface and ground water discharges in many ways; some of our rest areas use lagoons to treat sewage, maintenance garages use lagoons to collect salt storage run-off and effluent from garage floor drains, etc. In several environmentally sensitive areas (e.g., the M 24 Lake Orion project) we have been required to collect and treat normal highway run-off waters prior to discharge to the surface or ground water, and it is anticipated that the trend toward treating highway run-off will accelerate over the next few years.

Enactment of new rules, or stricter interpretation of existing rules, may require that MDOT obtain permits for the effluents that are discharged that presently do not require them. Discharge permits are also required at sites where contaminated ground water is being purged and treated (we presently have three such sites). Obtaining permits can be a difficult and lengthy process, requiring considerable information for the application which can take six months or more to process.

Underground Storage Tanks

MDOT presently owns and operates about 300 underground storage tanks. In addition, the Department owns properties that it leases to others that contain tanks, and sometimes tanks are acquired when the Department buys right-of-way property. Existing tanks must be registered with the DNR, and newly installed tanks require proper corrosion protection.

The EPA estimates that, nationwide, 35 percent of the underground tanks may be leaking to the soil and ground water. When underground tanks leak, remedial clean-up costs can be very high. If a leak is suspected the first step is to define the scope of the problem. This generally requires a hydrogeological study to determine the type of soils; depth to and flow direction of the ground water; and extent and

concentration of contaminants. Once the limits of the contaminated area are defined, its migration must be stopped. The affected soil must be removed or treated, depending upon the contaminant, and if ground water is affected, it must be treated or purged, an operation that at some sites may have to go on continuously for 10 to 20 years.

New Federal regulations are being promulgated that would require all new tanks to have provision for secondary containment; that is, a back-up system to contain the material in the event of leakage or rupture, such as a tank within a tank. Further, more stringent specifications for the tanks and their surrounding areas will be included. Existing tanks must be tested for leaks within three years and replaced or upgraded within ten years. If these proposed regulations are implemented, MDOT will need to replace its existing 300 underground tanks in the next ten years. Presuming that we replace 30 tanks per year, and if EPA nationwide estimates are correct that 35 percent of the tanks leak or have leaked, we could be faced with 10 remedial clean-up projects per year as well as the replacement of the tanks.

Pollution Incident Prevention Plans (PIPPS)

Pollution incident prevention plans (PIPPS) are yet another area of environmental compliance. They are required at sites where storage of petroleum products is in excess of 40,000 gallons, or where there is storage of salt or any other material listed on the Michigan Critical Materials Register. The plan must outline the procedures to be followed to prevent pollution of surface and ground waters from storage areas. Plans must include a list of types and quantities of all materials stored; describe secondary containment areas; emergency clean-up procedures to be used in case of spill, discharge, or leakage; type of surveillance provided; and methods by which inventories are made. We now have over 50 sites for which PIPPS are currently being prepared or upgraded. These include maintenance garages, sign shops, bridge and forestry shops, automotive and equipment garages, MDOT photo lab, Materials and Technology laboratory, and the central Departmental warehouse.

Our entire Department is committed to do all it can to foster a safe and enjoyable environment. Although the necessary changes in our traditional methods of operation are sometimes confusing and initially chaotic, we welcome them as steps in the right direction, and are working steadily to bring our facilities into complete compliance. Beyond this, we are trying to anticipate future changes in order to prepare for them, and to be able to accomplish them with as little disruption as possible.

-Jim Ritchie

TECHADVISORIES

The brief information items that follow here are intended to aid MDOT technologists by advising or clarifying, for them, current technical developments, changes or other activities that may affect their technical duties or responsibilities.

SPECIFICATION UPDATE

Accuracy Requirements for Placing Steel Reinforcement in Structures, 5.03(12c), dated 03-04-87. The changes that this revision makes add the word "transverse" to the words "top reinforcement" and the word "clear" to the words "concrete cover." The changes were made to clarify that the concrete clear cover dimension is intended to be from the top transverse reinforcement.

Grading Requirements for Dense-Graded Aggregates 20AAA and 20AA, 8.02(7), dated 03-09-87. This new specification changes the percent passing the 1/2-in. sieve for 20AAA and 20AA in Table 8.02-1 (Grading Requirements for Aggregate) of the 1984 Standard Specifications from 95-100 to 90-100. The reason for the change is so that the percentage will agree with Table 7.10-2 (Master Gradation Range for Bituminous Mixtures) of the 1984 Standard Specifications.

NEW MATERIALS ACTION

The New Materials Committee recently:

Approved the following products for trial installations:

Renderoc
Hilti EP-IS 650 Crack Injection System

Approved the following products:

Dyno Block
Pavement Drainage System
Seibulite Ultra Lite Grade High Intensity Type III Reflective Sheeting
Seibulite Super Engineering Grade Reflective Sheeting
ADS N-12 Polyethylene Pipe

For details contact Don Malott at (517) 322-5687.

This document is disseminated as an element of MDOT's technical transfer program. It is intended primarily as a means for timely transfer of technical information to those MDOT technologists engaged in transportation design, construction, maintenance, operation, and program development. Suggestions or questions from district or central office technologists concerning MATES subjects are invited and should be directed to M&T's Technology Transfer Unit.

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