

**TENNESSEE DEPARTMENT OF TRANSPORTATION
OPERATIONS COMPLIANCE PLAN**

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ACRONYMS

CFR	<i>Code of Federal Regulations</i>
EPA	U.S. Environmental Protection Agency
HAZMAT	hazardous materials
HAZWOPER	Hazardous Waste Operations and Emergency Responses
MSDS	material safety data sheet
RCRA	Resource Conservation and Recovery Act
TDOT	Tennessee Department of Transportation

EXECUTIVE SUMMARY

This Operations Compliance Plan outlines the requirements necessary to ensure that hazardous wastes generated from Tennessee Department of Transportation (TDOT) operations will be managed in a safe and compliant manner and has been developed pursuant to TDOT's effort to evaluate and refocus its waste management activities. This plan includes aspects of hazardous waste management from the initial point of generation through ultimate disposition. Chapter 1.0 provides a summary of TDOT's operations, mission, and policy statement as well as the scope of this plan. Chapter 2.0 describes the key interfaces within TDOT for hazardous waste management operations.

Waste generated from TDOT facility operations is subject to requirements associated with hazardous waste. TDOT shall first identify solid wastes that, when discarded, are hazardous in nature. A preliminary list of hazardous wastes expected to be generated during TDOT operations is provided in Chapter 3.0. The generated waste will be characterized and handled in accordance with the Resource Conservation and Recovery Act and other federal and state regulations regarding hazardous waste. Characterization of wastes will be conducted using process knowledge and, where necessary, will be supported with confirmatory sampling and analyses. Where process knowledge information does not exist, analyses will be conducted to ensure that all hazardous wastes are properly identified. The general framework for characterization activities is found in Chapter 4.0.

After waste characterization is complete, wastes will be managed in accordance with state and federal regulatory requirements. Chapters 5.0 through 8.0 include the technical requirements necessary for accumulation and final disposition of the wastes in a safe and compliant manner. Chapter 9.0 covers the training requirements for hazardous waste management operations.

1.0 INTRODUCTION

1.1 SUMMARY OF TENNESSEE DEPARTMENT OF TRANSPORTATION OPERATIONS

The Tennessee Department of Transportation (TDOT) has a wide range of responsibilities for all aspects of transportation in Tennessee, including responsibilities for highways, public transit, aviation, rail, and waterway transportation. The department has direct responsibility for almost 14,000 miles of state highways, including construction, maintenance, operation, and improvement of those roadways to ensure safe and comfortable travel. The department is responsible for planning and developing the state's transportation system, which includes inspecting 19,000 bridges and 89 airports. The department works closely with local governments, county road departments, public transit agencies, airport authorities, and other organizations, public and private, that are responsible for transportation facilities and services throughout Tennessee.

TDOT also works closely with other state agencies such as the Department of Safety (Highway Patrol), the Department of Economic and Community Development, and the Department of Environment and Conservation. The department is also responsible for administering a number of federal programs through partnerships with the Federal Aviation Administration, the Federal Highway Administration, the Federal Railroad Administration, and the Federal Transit Administration.

“Privatization” is a standard part of doing business for TDOT. The majority of all the major construction and resurfacing projects on state highways is carried out by private contractors working under TDOT's direction. In addition, more than half of the “maintenance” dollars spent by TDOT are for private contract services (e.g., mowing, guardrail replacement, pavement marking, routine bridge and pavement repair, and rest area maintenance). More than half of TDOT's roadway construction projects are designed by private engineering consultants. TDOT also uses consultants and contractors for transportation planning and preliminary engineering, geotechnical surveys and evaluations, land appraisal, land acquisition, environmental cleanup following highway incidents, and a variety of other services. TDOT also contracts with other public agencies for services such as routine maintenance and snow removal on state highways within city limits.

1.2 OBJECTIVE

It is the objective of TDOT to conduct its operations in compliance with federal and state regulations regarding the generation, handling, storage, and disposal of hazardous waste in an environmentally safe manner.

The purpose of this Operations Compliance Plan is to document TDOT policy and general guidance to ensure that hazardous wastes generated and managed by TDOT are managed properly in accordance with federal and state regulations from initial generation to final disposition. This Operations Compliance Plan is also intended to ensure that solid and hazardous wastes that cannot be recycled are properly dispositioned to off-site treatment, storage, and disposal facilities in a compliant manner. Finally, this plan promotes the concept of waste minimization by requiring that source reduction, product and process replacement, and recycling techniques be evaluated for all operations and implemented where appropriate.

1.3 SCOPE

In order to address the overall objective of ensuring that TDOT's hazardous wastes are managed in a safe and compliant manner, this Operations Compliance Plan:

- addresses the organizational structure, roles, and duties for on-site management and off-site disposal of wastes;
- identifies categories of wastes generated by TDOT operations;
- establishes general objectives and methodologies for characterization of hazardous wastes;
- identifies the applicable Resource Conservation and Recovery Act (RCRA) management standards for the hazardous waste accumulation areas;
- identifies waste management procedures required to be developed as part of TDOT's procedures;
- identifies the types of documentation required to be developed and maintained to meet RCRA requirements and the objectives of this plan; and
- establishes the general objectives to evaluate waste minimization alternatives during the planning of operations and to incorporate cost-effective waste reduction techniques into materials and solid and hazardous waste handling processes, where appropriate.

This Operations Compliance Plan is intended to serve as an upper-tier document for the TDOT Waste Compliance Program. As such, the plan establishes general guidance and criteria to ensure that waste will be generated and managed in a safe and compliant manner.

The second tier of the Compliance Program consists of core waste management documents that will be implemented throughout all TDOT operations. These include (1) a Hazardous Waste Characterization Plan for identifying and characterizing hazardous waste, establishing a hazardous waste inventory, and implementing waste minimization and pollution prevention; (2) a Generator Waste Handling Plan for hazardous waste segregation, packaging, record keeping, establishment of accumulation areas, used oil management, and spill prevention and response; and (3) a Waste Disposal Plan for establishing types of hazardous waste disposal, evaluation of waste disposal operators, characterization for disposal, and manifesting.

The third tier that will support the Compliance Program is the training of both management and hands-on personnel on the regulatory requirements of RCRA. Orientation and training courses in general RCRA compliance and TDOT-operation-specific plans and procedures for implementing RCRA compliance will ensure that hazardous waste is handled and disposed of in a safe and compliant manner.

Specific elements necessary to meet regulatory requirements, as well as identification of discrete waste streams and detailed instructions concerning waste characterization and waste management operations, will be captured in department procedures developed to address specific waste management activities.

1.4 APPLICABILITY AND POLICY STATEMENT

The requirements of this plan apply to all TDOT operational activities that generate, handle, treat, store, or otherwise manage hazardous waste. In order to ensure that hazardous waste operations are conducted in a compliant manner, TDOT has adopted the following policy, as published in this Operations Compliance Plan:

TDOT will conduct hazardous waste management activities in full compliance with the Tennessee Hazardous Waste Management Act, T.C.A. §68-212-101 et. seq., RCRA and amendments, 42 U.S.C. §9601 et. seq., and the hazardous waste rules specified in Tennessee Rule 1200-1-11 and 40 CFR Parts 260 through 279. It is the department's goal to minimize hazardous wastes where possible.

The rationale for this policy is to ensure compliance with the provisions of the Tennessee Hazardous Waste Management Act and RCRA, both of which include civil and criminal penalties for noncompliance. Civil penalties for violations of these statutes can result in fines of up to \$25,000 per day per violation. Criminal violations can include penalties of \$50,000 per day and/or imprisonment of 2 or 5 years. Criminal violations that result in the knowing endangerment of a person can result in a penalty of \$250,000 and/or imprisonment of up to 15 years. In addition to the above personal liability for criminal violations, corporations can be fined up to \$1,000,000 per violation resulting in the knowing endangerment of a person.

2.0 ORGANIZATIONAL RESPONSIBILITIES

2.1 TDOT ORGANIZATION

The Commissioner of Transportation is appointed by the Governor to manage TDOT's overall operations, while the Deputy to the Commissioner of Transportation's primary focus is the general administrative and legislative issues for TDOT.

The work units identified on the organizational chart (see Figure 2.1) have separate but interrelated responsibilities. As one of the largest departments in state government, TDOT has a budget exceeding \$1 billion annually, which is approximately 11 percent of the state's annual budget. Each of Tennessee's 95 counties has at least one TDOT garage located within it, with total department employees numbering approximately 5,500. Approximately 30 percent of the workforce is assigned to the "headquarters" offices in Nashville. The majority of TDOT's employees are located in regional, district, and county offices. These field personnel have the most direct impact on construction, maintenance, and operation of Tennessee's state and interstate highways.

The Bureau of Operations (see Figure 2.2) falls under the direction of the Executive Director, who oversees the responsibilities of the Environmental Compliance Division, Construction Division, Maintenance Division, Materials and Tests Division, Public Transportation and Rail Division, Aeronautics Division, and Safety Office of TDOT's headquarters offices. Additionally, he supervises the directors of each of the four regional offices. Activities conducted under the Executive Director's supervision are the largest generators of hazardous wastes for TDOT. The Environmental Compliance Division is led by the Environmental Compliance Coordinator, who manages environmental issues within TDOT including the handling, transport, storage, and disposal of hazardous and recyclable wastes.

2.2 ORGANIZATIONAL STRATEGIES

The Environmental Compliance Coordinator will ultimately be accountable for ensuring that TDOT operations comply with the requirements of RCRA. In order to promote overall compliance with the hazardous waste program, the Environmental Compliance Coordinator will implement an incentive program. Annual goals at both the assistant executive director's level and individual division levels will be set by the Environmental Compliance Coordinator for the various TDOT operations generating and accumulating RCRA hazardous waste. Management performance reviews will include performance goals for RCRA compliance. Model operations that implement and accomplish innovative strategies, waste minimization, and pollution prevention shall be identified through self-assessment of activities. Self-assessments will be conducted by the Environmental Compliance Coordinator, and divisions will be recognized for their conduct of operations within TDOT. Additionally, promotion of technology exchanges, led by the Environmental Compliance Coordinator, between operations and individual facilities will be accomplished through meetings between division management.

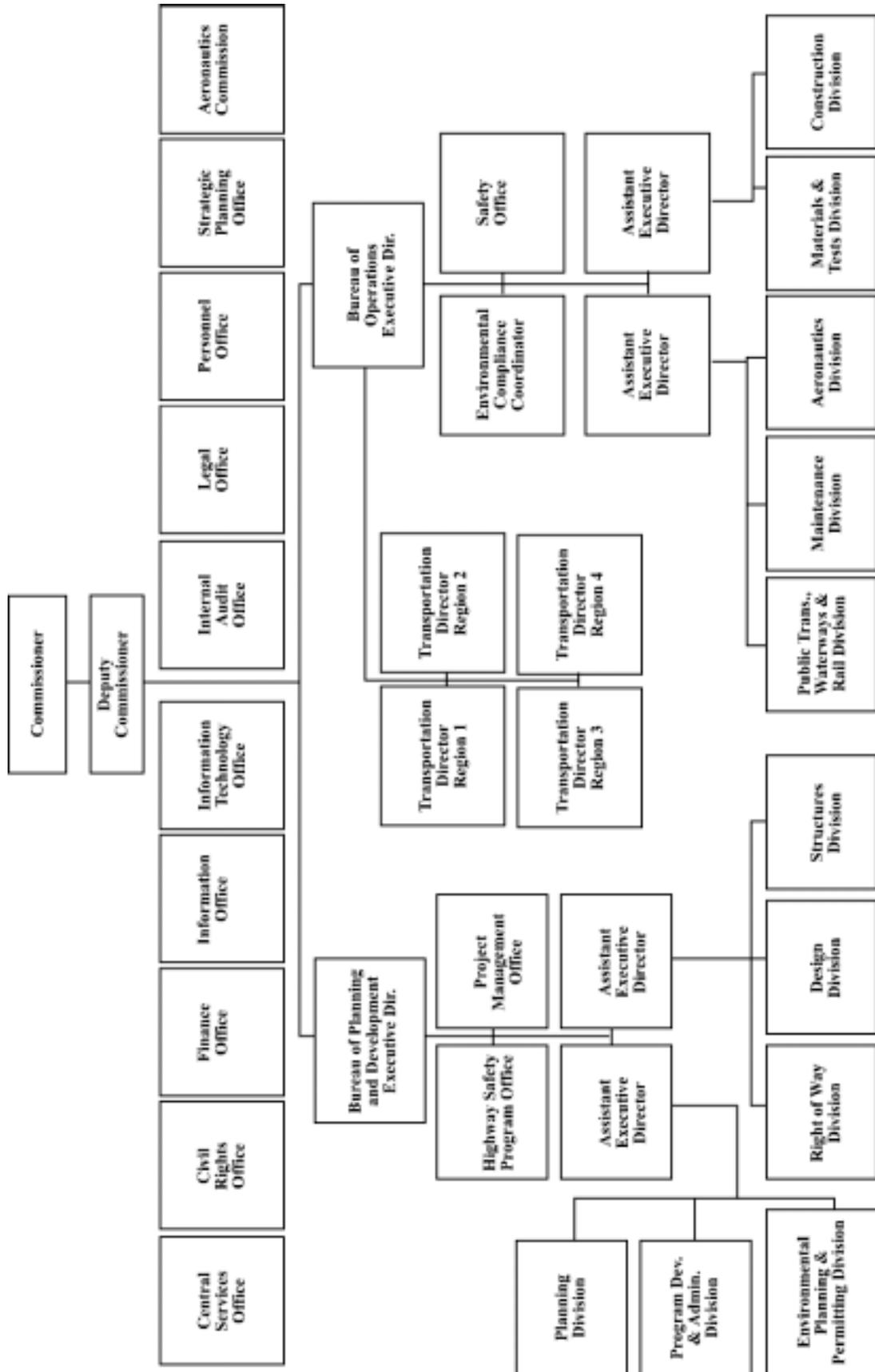


Figure 2.1. Tennessee Department of Transportation Organization Chart.

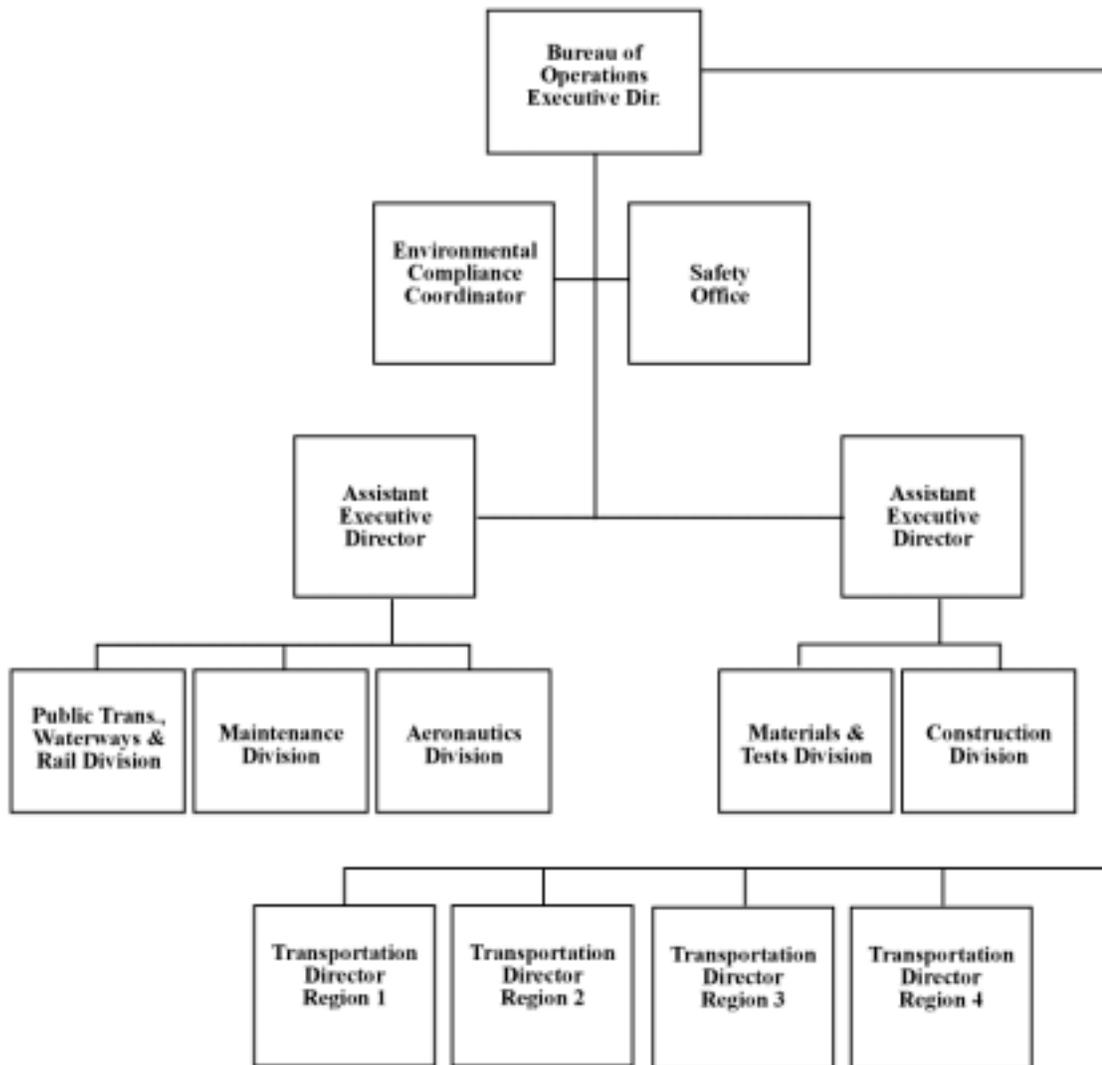


Figure 2.2. Tennessee Department of Transportation Bureau of Operations Organization Chart.

Annual reports on the compliance self-assessments performed by the Environmental Management Division, along with recommendations for improvements, will be sent to the Bureau of Operations Executive Director. The Bureau of Operations will evaluate the reports' conclusions and give direction to TDOT operations on the implementation of self-assessment recommendations. Ultimately, full compliance and continued improvement in the RCRA Compliance Program resides with all TDOT operations personnel associated with the generation, handling, storage, and disposal of hazardous waste.

3.0 PRELIMINARY IDENTIFICATION OF HAZARDOUS AND RECYCLABLE WASTE STREAMS

In order to establish the overall scope of this plan, a preliminary list of the solid wastes and hazardous wastes expected to be generated within TDOT operations was identified. This list includes solid wastes to be recycled (e.g., used batteries, scrap tires, scrap aluminum, and metals) as well as potentially hazardous waste streams. The activity of identifying hazardous waste streams allows for the identification of regulatory requirements that are potentially applicable and, therefore, could impact waste management within TDOT operations.

3.1 METHODOLOGY FOR IDENTIFICATION OF HAZARDOUS WASTES AND RECYCLABLE SOLID WASTES

The TDOT operations described in Chapters 1.0 and 2.0 of this plan generate solid wastes. TDOT shall use process knowledge and analytical characterization methodologies to properly identify wastes that are also hazardous and regulated under RCRA.

In order to use process knowledge for waste characterization, TDOT shall first identify materials utilized in TDOT operations that, when discarded, abandoned, spilled, etc., are regulated as hazardous waste. Initial sources of this type of information are commonly found in product-specific brochures and material safety data sheets (MSDSs) provided by the manufacturer. Where such information is not available or is not sufficient to make such a determination, wastes will be analyzed using RCRA-specified hazardous waste testing methods. These types of information, coupled with process knowledge-specific activities, will be used to identify hazardous waste streams.

After hazardous waste characterization is complete, TDOT will use the characterization information to ensure that each generating facility has been properly identified as to its generator status under RCRA. Upon generation, hazardous wastes will accumulate in accordance with RCRA regulations. In the event that generator status changes due to increased quantities of wastes being generated, appropriate notification forms shall be completed and submitted to the Tennessee Department of Environment and Conservation.

3.2 PRELIMINARY LIST OF POTENTIAL HAZARDOUS AND RECYCLABLE WASTES

Operations and general materials specifications will be reviewed to identify areas in which hazardous wastes may be generated and to determine which wastes could be recycled. The evaluation of operations to identify distinct types of waste generated by work activities will provide the background information for subsequent identification and categorization of the recyclable wastes from TDOT operations. In addition, some work activities, such as cleaning up abandoned wastes deposited along federal and state highways, will create the need for disposal of inherited solid waste and hazardous waste.

The information developed from this effort will be compared with regulatory requirements and the identification of waste acceptance criteria for off-site disposal and/or recycle facilities expected to receive

the wastes in order to define general waste categories for management purposes. The types (or categories) of anticipated wastes that are, or are likely to be, generated by TDOT operations include the following:

- recyclable metals,
- recyclable materials,
- hazardous liquids,
- waste oils,
- hazardous solids,
- compressed gases and aerosol cans,
- wood products potentially containing hazardous waste, and
- universal hazardous wastes (e.g., fluorescent and mercury bulbs).

The first category of waste consists of scrap metal such as equipment parts, guardrails, empty drums and tanks, used oil/fuel/air filters, and welding rods. In general, these materials are not viewed as “wastes” from an operating perspective, except when they are not recycled. Scrap metals that are destined for recycling are considered nonhazardous solid wastes by RCRA. This plan provides a separate category for recyclable scrap metals to ensure that these materials are segregated from solid and hazardous wastes for disposal.

Waste streams within the waste categories were preliminarily identified from an analysis of operational activities consistent with TDOT’s use of process knowledge for initial waste characterization, where possible. The initial listing of waste streams was developed on an as-generated basis and does not consider recategorization of wastes due to recycling or reuse (e.g., spent solvent reused in cleaning operations).

Waste minimization concepts will be incorporated into each operational activity through a work evaluation and planning process. Waste will be minimized as part of the primary goal to minimize the generation of solid and hazardous waste and to recycle as many materials used in TDOT operations as possible. Waste reduction and recycling methodologies will be developed and applied in management procedures.

The Tennessee Emergency Management Agency will be notified of any accidents or incidents involving hazardous materials along TDOT right-of-ways per TCA 58-2-301. TDOT will only be responsible for furnishing traffic control, absorbent material, diking of drainage, etc. The shipper of the hazardous material will be responsible for cleanup of any hazardous spills on a Tennessee road, highway, interstate, or other thoroughfare. TDOT employees do not perform any type of hazardous material cleanup.

3.3 RECYCLABLE METALS AND MATERIALS

These scrap metal items include aluminum, used oil/fuel/air filters, empty drums, liquid asphalt tanks, and welding rods that may be recycled. All scrap metal, including empty drums and used oil/fuel/air filters, must be free of hazardous waste liquids. According to the empty container definition (40 CFR 261.7; TN 1200-1-11-.02), all wastes must have been removed using commonly employed practices for removing material from the container (e.g., pouring, pumping, aspirating). Prior to recycling of filters, the requirements specified within 40 CFR 279, Subpart C, and TN 1200-1-11-.11 for used oil

operations shall be followed. Oil filters will be properly drained, and the oil will be removed to the extent possible such that no visible signs of free-flowing oil remain in or on the material. Other recyclable materials, such as tires, will be disposed of through commercial recycling facilities.

3.4 HAZARDOUS AND RECYCLABLE LIQUIDS

Liquid hazardous wastes that are subject to RCRA shall be accumulated in accordance with the generator requirements (e.g., satellite accumulation areas, 90-day accumulation areas) prior to shipment off site for treatment, storage, and disposal. Where possible these hazardous wastes will be shipped for reclamation or off-site treatment/disposal. Types of hazardous wastes within this category include low- or high-pH cleaners, ignitable liquids, and solvents.

3.5 WASTE OILS

TDOT operations result in the generation of liquid wastes, some of which are recyclable in nature. Recyclable liquids, such as used oil from various applications, are regulated under the used oil recycling standards in 40 CFR 279 and TN 1200-1-11-.11. The standard applies to used oil and materials containing or otherwise contaminated with used oil. Specific requirements for generators, transporters, processors, and marketers of used oil are covered in the regulations. In addition to used oil, other recyclable liquids such as antifreeze will be generated. These wastes will be managed in accordance with applicable state and federal requirements while stored at TDOT facilities pending recycling. Used oil filters will be drained of any excess oil and disposed of under the recyclable metals waste stream.

3.6 HAZARDOUS SOLIDS

Although it is not expected that large quantities of solid hazardous wastes will be generated by TDOT operations, minor quantities of these wastes may be generated. These hazardous wastes could potentially include such items as paint residue/chips from lead- or cadmium-based paint, floor sweepings, shop rags, tank residues from underground storage tanks, oil filters with heavy metal residue, glues, and adhesives.

3.7 COMPRESSED GASES AND AEROSOL CANS

The waste streams in this category include aerosol cans and compressed gases such as oxygen and acetylene. Empty aerosol cans are considered hazardous due to reactivity; however, cans that have been punctured and drained may be sent to metals recycling. In addition, compressed-gas cylinders are returned to the vendor once empty. As such, with the exception of discovered orphan compressed-gas cylinders, these items are not expected to represent a major waste stream for TDOT operations.

3.8 UNIVERSAL HAZARDOUS WASTES

Universal wastes are considered to be post-consumer-use hazardous wastes classified as recyclable including used lead acid batteries and fluorescent lamps. The types of lamps included in this category are fluorescent, mercury vapor, high-pressure sodium, and metal halide. These solid wastes may be sent to an outside recycler for reuse or reprocessing into other products. Items identified as universal wastes (e.g., lead acid batteries and lamps) shall be stored in a manner compliant with the requirements of

40 CFR 273 and TN 1200-1-11-.12, July 1999. The U.S. Environmental Protection Agency (EPA) has finalized less stringent management standards for batteries, recalled and unused pesticides, and mercury-containing thermostats in order to reduce the amount of these wastes sent to municipal waste landfills/incinerators and other nonhazardous management systems.

4.0 CHARACTERIZATION REQUIREMENTS

4.1 PROGRAMMATIC CHARACTERIZATION OBJECTIVES

Proper characterization of the various wastes generated by TDOT operations is necessary to (1) ensure safe and proper on-site management of the wastes, (2) maintain compliance with appropriate regulatory requirements, and (3) provide for proper final disposition of the wastes. Accordingly, the programmatic characterization objectives are to obtain sufficient data to:

- provide for appropriate regulatory characterization of the waste;
- properly and safely manage the waste on site;
- classify the waste within the waste stream categories identified in Chapter 3.0;
- meet the waste acceptance criteria of off-site recycling operations and commercial treatment, storage, and disposal facilities;
- ensure that the land disposal restriction requirements restricting the land disposal of most hazardous wastes and specifying strict treatment standards before wastes can be land disposed (TN 1200-1-11 and 40 CFR 268) are met; and
- provide for verification of waste stream characterization before release to off-site facilities.

This section establishes a general framework for obtaining the data necessary to meet the program characterization objectives.

4.2 NATURE OF CHARACTERIZATION DATA TO BE COLLECTED

Hazardous chemicals found within the hazardous wastes may be quantified to meet the program objective of understanding the hazardous nature of each waste stream category. Hazardous chemicals or characteristics that must be determined are specific to the waste stream because of the variety of TDOT operational processes. Additionally, specific waste acceptance requirements from off-site treatment, storage, and disposal facilities require knowledge of the hazardous chemicals in each waste stream. A list of hazardous chemicals or characteristics will be established on a waste-stream-specific basis to ensure compliance with regulatory requirements and off-site disposal facility-specific waste acceptance criteria.

4.3 CHARACTERIZATION METHODOLOGIES

The data necessary to meet the program characterization objectives may be obtained by process knowledge, sampling and analysis, or a combination of these techniques. Process knowledge will be utilized as the first method of obtaining waste characterization data. If process knowledge is not available, such as in the case of abandoned wastes deposited along federal and state highways, then sampling and analysis will be performed. This section defines general requirements for these characterization approaches.

4.3.1 Process-knowledge-based Characterization

Many types of information may provide a suitable basis for process-knowledge-based characterization, provided they are sufficient to meet the objectives of this Operations Compliance Plan. In order to meet the program characterization objectives stated in Section 4.1, process knowledge characterization data or information must meet the following requirements:

- the information must be documented;
- the waste-generating activity must be controlled with respect to input materials procedures and process conditions; and
- the controls on the waste-generating activity must be documented and validated through periodic inspections, assessments, or audits. This final requirement is of importance, as changes in operational practices or materials can result in reclassification of waste streams.

Additionally, where process knowledge is used for the definitive characterization of process-generated wastes, documented waste segregation practices must be implemented.

This Operations Compliance Plan recognizes that process-knowledge-based information is an acceptable and useful tool for characterizing operational wastes in accordance with the objectives of Section 4.1. Under this Operations Compliance Plan, process knowledge may be used for:

- initial or preliminary characterization of waste streams,
- identification of hazardous chemicals and characteristics or justification of the frequency of sampling, and
- definitive characterization.

The first use of process-knowledge-based characterization, in which technical information is used to identify and characterize potential waste streams, could be the use of MSDSs, as discussed in Section 3.1 of this plan. This methodology will be used to revise the potential waste streams resulting from TDOT operations and to provide for their initial characterization as program procedures are established and sampling data become available.

The second use of process knowledge for characterization purposes is to support the selection of hazardous chemicals and characteristics or the frequency of sampling. For example, historical characterization and process data could be used to demonstrate that the potential for volatile organics in the waste that derives from an operation is limited, and therefore, a lower frequency of sampling for these hazardous chemicals is justified. Process-knowledge-based information will be used in this manner to modify the hazardous chemicals and to define the frequency of sampling for waste characterization.

Process knowledge may also be used as a definitive characterization tool where specific information exists that identifies the wastes to be characterized, such as an MSDS for a container of product or chemical destined for disposal. Process knowledge may also be used for the definitive characterization of process-generated wastes where it is based upon and validated by quantitative data. For example, a waste stream would initially be characterized with respect to its contents by statistical sampling. Each subsequently generated container of the waste stream would be definitively characterized using container logs and segregation procedures. Process-knowledge-based characterization of this type will be incorporated into the Waste Analysis Plan.

Various types of information may be used for process-knowledge-based characterization, including the following:

- historical sampling and analysis data,
- technical reports,
- operations specifications,
- material specifications,
- procedures,
- administrative or other procedural controls, and
- container logs.

4.3.2 Quantitatively Based Characterization

Analytical characterization of the solid wastes resulting from TDOT operations shall be specified in a Waste Analysis Plan. The Waste Analysis Plan shall meet the quality control objectives defined in the TDOT Waste Compliance Program analytical quality assurance procedure. Specific elements to be addressed in the Waste Analysis Plan include:

- identification of the waste categories or waste streams;
- identification of sampling locations and/or frequency of sampling;
- identification of the hazardous chemical or characteristic;
- identification of the analytical protocols;
- sampling procedures;
- sampling, labeling, and documentation requirements; and
- sample-container, preservation, and holding-time requirements.

Analytical methods that will be used are those from EPA SW-846, as required by RCRA, and will follow the requirements specified in the appropriate EPA-recommended methodologies. Required protocols generally have built-in quality assurance/quality control. Additional quality control will be employed in the form of controlled samples (e.g., blanks and duplicate samples), as required by the program analytical procedures.

5.0 REQUIREMENTS FOR ACCUMULATION AND STORAGE

This chapter presents the basic requirements for the accumulation and storage of solid and hazardous wastes. The Environmental Compliance Coordinator will obtain an EPA identification number from the Regional Administrator.

5.1 ACCUMULATION

Wastes regulated as hazardous wastes under RCRA shall be placed in designated accumulation areas that comply with the RCRA design requirements found in TN 1200-1-11 and 40 CFR 262 for accumulation of wastes at generation facilities. These regulatory requirements imposed on generators of hazardous wastes provide the actual design requirements associated with accumulation areas that are included in management procedures specific to the type of accumulation facility. Areas that will be used for the accumulation of RCRA wastes will meet specific design requirements. Dedicated staging and accumulation areas that conform to the appropriate standards will be located in designated areas of the operations and facilities. As needed, procedures for satellite accumulation and 90-day storage areas will be developed to ensure that proper accumulation and storage are being performed. For recycled materials and/or wastes that do not have specific storage area design requirements associated with them, best management practices shall be employed to ensure that all recycled materials and/or wastes are stored in a manner that prevents release into the environment and that storage operations are conducted in a safe manner.

5.2 STORAGE

The hazardous wastes will be transferred from the facility accumulation areas to commercial disposal facilities through waste management contracts. The Environmental Compliance Coordinator will evaluate the need for storage areas (e.g., 90-day areas or permitted areas) on an operational or facility basis.

Permits will be obtained by the Environmental Compliance Coordinator once the determination has been made that long-term storage is required. Should long-term storage be required, storage of RCRA hazardous wastes shall be conducted only in permitted facilities, as specified within the implementing requirements. The design shall prevent the release of wastes or contaminants to the environment and be protective of worker safety.

Note: This Operations Compliance Plan does not address the design or operation of the commercial disposal facilities. As described in Chapters 3.0 and 7.0 of this Operations Compliance Plan, program procedures addressing waste characterization, packaging, and movement will be available for the waste verification process to ensure that the waste acceptance criteria of the disposal facilities are met at the time of transfer.

6.0 WASTE ACCEPTANCE CRITERIA

General waste acceptance criteria are established to maintain hazardous waste and recyclable materials segregation that ensures compliance with regulatory requirements and to provide for proper disposition to off-site facilities. Typically, general waste acceptance criteria identify the types of wastes accepted, or prohibited, from the designated types of accumulation areas. More detailed acceptance criteria specific to each area (based upon its design) will be developed, if necessary, within management and/or operating procedures and shall include specific regulatory requirements, as necessary, to ensure proper waste management.

7.0 WASTE MANAGEMENT PROCEDURES

This chapter outlines the work procedures and guidelines necessary for the management of waste generated within TDOT operations. These procedure guidelines will cover the topics necessary to ensure that wastes and recycled materials are managed in a safe and compliant manner. Potential subjects for which procedures may be written include: sampling and analysis, waste identification/segregation, waste characterization, pollution prevention, waste tracking/certification, waste management operations, waste shipping/disposition, and emergency response. The primary purpose of the procedures is to ensure that regulatory requirements are flowed down to the operations level and that all work is conducted in a safe and compliant manner.

7.1 SAMPLING AND ANALYSIS

Sampling and analysis are often conducted to determine whether a waste poses a hazard to safety or to assist in the characterization of the waste to ensure its proper management and disposal. These activities are often conducted under a set of specific guidelines or instructions to ensure the usability of the data generated. Work procedures will be developed, as necessary, to ensure the proper testing of wastes for characterization purposes. These procedures outline the approved sampling and recommended/required test method for waste characterization. Examples of potential procedures include:

- analytical quality assurance,
- sample preservation/sample holding times/chain of custody,
- Waste Analysis Plan,
- chain-of-custody and sample documentation,
- approved field test methods and sampling methods, and
- decontamination of field sampling equipment.

Characterization through sampling and analysis will be conducted at appropriately qualified laboratory facilities that are equipped to run the analyses. However, due to the quantity of wastes generated by TDOT operations, such analytical services, where necessary, may be acquired on a turn-key basis. In the event that characterization is carried out in this manner, only laboratories performing approved procedures, as discussed in Section 4.3.1, will be utilized.

7.2 WASTE IDENTIFICATION, CHARACTERIZATION, AND SEGREGATION

Wastes may be generated by some TDOT operations that are subject to several environmental statutes and implementing regulations. These wastes may include materials subject to RCRA regulations. A fundamental requirement found within each of the regulations is that wastes be properly characterized and handled accordingly. After initial generation, hazardous wastes will be characterized through the use of process knowledge or sampling, as discussed in Chapter 4.0. To ensure that operations are conducted

in a manner that is safe and that complies with regulatory requirements, procedures will be developed, where necessary. These procedures include ones for:

- identification/characterization of waste streams and
- waste segregation.

Work procedures related to the characterization of operational hazardous wastes will be made available for review to ensure that the relevant elements of the waste acceptance criteria for commercial treatment, storage, and disposal facilities have been captured.

In addition to work procedures that address hazardous waste identification and segregation, management procedures will be developed that integrate pollution-prevention concepts into operational activities. These management procedures will stress the consideration of material reduction and recycling techniques in the planning and implementation of operational activities.

7.3 WASTE TRACKING AND CERTIFICATION

To ensure that the characterization of a waste stream is accurate, a review or certification process will be implemented. This process will involve validating the analytical data and process knowledge that are used to characterize a given waste and ensuring that all information used in the characterization is documented and maintained. After a waste has been properly characterized, it is important to ensure that the waste is properly tracked and accounted for prior to shipment to an off-site location. This is accomplished through the implementation of a waste tracking system that accounts for the waste from the point of generation until the waste is shipped from the site. Such a system also assists in ensuring that wastes are shipped only to facilities that accept the wastes for processing and/or disposal. To accomplish the certification and tracking of wastes generated by TDOT operations, procedures may be developed, as necessary, to meet the requirements for waste acceptability at off-site commercial treatment, storage, and/or disposal facilities. These procedures include ones for:

- a waste tracking system,
- a verification of hazardous waste characterization, and
- release/shipment.

7.4 WASTE MANAGEMENT OPERATIONS

After characterization is complete, wastes will be managed in accordance with the regulatory requirements and other standards discussed in this Operations Compliance Plan. To ensure that all waste management activities are conducted in a safe and compliant manner, procedures may be necessary where operations are not specifically governed by permits or other documents with clear, concise direction. These procedures include ones for:

- internal waste transport and transfer;
- container specifications and container marking/labeling;
- container handling and management;
- waste-staging operations;

- inspection protocols;
- waste storage area management;
- waste acceptance criteria for waste storage areas; and
- documentation, reporting, and record keeping.

7.5 WASTE SHIPPING AND DISPOSITION

In addition to the specific management requirements associated with wastes generated during TDOT operations that are required by the individual regulatory programs, there are also specific requirements for the disposition of wastes. These requirements are state- and federally mandated within the regulations. In addition to these regulatory requirements, off-site commercial disposal facilities typically mandate certain activities to demonstrate conformance with their waste acceptance criteria. Procedures for waste movement/shipment processes will ensure adequate preshipment notice and transfer lead times as required by the receiving facility. To ensure that waste disposal is conducted in a safe and compliant manner, work procedures will be developed where necessary. Such activities in the work procedures include ones for:

- waste and package preparation to meet off-site treatment, storage, or disposal facility waste acceptance criteria;
- characterization and documentation for off-site treatment, storage, or disposal facilities;
- waste movement/shipment process;
- manifest and shipping documentation; and
- records retention.

7.6 EMERGENCY RESPONSE

Emergency response requirements are specifically mandated within the waste management regulatory programs. Emergency response actions associated with the management of hazardous wastes must comply with the contingency plan or the spill prevention, control, and countermeasure plan applicable to the individual site or location.

8.0 DOCUMENTATION AND REPORTING REQUIREMENTS

A variety of documentation is required to meet the regulatory requirements associated with the management of regulated materials (i.e., hazardous wastes). With respect to RCRA-regulated wastes, the following documentation is required for a generator under the RCRA program:

- uniform manifests,
- land disposal restriction waste certification/notification,
- manifest discrepancy or exception reports,
- waste analysis data,
- inspection records and corrective action reports,
- spill-release reporting,
- operating record, and
- annual generator's report.

This information will be completed or maintained by the facility, and the relevant information will be provided to TDOT management.

Commercial treatment, storage, and disposal facilities that will receive TDOT facility wastes may require the implementation of verification procedures that ensure accurate characterization, proper segregation, and traceability of the wastes. The waste acceptance programs of most commercial facilities necessitate the implementation of verification procedures to verify what the hazardous waste is and what hazardous chemicals are contained in the waste. To meet waste acceptance requirements; minimize handling, segregation, repackaging, or sampling activities prior to shipment; and ensure the proper disposition of project waste, work procedures will be developed that implement waste segregation and verification of the hazardous waste contents. To achieve waste verification with minimal quantitative characterization, these work procedures will rely upon segregation at the point of generation and traceability of wastes to their point of origin. The subject matter that will be addressed, as appropriate, by these work procedures includes:

- waste verification instructions;
- package, identification, and tracking numbers;
- container-contents or bin logs;
- internal transfer records; and
- container-contents characterization records.

In addition to the regulatory and verification-related documentation, certain quality assurance documentation (such as chain-of-custody records) will be necessary to implement procedures identified in Chapter 7.0.

Various reports are also required to meet the regulatory requirements of RCRA-regulated wastes. The following reports are required for a generator under the RCRA program:

- biennial report on generator activities during the previous year;
- exception report when a signed copy of a waste manifest is not received within the allotted timeframe; and
- additional reports concerning quantities and disposition of wastes, as required by the EPA Regional Administrator.

Numerous other reports would be required if an operational facility became a permitted facility under RCRA. These reporting requirements are not included in this Operational Compliance Plan; however, they would be addressed in a specific operational procedure if a permitted facility were established under the TDOT RCRA Compliance Program.

9.0 TRAINING REQUIREMENTS

The training required under this Operations Compliance Plan will be integrated and controlled through the Environmental Management Division. In many cases the necessary training required to conduct the TDOT operations tasks is the same as that needed for waste management operations. Some training (e.g., HAZMAT or HAZWOPER training through Occupational Safety and Health Administration requirements) may be credited toward RCRA compliance training. Training will be required at both the management and hands-on level within all TDOT operations that generate and accumulate hazardous waste. Initial training courses will include a general understanding of RCRA that will cover generic RCRA law, compliance issues and requirements, an overview of TDOT operations and processes, and TDOT organizational responsibilities for RCRA compliance. Operations-specific RCRA training will include detailed discussions on RCRA law, specific compliance issues, core waste management plans, and detailed tie-in to TDOT operations. Specific training courses will be developed for operational procedures that cover specific requirements of handling, accumulating, storing, and disposing of RCRA hazardous waste as well as recycled materials. This training may include:

- waste characterization,
- accumulation operations,
- transportation and disposal requirements,
- emergency response,
- documentation/inspection, and
- reporting.