WASTE MANAGEMENT GUIDANCE MANUAL FOR MAINTENANCE

VOLUME II

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DEPARTMENT OF TRANSPORTATION
www.penndot.gov

PUB 611 VOL 2 (1-19)

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1.0 INTRODUCTION

The Pennsylvania Department of Transportation (the Department) is committed to managing waste streams in a safe and effective manner that is protective to both human health and the environment in accordance with all applicable environmental regulations. This publication was developed to provide policy guidance to PennDOT personnel for the management of any waste generated by PennDOT operations. There is no intent on the part of PennDOT to give the procedures in this guidance weight or deference. This guidance is for informational purposes only; it is not regulatory.

Publication 611 is divided into two volumes: Volume I focuses on waste issues associated with PennDOT Project Delivery efforts, and Volume II (presented herein) specifically outlines procedures for categorizing, characterizing, managing, transporting, and disposing or recycling of waste streams associated with the Department's Maintenance operations. This includes (but is not limited to) waste generated at PennDOT maintenance facilities or associated roadway and roadside maintenance efforts.

Volume II is intended to act as a procedural "step-by-step" reference, and thus minimizes regulatory details to focus on waste management processes. A comprehensive list of definitions for terminology, acronyms, and regulatory references discussed within this publication is provided in Appendix A.

This guidance has incorporated all applicable regulatory and policy requirements into one document. This publication supersedes and replaces all previous policy and guidance. The Bureau of Maintenance & Operation/Maintenance Technical Leadership Division (MTLD)/Roadway & Strategic Environmental Management Programs (Rwy/SEMP) Section is responsible for the interpretation of the contents of this document, as well as the procedural updates and modifications described therein. Questions or comments may be directed to:

Pennsylvania Department of Transportation
Bureau of Maintenance & Operations – MTLD
Roadway/Strategic Environmental Management Programs Section
400 North Street
Harrisburg, PA 17120
Telephone: 717-787-3090

Regulatory Contact information for the respective programs is provided in **Appendix B**.

2.0 GENERAL WASTE MANAGEMENT CONSIDERATIONS

- Waste Management Responsibilities
- The General Approach to All Waste Management
- Waste Categories/Types
- "Mixture Rule" and "Derived-From Rule"
- Waste Determination Process

2.1 PENNDOT RESPONSIBILITIES

The Department is responsible for ensuring that all waste from PennDOT maintenance operations is properly managed, stored, transported and disposed. In most situations, the Department will be considered the waste generator. Disregarding this responsibility could result in criminal and civil liability for the Department and individuals. This is commonly known as "Cradle to Grave" responsibility.

2.1.1 DISTRICT OFFICE OPERATIONS

The District Executive (DE) is responsible for designating the appropriate individual(s) to properly manage wastes generated through day-to-day operations within the District offices and from the surrounding grounds. Suggested responsibilities are as follows:

- District Offices – Building Maintenance Foreman or equivalent

2.1.2 COUNTY OPERATIONS

The County Maintenance Manager (CMM) is responsible for designating the appropriate individual(s) to properly manage wastes generated by County Maintenance operations. Suggested responsibilities are as follows;

- County Offices – Roadway Programs Coordinator (RPC)
- County 01 Garage/Maintenance Facility – County Equipment Manager (CEM)
- Non-01 Facilities – Lead Foreman for stockpile
- County Roadway Operations – Assistant County Maintenance Manager (ACMM)

2.3 WASTE CATEGORIES

Within the Commonwealth of Pennsylvania, the primary waste classes/types include:

- **Hazardous Waste –** is a waste that poses a substantial threat to human health and the environment when improperly managed. The threat determination is made through assessing various CHARACTERISTICS (ignitability, corrosivity, reactivity and toxicity) or when it is LISTED as such in the regulations (40 CFR 261, Subpart D).

Contact Rwy/SEMP Section for help if you are unsure if a material is classified as **Hazardous Waste.**

- **Residual Waste –** is non-hazardous industrial or commercial waste that is not Municipal Waste. Residual Waste is a classification unique to the Commonwealth.

Most of the waste materials generated by PennDOT stockpiles and garages are **Residual Wastes.**

- **Municipal Waste –** is garbage, refuse, industrial lunchroom or office waste resulting from operation of residential, municipal, commercial or institutional establishments and from community activities.

Clearing & Grubbing Waste and clean Street Sweepings are also **Municipal Wastes.**

2.3.1 WASTE SUB-CATEGORIES

There are certain waste streams that do not work well in the three (3) primary waste categories described above. To allow for flexibility in managing these wastes, the regulatory community developed the following sub-categories:

- **Universal Waste –** is a hazardous waste, but because it is generated by a large number of businesses in relatively small quantities, the EPA issued this special waste category to promote recycling of select waste streams while reducing the burden to generators from managing these wastes in the same stringent manner as waste that are defined traditionally as "hazardous."

> Vehicle and Rechargeable Batteries along with Fluorescent Bulbs are common **Universal Wastes.**

- **Special Handling Waste –** Pennsylvania issued specific regulations for any waste that requires special management or disposal techniques due to unique physical, chemical or biological characteristics. Examples include regulated medical waste, chemotherapeutic waste, friable asbestos, and polychlorinated biphenyl (PCB) containing waste. In general, these wastes are administered as Residual Wastes with additional provisions. It is uncommon for PennDOT Maintenance personnel to manage Special Handling Waste.

- **Materials Removed from the Waste Management Process (De-Wasted Material or Non-Waste) –** Within the framework of the waste regulations, there are several exclusions and processes that allow certain waste streams to bypass some or all of the more stringent management requirements. Certain materials generated by PennDOT may be excluded as waste through recycling or the residual waste program co-product determination process. This is discussed further in Section 2.6.1.2.

> Recycled Asphalt Pavement (RAP) is a common **De-Wasted Material.**

2.4 THE "MIXTURE RULE" AND "DERIVED-FROM RULE"

When managing potential wastes, there are two important concepts to consider prior to initiating the waste determination process: The "Mixture Rule" and "Derived-From Rule." **These rules are specific to hazardous waste only.**

- The "**Mixture Rule**" is intended to discourage generators from mixing waste streams. Under the Mixture Rule, the mixture of material or waste must be managed as hazardous waste if:
  - o The material is a mixture of a solid waste and a hazardous waste, and the mixture exhibits one or more of the characteristics of hazardous waste;
  - o The material is a mixture of a solid waste and a listed hazardous waste. Hazardous characteristics and listed hazardous wastes are discussed in **Section 2.6.2.1**.
- The "**Derived-From Rule"** is intended make sure waste residues are managed properly. Under the Derived-From Rule, any waste generated from the treatment, storage, or disposal of a hazardous waste remains regulated as a hazardous waste unless excluded elsewhere in the regulations. It is uncommon for PennDOT Maintenance personnel to become involved with the Derived-From-Rule.

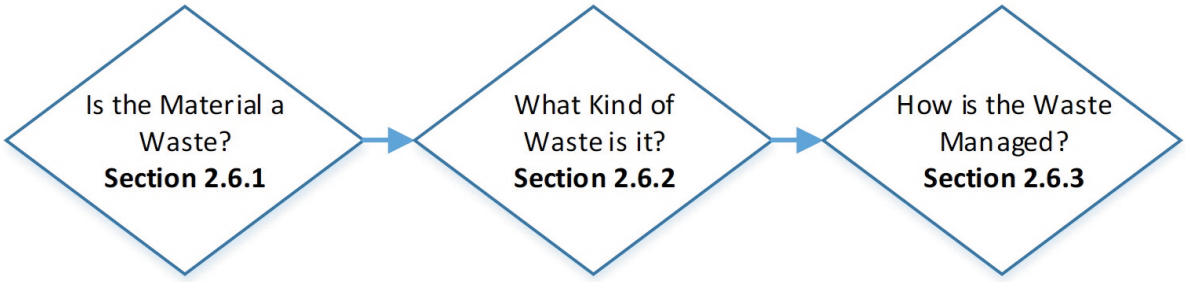
2.5 WASTE PERMITTING AND PERMIT-BY-RULE

From the management perspective, nearly all wastes will need to be placed in the environment at some point in time. The Commonwealth's permitting process accomplishes this in a manner that safeguards human health and the environment. A permit does this by establishing specific restrictions and/or operating parameters for the various waste streams. A permit is obtained from PADEP through either a formal application process or a "permit-by-rule." The formal application process results in the issuance of an individual permit along with specific operational requirements for a given waste stream. The "permit-by-rule" is established in the regulations and provides somewhat more generalized operating requirements. Then, as long as one conforms to those operating requirements, PADEP considers one to have a permit, even though no formal permit is

issued. Waste management methods that may require permitting or permit-by-rule include recycling, beneficial use, coproduct determination, and by-product determination. Each of these topics are described in more detail beginning with **Section 2.6.1**.

2.6 WASTE DETERMINATION PROCESS

The Waste Determination Process is the initial step in proper waste management. This is done to classify a waste. The Waste Classification then dictates the way the waste is managed. The process for completing a waste determination is summarized by answering the following three (3) questions:



1. **Is the material in question a waste?**
   A waste is defined as a material no longer used for its originally intended purpose. While this is a seemingly simple question, there several possibilities to consider. These are described in **Section 2.6.1**. If not a waste, then the material is still a commodity and waste management considerations do not apply.

   NOTE: If you are ready to discard a material, then it is probably a waste.

2. **What kind of waste is it?**
   The various waste categories are described in **Section 2.3** and are further defined in subsequent sections of this Volume.

3. **How is the waste managed?**
   Each type of waste previously described in **Section 2.3** has specific storage, transportation, disposal, record keeping, and reporting requirements. Specific management requirements are described in detail in **Sections 3.0 thru 9.0**.

   This basic 3-step process must be used every time to ensure correct storage, shipping and disposal of all waste streams. While there are various options and exceptions within the regulations that can make waste management intimidating, the 3-step process is your best bet for getting a positive result.

   We will now investigate each of these steps in more detail.

2.6.1 STEP 1 - IS THE MATERIAL A WASTE?

2.6.1.1 STEP 1A – WHAT IS A WASTE?

A material is a waste if it satisfies <u>any</u> of the following:

- It is planned to be discarded or no longer serves its intended purpose, or
- It is abandoned (thrown away), or

- It is recycled by being applied to the ground (not its normal use), or
- It is burned for energy recovery, or
- It is recovered from the process it was used for, or
- It is accumulated for more than 1 year (speculative accumulation), or
- It poses such a threat to human health and the environment that it is always considered waste.

If the material does not meet any of these criteria, you do not have a waste. If it does, you do have a waste. However, there are several regulatory 'off ramps' that may allow the material to be excluded from the waste definition. These exclusions are discussed below.

2.6.1.2 STEP 1B - CAN THE MATERIAL BE RECYCLED, BENEFICIALLY USED, OR "DE-WASTED"?

PADEP allows for waste/materials that meet certain criteria to be excluded as wastes. To promote waste reduction, PADEP encourages the environmentally sound beneficial uses of municipal and residual wastes. A general overview of regulatory requirements of allowed practices are summarized below:

2.6.1.2.1 RECYCLING AND BENEFICIAL USE

When wastes are recycled or beneficially reused under an appropriate permit or permit-by- rule (see **Section 2.5**), they are no longer regulated in the same manner as wastes. These exclusions are separated into the following four (4) allowable reuse scenarios:

- **Source Separated Recyclable Materials -** These are defined as materials that are separated from Municipal Waste at the point of origin for the purpose of recycling. The term is limited to clear glass, colored glass, aluminum, steel and bimetallic cans, high-grade office paper, newsprint, corrugated paper, plastics and other marketable grades of paper. These activities are authorized under PADEP 's permit-by-rule provisions.

NOTE: Recycled and beneficially reused materials, while not managed as a categorized waste, are still regulated under the waste rules.

- **Beneficial Reuse of Waste -** Use or reuse of Residual Waste or residual material derived from Residual Waste for PennDOT projects that do not harm or threaten public health, safety, welfare or the environment. An example of this type of activity includes incorporating waste asphalt shingles into hot mix asphalt paving material. These activities typically require a permit and are included in PADEP's already established beneficial use program.

NOTE: A beneficially reused material is still regulated as a waste (not de-wasted).

- **Reuse of Waste in a Process -** Materials are no longer a waste when returned to the original process from which they are generated, without first being reclaimed or land disposed. An example of this is reusing wash water in wash bay operations or returning new unused bituminous pavement to an asphalt plant for reprocessing. These activities are authorized under PADEP's permit-by-rule provisions.

- **Reclaimed Materials -** These include material that is processed to recover a useable product, or if it is regenerated. If a material is reclaimed prior to being recycled, it is still considered a waste until the reclamation occurs. The most common example of this is the recycling of waste oil into new motor oil. These activities are authorized under PADEP's permit-by-rule provisions.

2.6.1.2.2 "DE-WASTING": COPRODUCT AND BYPRODUCT DETERMINATION

When wastes can be substituted for a feedstock or raw material in a process, PADEP allows the waste to be viewed as a virgin material if managed in accordance to specific operational procedures. PADEP defines these designations as:

- **Coproduct –** A material generated by a manufacturing or production process, or a spent material, of a physical character and chemical composition that is consistently equivalent to the physical character and chemical composition of an intentionally manufactured product or produced raw material, if the use of the material presents no greater threat of harm to human health and the environment than the use of the product or raw material. A common example of coproduct generated by PennDOT maintenance operations is RAP.
- **By-product -** A material that is not one of the primary products of a production process or a coproduct and is not solely or separately produced by the production process. An example of this in an industrial setting is the generation of fly ash from the combustion of coal.

NOTE: By-products are not commonly generated by PennDOT

2.6.2 STEP 2 – WHAT KIND OF WASTE IS IT?

Now that you know you have a waste, the next step in the process is determining what category or type of waste to manage. As previously discussed, there are three different categories/types of waste regulated in Pennsylvania:

- Hazardous
- Residual
- Municipal

The following sections and the subsequent detailed flow diagram **(Figure 1)** outline the waste classification process.

2.6.2.1 IS IT HAZARDOUS?

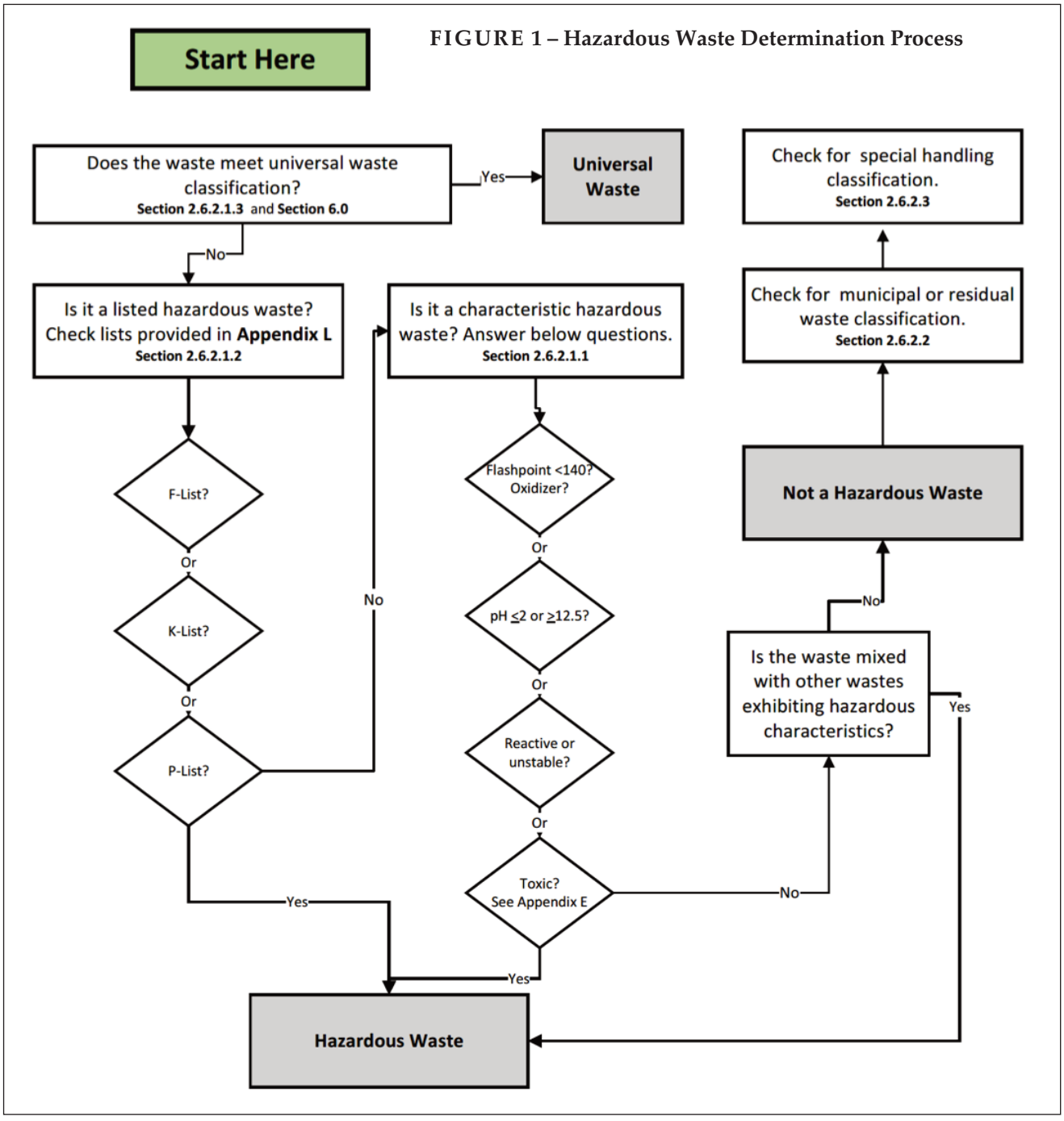
The first action in Step 2 is establishing whether the waste is considered hazardous (the most dangerous type of waste). There are three types of hazardous waste. They are:

- Characteristic Hazardous Waste
- Listed Hazardous Waste
- Universal Waste

NOTE: The Hazardous Waste Determination Process can be confusing. If you have questions, contact the Rwy/SEMP Section for help.

Utilize the flow chart below to determine if you have a hazardous waste as defined by the EPA.

FIGURE 1 – Hazardous Waste Determination Process



2.6.2.1.1 CHARACTERISTIC HAZARDOUS WASTE

EPA uses a hazardous classification system based on the four properties (i.e., characteristics) of waste. If a material exhibits at least one of these characteristics, it is classified as a hazardous waste. The four properties are:

- Ignitability
- Corrosivity
- Toxicity
- Reactivity

These properties are defined below:

- **Ignitability -** Ignitable wastes can create fires under certain conditions and are spontaneously combustible. A waste is ignitable if:
  - It is a liquid with a **flash point <140°F**;
  - It is not a liquid but capable of causing fire through friction, absorption or moisture, or spontaneous chemical changes;
  - It is an ignitable, compressed gas; or
  - It is an oxidizer.

Potential wastes exhibiting the characteristic of ignitibility include solvents and gasoline.

- **Corrosivity -** Corrosive wastes are acids or bases (pH less than or equal to 2, or greater than or equal to 12.5) that are capable of corroding metal containers, such as storage tanks, drums, and barrels. Battery (sulfuric) acid, lye (sodium hydroxide), muriatic (hydrochloric) acid are some examples.
- **Reactivity -** Reactive wastes are unstable under "normal" conditions. They can cause explosions, toxic fumes, gases, or vapors when heated, compressed, or mixed with water. Examples of wastes that potentially exhibit the characteristic of reactivity are, sodium azide (used to inflate auto airbags), aluminum phosphide (used in rodent and insect poisons), and phosphorus (used in flares).
- **Toxicity -** Toxic wastes are harmful or fatal when ingested or absorbed. These wastes cause local or systemic damages and may result in adverse health effects in an individual.

When toxic wastes are land disposed (landfilled), contaminated liquid may leach from the waste and pollute ground water. As a result, the Toxicity Characteristic Leaching Procedure (TCLP) was developed to measure toxicity in a laboratory setting. TCLP helps identify wastes likely to leach concentrations of contaminants that may be harmful to human health or the environment. Refer to **Appendix C** for a summary of the Maximum Concentration of Contaminants that are determined to cause a waste to be hazardous.

TABLE 1 - SUMMARY OF HAZARDOUS CHARACTERISTICS

Ignitability	Corrosivity	Reactivity	Toxicity
• Flash Point <140°F • Known Oxidizer	• pH ≤ 2 • pH ≥ 12.5	• Unstable Under Normal Conditions • Laboratory Analysis	• TCLP Limits for toxic constituents • Refer to Appendix C

There are a variety of ways to determine a waste's hazardous characteristics. A contract laboratory can conduct the characteristic tests and assist in determining if the waste exhibits one or more hazardous characteristics, however, testing is not always required. PennDOT maintenance personnel may use specific knowledge of the waste to make a determination. Safety Data Sheets (SDS), manufacturer documentation, and contractor certifications (with detailed compositional information) are examples of available information that may assist the facility personnel in characterizing the waste.

2.6.2.1.2 LISTED HAZARDOUS WASTE

U. S. EPA established that certain wastes or waste streams are hazardous and are incorporated into lists published by that Agency. These lists are organized into three categories:

- **F-list -** Non-Specific Source Wastes from Manufacturing and Industrial Activities
- **K-list -** Source-Specific Wastes from Manufacturing and Industrial Activities
- **P-list and the U-list -** Discarded Commercial Chemical Products

There are hundreds of P-listed and U-listed wastes, nearly all of which are not associated with PennDOT maintenance operations. If a PennDOT facility must dispose of unused chemicals, refer to these lists in **Appendix C** to determine if the chemicals are considered a listed hazardous waste by the U. S. EPA. In addition, a list of wastes excluded from regulation under RCRA is provided as **Appendix C**.

2.6.2.1.3 UNIVERSAL WASTE

Universal wastes are a special class of hazardous wastes generated by many entities throughout the Commonwealth in relatively small quantities. Therefore, U. S. EPA established the universal waste classification to promote recycling of these specific hazardous wastes, while reducing the burden to generators from managing them in the same stringent manner as traditional hazardous wastes. For PennDOT maintenance operations, Universal Wastes typically include the following:

- Vehicular Batteries (Lead-Acid type)
- Rechargeable Batteries (shop/office)
- Waste Pesticides
- Mercury Containing Equipment (thermometers, thermostats)
- Metallic Vapor Lamps/Bulbs (fluorescent, mercury, sodium, etc.)
- PCB-containing Electrical Ballasts
- Computers, Computer Monitors, Televisions, & other Electronic Devices *
- Printer Toner Cartridges *

* While not technically Universal Waste, these wastes are managed under PennDOT's Universal Waste program due to disposal restrictions and are always recycled

Refer to **Section 6.0** for detailed information on managing of Universal Wastes.

2.6.2.2 IS IT MUNICIPAL OR RESIDUAL?

Municipal and Residual wastes are the most commonly generated wastes in the Commonwealth and have similar definitions. The primary differences between these waste types is where and how the waste was generated:

- Pennsylvania defines **Municipal Waste** as: garbage, refuse, industrial lunchroom or office waste and other materials, including solid, liquid, semi-solid, or contained gaseous materials resulting from operation of residential, municipal, commercial, or institutional establishments, and from community activities.

Municipal and Residual wastes are the most commonly generated wastes.

- Pennsylvania defines **Residual Waste** as: nonhazardous industrial waste including waste material (solid, liquid, or gas) produced by industrial, mining and agricultural operations.

As a result, you have a municipal waste if you can answer **YES** to any of the following questions:

1. Does the waste consist of any of the following office derived waste and is not associated with the **shop, yard, or PennDOT roadside maintenance operations**?
    - garbage
    - refuse
    - lunchroom waste
    - office waste.
2. Is the waste **any** of the following:
    - Construction/Demolition Waste
    - Leaf/Grass Clippings
    - Vegetative material from land clearing
    - Street sweepings not comingled with non-municipal wastes

If you answered **NO** to any of these questions, you most likely have a residual waste (refer to **Section 4.0** for more details on residual waste). Either way, continue with the following assessment steps.

2.6.2.3 DOES IT REQUIRE SPECIAL HANDLING?

At this point in the process, you know you have a non-hazardous, non-municipal waste that may be a residual waste. The last step in the determination process is identify potential special handing concerns due to unique physical, chemical or biological characteristics. Common examples of special handling waste include the following:

- **Friable Asbestos -** Asbestos-containing waste generated from demolition and restoration activities are considered a municipal waste, but subject to residual waste regulations with additional special handling requirements. The special handling requirements apply to any material that contains > 1% asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure (friable).
- **PCB containing material -** Wastes such as old electrical ballasts, various caulking material, or old hydraulic oil may be classified as residual, universal, or hazardous wastes, but still require special handling and management per PADEP regulation.

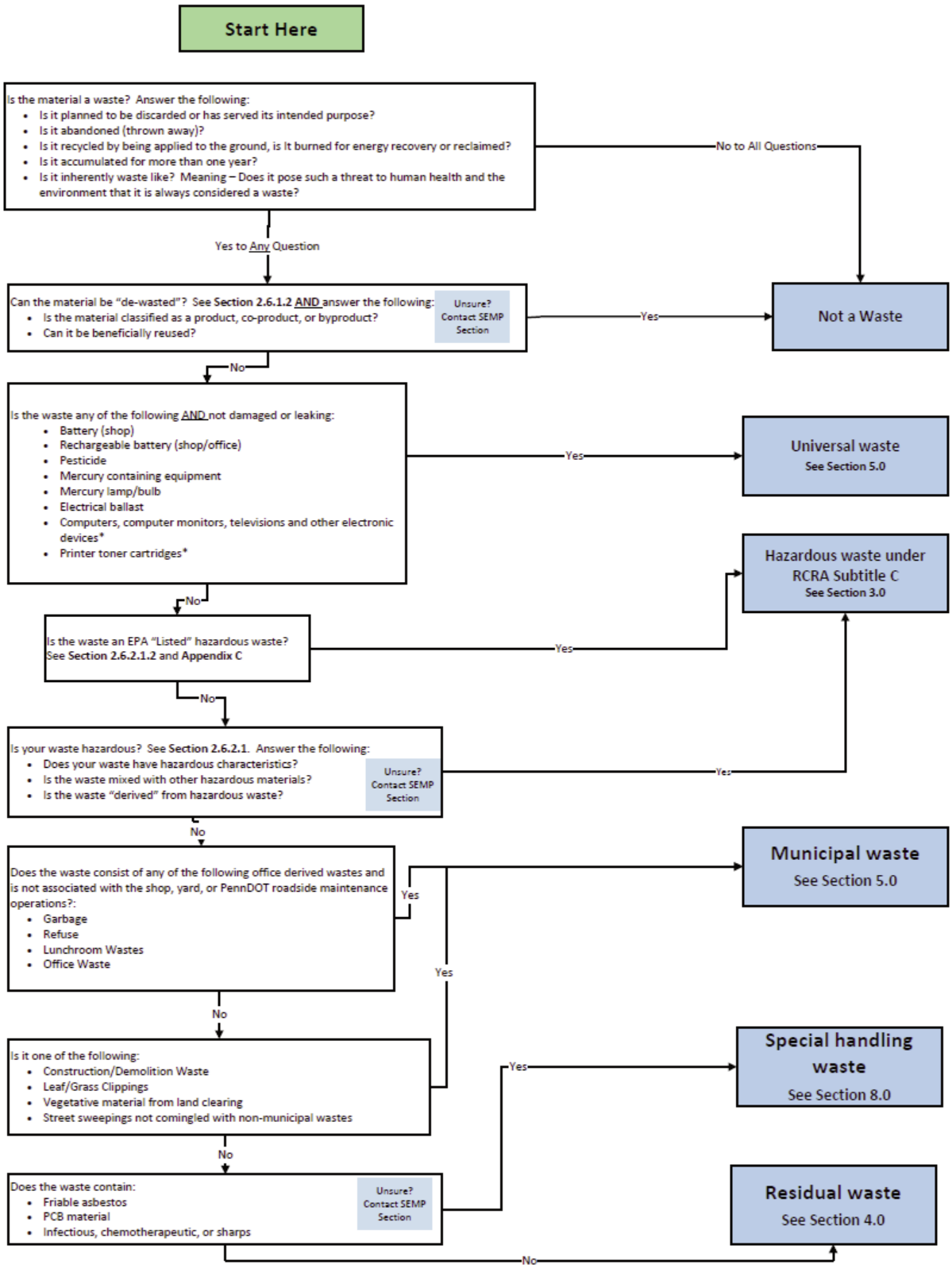
- **Infectious -** Municipal and residual waste which is generated during human or animal medical activities, interment, cremation, or production/testing of biologicals. These wastes may consistent of (but not limited to): infectious agents, human or animal tissues, blood, or hair.
- **Chemotherapeutic -** Highly toxic waste resulting from cancer treatment. Given the toxicity, these wastes must be handled and disposed of carefully pursuant to Pennsylvania requirements.
- **Sharps Waste -** Broken glass, needles, syringes, vials, etc. that have been used in human or animal patient care or treatment.

These wastes may be encountered during spill cleanup or abandonment scenarios while performing roadside maintenance activities, and almost always require a notification to PADEP. Additional detail is provided in **Section 8.0**.

2.6.3 STEP 3 - HOW IS THE WASTE MANAGED?

Now that you have properly classified your waste, proceed to one of the following sections of the publication for additional information. A flowchart depicting the overall waste determination process is provided as Figure 2 below.

FIGURE 2



*While not technically Universal Waste, these wastes are managed under the Universal Waste program due to disposal restrictions and are always recycled

3.0 HAZARDOUS WASTE MANAGEMENT

- How do you Determine your Generator Status?
- Specific Requirements for Each Generator Category
- Hazardous Waste Manifesting
- Record Keeping and Reporting
- Detailed Requirements for Specific Hazardous Waste Streams

Hazardous wastes are not commonly generated in significant quantities as part of PennDOT maintenance operations

While not common, PennDOT facilities may generate hazardous waste associated with maintenance activities. There are many regulatory requirements associated with managing and disposing of hazardous waste as a result of the potential to pose a threat to human life, human health or the environment. The EPA promulgated hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA), integrated under Subtitle C regulations, **to manage hazardous waste from Cradle to Grave.** The PADEP has primarily adopted the federal regulations by reference, with some minor differences.

Hazardous waste identification is the first step towards meeting the regulatory requirements. **Refer to Section 2.6.2 and Figure 1 to determine if your waste stream is regulated as a hazardous waste in Pennsylvania.**

This guidance is not intended to provide information on all applicable regulatory requirements, but is intended to be a quick reference tool for PennDOT personnel to assist them to appropriately manage and dispose of Hazardous Wastes generated from PennDOT facilities throughout the state. If more specific information is needed, District personnel may contact the Rwy/SEMP Section, or their regional PADEP office (check the PADEP website for PADEP contact information).

3.1 GENERATOR CATEGORIES AND ASSOCIATED REQUIREMENTS

Hazardous waste regulations make the distinction between three levels of hazardous waste generators. The three hazardous waste generator categories, referred to as **generator status**, are:

- Very Small Quantity Generator (VSQG);
- Small Quantity Generator (SQG); and
- Large Quantity Generator (LQG).

Table 2 below defines each generator category with a summary of key requirements.

TABLE 2 -
SUMMARY OF KEY HAZARDOUS WASTE GENERATOR REQUIREMENTS

Status/Category	Very Small Quantity Generator	Small Quantity Generator	Large Quantity Generator
Monthly Waste Generation Limits	No more than: • 220 lbs. per month of hazardous waste; • 2.2 lbs. per month of acutely hazardous waste; • 220 lbs. per month of hazardous residue/debris.	Between: • 220 lbs. and 2,200 lbs. per month of hazardous waste No more than: • 2.2 lbs. per month of acutely hazardous waste; • 220 lbs. per month of hazardous residue/debris.	More than: • 2,200 lbs. per month of hazardous waste; • 2.2 lbs. per month of acutely hazardous waste.

TABLE 2 - (CONTINUED)

Status/Category	Very Small Quantity Generator	Small Quantity Generator	Large Quantity Generator
Total Waste Accumulation Limits	At any time, no more than: • 2,200 lbs. per month of hazardous waste; • 2.2 lbs. per month of acutely hazardous waste.	At any time, no more than: • 13,200 lbs. of hazardous waste; • 2.2 lbs. per month of acutely hazardous waste.	At any time, more than: • 13,200 lbs. of hazardous waste; • 2.2 lbs. per month of acutely hazardous waste.
Classify Wastes	Yes – Documentation of hazardous waste determination.	Yes – Documentation of hazardous waste determination.	Yes – Documentation of hazardous waste determination.
Obtain EPA ID # Used Licensed	No	Yes – required to obtain EPA ID#	Yes – required to obtain EPA ID#
Transporter Ship to Authorized	No	Yes	Yes
Facility On-site	Yes – must be shipped to a facility authorized to treat and dispose of hazardous waste	Yes – must be shipped to an authorized facility using a licensed hazardous waste transporter with an EPA ID # and Hazardous Transporter license	Yes – must be shipped to an authorized facility using a licensed hazardous waste transporter with an EPA ID # and Hazardous Transporter license
Accumulation Time Limits Tank	None as long as < 2.2 lbs. of acutely hazardous waste, or <220 lbs. of media contaminated with acutely hazardous waste, or < 2,200 lbs hazardous waste accumulated on site.	Yes – Accumulate hazardous waste for no more than 180 days (270 days if shipping over 200 miles) except in satellite areas.	Yes – Accumulate hazardous waste for no more than 90 days.
Requirements Container	Yes – Comply secondary containment, inspection, design standards, and general operations management	Yes – Comply secondary containment, inspection, design standards, and general operations management	Yes – Comply secondary containment, inspection, design standards, and general operations management
Requirements Secondary	Yes – Comply with requirements for use and management of containers	Yes – Comply with requirements for use and management of containers	Yes – Comply with requirements for use and management of containers
Containment Separate	Yes – Required for container and tank storage areas	Yes – Required for container and tank storage areas	Yes – Required for container and tank storage areas
Incompatibles	Yes – Comply with incompatible waste management requirements. **See Section 3.2.**	Yes – Comply with incompatible waste management requirements. **See Section 3.2.**	Yes – Comply with incompatible waste management requirements. **See Section 3.2.**
Label Containers and Tanks	Yes – Comply with labeling requirements. **See Section 3.2.**	Yes – Comply with labeling requirements. **See Section 3.2.**	Yes – Comply with labeling requirements. **See Section 3.2.**
Manifest Wastes	No	Yes – Complete, distribute, and maintain manifest forms. **See Section 3.4.**	Yes – Complete, distribute, and maintain manifest forms. **See Section 3.4.**

TABLE 2 - (CONTINUED)			
Status/Category	**Very Small Quantity Generator**	**Small Quantity Generator**	**Large Quantity Generator**
Comply with DOT Shipping Regulations	Yes – Prepare waste for transportation in accordance with DOT regulations and requirements. **See Section 3.3.**	Yes – Prepare waste for transportation in accordance with DOT regulations and requirements. **See Section 3.3.**	Yes – Prepare waste for transportation in accordance with DOT regulations and requirements. **See Section 3.3.**
Have Emergency Equipment Procedures	No	Yes – Comply with preparedness and prevention requirements. **See Section 3.2.**	Yes – Comply with preparedness and prevention requirements. **See Section 3.2.**
Maintain Records	Yes – Complete and maintain waste records. **See Section 3.5.**	Yes – Complete and maintain waste records. **See Section 3.5.**	Yes – Complete and maintain waste records. **See Section 3.5.**
Biennial Reporting	No	No	Yes – Complete quarterly and biennial reports (due March 1 of each even numbered year) **See Section 3.6.**
Exception Reporting	No	Yes – **See Section 3.6.**	Yes – **See Section 3.6.**
Written Contingency Plan	No	No	Yes – Prepare a written contingency plan which details precautions and procedures to be used to minimize the hazards and dangers associated with hazardous waste.
Written Personnel Training Plan	No	No	Yes – Prepare a written training plan which details how and when employees will be trained.
Train Personnel	No (but required under OSHA)	Yes – Facility personnel must be trained in hazardous waste management procedures relevant to their positions, including contingency plan implementation.	Yes – Facility personnel must be trained in hazardous waste management procedures relevant to their positions, including contingency plan implementation.
Conduct Self-inspections	No	Yes – Maintain logs of all inspections.	Yes – Maintain logs of all inspections.
Spill Reporting	Yes	Yes	Yes
Air Emission Requirements (Subpart CC Rule)	No	No	Yes – Applies to certain volatile organic containing hazardous wastes.
Land Disposal Restrictions	Yes	Yes	Yes

Hazardous waste tends to be generated in limited quantities by Department maintenance operations. Therefore, it is unlikely for a facility to meet the requirements of a LQG classification.

All PennDOT facilities that generate hazardous waste in a calendar year are considered Hazardous Waste Generators and must follow the appropriate regulations. PennDOT personnel are required to determine their facility's generator status to confirm category specific management and reporting requirements.

Generator status is determined on a monthly basis. Consequently, it is possible that a generator's status can change from one month to the next, depending on the amount of waste generated in a particular month. If a generator's status does in fact change, the generator is required to comply with the respective regulatory requirements for that class of generators for the waste generated in that particular month as indicated in **Table 2**. If a VSQG or SQG falls into the LQG category in any given month, they are not required to immediately notify PADEP of their change in generator status, but must comply with PADEP reporting requirements (i.e., biennial reporting and exception reporting), even if they were a LQG for only a single month for that reporting year. Upon return to the SQG category, it is recommended to submit a Subsequent Notification of Regulatory Waste Activity Form **(Appendix F)**, within 60 days to PADEP to inform PADEP when a facility "returns" to the lesser generator category.

3.1.1 EPISODIC GENERATION EVENTS

For VSQGs only, an allowance is made for episodic events. An **Episodic Event** means an activity or activities, either planned or unplanned, that does not normally occur during generator operations, resulting in an increase in the generation of hazardous wastes that exceeds the calendar month quantity limits for the generator's usual category.

For episodic events, the VSQG must notify EPA no later than thirty (30) calendar days prior to initiating a planned episodic event using EPA Form 8700-12. In the event of an **unplanned episodic event**, the generator must **notify EPA within 72 hours** of the unplanned event via phone, email, or fax and subsequently submit EPA Form 8700-12 (within 1 week). Contact information is found in **Appendix B**. The generator shall include the start date and end date of the episodic event, the reason(s) for the event, types and estimated quantities of hazardous waste expected to be generated as a result of the episodic event, and shall identify a facility contact and emergency coordinator with 24-hour telephone access to discuss the notification submittal or respond to an emergency in compliance with §262.16(b)(9)(i);

The VSQG must have an EPA identification number or obtain an EPA identification number using EPA Form 8700-12 **(Appendix F)**.

For further guidance associated with episodic events, contact the Roadway/SEM Programs Section.

3.2 GENERAL STORAGE AND MANAGEMENT

Hazardous waste must be stored in a manner which prevents impact to the environment

The storage of hazardous waste must be conducted in a manner which prevents impact to the environment. In addition to the primary hazardous waste storage area, PennDOT may consider hazardous waste at or near the point where it is initially generated and collected during daily operations. This is referred to as a **satellite accumulation area**. A PennDOT facility may accumulate up to 55 gallons of hazardous waste or 1 quart of acute hazardous waste at each satellite accumulation area, **if** it is under the control of the person operating the process that generates the waste. Limited standards, such as labeling and maintaining the container in good condition apply. When the 55-gallon limit is reached, the facility has three days to move the hazardous waste to the central accumulation area (or it must be shipped off-site).

Hazardous waste shall be stored approximate to the location of generation. This means that hazardous waste generated at a maintenance facility shall be stored within the confines of the facility grounds prior to disposal. It is for this reason that County 01 maintenance facilities have been assigned an EPA ID #. In those cases,

when hazardous waste is generated outside a maintenance facility on the roadway ROW, including hazardous waste generated from Department activities and remedial activities, the hazardous waste shall be temporarily stored in the general area of where it was generated. Under no circumstances shall hazardous waste generated within the roadway ROW be transferred or stored at a Department maintenance facility. **See Section 3.3** for more information on obtaining an EPA ID # and management options.

The general storage requirements outlined below apply to any PennDOT facility that stores hazardous waste. PennDOT typically stores hazardous waste in containers and storage tanks (limited). Other types of hazardous waste storage units that are allowed, but not used by PennDOT include: drip pads, containment buildings, waste piles and surface impoundments.

3.2.1 EMPTY VS. RCRA-EMPTY CONTAINERS

The EPA specifically defines the conditions of when a storage container previously containing hazardous waste is "empty". The term used to describe this condition is RCRA-Empty. There are two separate conditions, one that applies to non-acute hazardous wastes and one that applies to acute hazardous wastes (see definitions for each of these hazardous waste types in Appendix A).

RCRA Empty for **non-acute** hazardous wastes:

- All wastes have been removed that can be removed using 'commonly employed practices' from that type of container, **and one of the following:**
  - No more than 2.5 centimeters (1 inch) of residue remains on the bottom of the container or liner, **or**
  - For containers ≤ 110-gallons: no more than 3 percent of the total capacity of the container remains (by weight), **or**
  - For containers ≥ 110-gallons: no more than 0.3 percent of the total capacity of the container remains (by weight)

RCRA Empty for **acute** hazardous wastes:

- The container is triple rinsed with a solvent capable of removing the acute waste, or
- The container has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal, or
- The inner liner that prevented contact between the acute waste and the container is removed

3.2.2 DURATION OF STORAGE

Hazardous waste shall be stored no longer than the following time frames:

- VSQG's – 180 days prior to disposal (except in satellite areas)
- SQG's – 180 days prior to disposal (except in satellite areas)
- LQG's – 90 days prior to disposal

Regulations allow unlimited accumulation for VSQGs; however, the 180-day limit is Department policy.

The waste accumulation time period starts when waste is first placed in or on the empty accumulation unit (container or tank). For LQGs, hazardous waste can be accumulated up to 90 days before shipment off-site, while SQGs can accumulate hazardous waste up to 180 days.

3.2.3 STORAGE AND INSPECTION

Storage and accumulation of hazardous waste on-site must use U.S. DOT approved containers. Containers must be kept in good condition and compatible with all wastes. **Visually inspect container storage areas at least weekly** for leaking or deteriorating containers (this inspection DOES NOT need to be documented). Containers holding hazardous waste shall always be closed during storage, except when it is necessary to add or remove waste. Containers shall be marked with the

accumulation start date to be able to demonstrate that no hazardous waste has been stored longer than the accumulation time limit. The container height width and depth of a group of containers shall provide a configuration and aisle spacing which insures safe management and access for purposes of inspection, containment and remedial action with emergency vehicles. Drums shall not be stacked more than two (2) high.

3.2.4 LABELING

Hazardous wastes need to be labeled from the start of accumulation while stored onsite. At a minimum, the words **"Hazardous Waste,"** a brief description of the waste material (e.g., Contaminated Gasoline), and the start date of accumulation must be on the container.

3.2.5 RELEASE PREVENTION

As applicable, the Combined Facility Response Plan (CFRP) shall include a specific section to address the hazardous waste storage area. Hazardous waste storage areas shall have a containment system that is designed and operated in the following manner to protect from releases to the environment:

- The base for the containment system must constructed of an impervious material and free of cracks or gaps to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;
- The containment system must be capable of holding 100% of the volume contained in the largest container plus any additional freeboard needed to account for precipitation (i.e., 110% of the largest container);
- Surface water run-on into the containment system must be prevented unless the collection system has sufficient excess capacity; and
- Spilled or leaked hazardous waste and accumulated precipitation must be removed from the containment system in a timely a manner as is necessary to prevent overflow of the collection system.

Emergency Equipment: Comply with preparedness and prevention requirements which include:

- Maintain an alarm or communication system. A Public Address (PA) system or air horn is adequate for a larger facility such as an 01 or regional site. For a small site, such as a stockpile, an air horn or loud voice is adequate.
- Maintain sufficient fire and spill control equipment
- Maintain sufficient aisle space
- Test and maintain equipment to assure proper operation in time of emergency
- Ensure proper arrangements have been made with local authorities in the event of an emergency. This information should be documented in the facility CFRP.

3.2.6 CONTAINERS AND MATERIAL COMPATIBILITY

Personnel must be careful to manage incompatible wastes or materials in a safe manner. For example, it is possible that two different kinds of hazardous wastes or materials may create a chemical reaction that would result in a dangerous condition when coming in contact with one another (such as a harmful vapor). Comply with the following regarding incompatible waste:

- Incompatible wastes must not be placed in the same container;
- Containers holding hazardous waste must be compatible with the materials they hold. For instance, acids should not be placed in steel drums. and
- Incompatible wastes, in separate containers but within the same storage unit or containment structure shall be placed in overpacks or similar devices to prevent mixing should the primary containers leak.

Storage Tanks: Tanks that store hazardous waste are not subject to Pennsylvania's storage tank regulations but are instead regulated under RCRA Subtitle C requirements. Requirements for storage, tank/waste compatibility, spill prevention, inspection and closure are specified therein. Given that it is unlikely for PennDOT to store hazardous waste in storage tanks, the specific storage tank requirements are not outlined in this publication. If a PennDOT facility is ever in the need to storage hazardous waste in a storage tank, contact Rwy/SEMP Section for further guidance.

3.3 SHIPPING AND DISPOSAL REQUIREMENTS

All hazardous waste is generated at a PennDOT facility or managed by maintenance forces from a release to a maintenance facility or ROW, must be shipped to a Resource Conservation and Recovery Act (RCRA) permitted disposal, treatment or recycling facility. Only a licensed hazardous waste transporter with an official EPA transporter ID number and Hazardous Transporter license can legally transport the waste for disposal. Hazardous waste must be treated prior to disposal and CANNOT immediately land disposed (i.e., landfilled).

Department maintenance facilities that routinely generate hazardous waste shall obtain a facility-specific EPA generator ID number (EPA ID number). To obtain an EPA ID number, complete EPA Form 8700-12 (Appendix F) and forward the completed form to the PADEP Bureau of Waste Management. Specific instructions may be found on the PADEP website. For additional assistance, contact the Rwy/SEMP Section for further guidance. Typically, PennDOT 01 maintenance facilities already possess an EPA ID number because of historic hazardous waste generation activities.

Hazardous waste generated from activities outside of a maintenance facility are typically the result of a non-routine release and subsequent remediation. Hazardous waste originating from highway ROWs or non-routine occurrences at stockpiles without existing EPA ID numbers shall be managed in general proximity to the location of occurrence to the degree possible. In these cases, the County shall obtain a temporary EPA ID number. A Temporary EPA ID Number may be obtained by contacting the PADEP Bureau of Waste Management, Division of Reporting and Fee Collection. A temporary EPA ID number is valid for only for a maximum of 45 days. Department employees should not normally be signing hazardous waste manifests associated from non-PennDOT generated hazardous waste. See Section 7.5.3.1 for more detailed management considerations. For additional assistance, contact the Rwy/SEMP Section.

Department employees who complete hazardous waste manifests or otherwise offer hazardous waste for shipment shall be trained in accordance with 49 CFR § 172.704. The training shall occur within 90 days of the employee given this responsibility and be repeated every three years. This training is listed in SRM as "HAZMAT General Awareness for Maintenance Personnel."

Department employees trained per the previous paragraph must also ensure waste is prepared for transportation in accordance with U.S. DOT regulations and requirements. U. S. DOT regulations include specific requirements for:

- Packaging;
- Labeling;
- Marking; and
- Placarding.

All wastes that are sent off-site for disposal must be properly manifested. Refer to **Section 3.4** for more information on preparing and maintaining hazardous waste manifests. Prior to shipping, the Department employee tasked with overseeing activities described in this section shall ensure that the receiving facility is RCRA permitted to accept the hazardous waste for disposal, treatment and/or recycling.

3.4 HAZARDOUS WASTE MANIFESTING

All hazardous wastes that are transported off-site for disposal shall be properly manifested. The Uniform Hazardous Waste Manifest System is a set of forms and procedures designed to seamlessly track hazardous waste from the time it leaves the generator facility where it was produced, until it reaches the off-site waste management.

In general, the following must be made available to complete the manifest:

- PennDOT facility information – including EPA ID number
- Waste description, container type, and quantity
- EPA waste code for disposal
- Hazardous waste transporter information
- Designated facility information
- Any special handling instructions and additional information
- Signatures of qualified individuals for all parties

Detailed instructions, an example hazardous waste manifest, and a list of common hazardous waste codes are provided in **Appendix F** for review. For additional assistance, contact the Rwy/SEMP Section for further guidance.

3.5 RECORD KEEPING

All PennDOT facilities that generate hazardous waste must keep good records of waste generation, transportation, and disposal, and all associated documentation and reporting. Basic record keeping requirements include:

- Records of waste storage and disposal **(VSQG, SQG and LQG)**
- Copies of signed hazardous waste manifests **(SQG and LQG only)**
- Copies of Biennial Reporting **(LQG only)**
- Copies of Exception Reporting **(SQG and LQG only)**
- Records of any test results, waste analyses, or other determinations associated with hazardous waste characterization **(VSQG, SQG, LQG)**

The generator is required to keep copies of each manifest, Biennial Report (LQGs only), waste determinations and any waste analyses supporting the waste determinations for a period of three years. **PennDOT policy requires these records to be kept indefinitely.** Generators are also required to keep Exception Reports, as described in Section 3.6.

3.6 REPORTING

3.6.1 HAZARDOUS WASTE MANIFEST

The Uniform Hazardous Waste Manifest is used to track hazardous waste from a facility to the site of its disposition and are only required for SQGs and LQGs. **Appendix F** provides an example of filled out Form 8700-22 with instructions and EPA listing of common hazardous waste codes for waste stream classifications typically generated by PennDOT.

3.6.2 BIENNIAL REPORTING

Biennial reporting as a large quantity generator is not common for PennDOT. Contact Rwy/SEMP Section to confirm your generator status.

For LQG of hazardous waste, biennial reports are due by March 1 of each even numbered year. Given that it is unlikely for any PennDOT facility be classified as a LQG, biennial reporting is not discussed within this publication. If biennial reporting ever required, contact the Rwy/SEMP Section for further guidance.

3.6.3 EXCEPTION REPORTING

The RCRA regulations are intended to ensure that the transport of hazardous waste from its point of generation to its point of treatment, storage, or disposal is documented through the manifest system. This system requires:

1. The designated facility to return a signed and dated copy of the manifest to the generator to acknowledge receipt of the waste.

2. If a generator has not received the paperwork, additional steps are required to be taken in order to locate the waste:

   LQGs - who transport waste offsite, but do not receive a signed and dated copy of the manifest from the designated facility within **45 days** from the date on which the initial transporter accepted the waste, must submit an exception report to the EPA Regional Administrator. The exception report must describe the efforts made to locate the waste and the results of those efforts.

   SQGs - must submit a legible **copy of the manifest**, with indication as that they have not received confirmation of the delivery within **60 days** (counting from the day the initial transporter pickup of the hazardous waste) to the EPA Regional Administrator. The submission to EPA need only be a handwritten or typed note on the manifest itself, or on an attached sheet of paper, stating that the return copy was not received.

3.7 COMMON MAINTENANCE RELATED HAZARDOUS WASTES

This section provides addition waste management guidance for common hazardous wastes generated during PennDOT maintenance activities. The list of wastes provided in this section include:

- 3.7.1 Aerosol Cans
- 3.7.2 Fuel (Gasoline or Contaminated Diesel)
- 3.7.3 Parts Washer
- 3.7.4 Paint

3.7.1 AEROSOL CANS

Used aerosol cans may be classified as a hazardous waste either because the product that the cans once contained is characterized as a hazardous waste or because the cans exhibit a characteristic of a hazardous waste.

- Paints, thinners and solvents are typical aerosol can products which may be hazardous.
- All aerosol cans meeting the definition of hazardous waste must be managed under all applicable hazardous waste regulations **(Section 2.6.2)**.

Even if the product contained in the aerosol can is not a hazardous waste, the can itself still can be classified as hazardous waste due to potentially exhibiting the reactivity or ignitability characteristic (e.g., the cans will detonate under pressure – **See Section 2.6.2.1.1**). Concern that used aerosol cans may exhibit the reactivity or ignitability characteristic can ordinarily be addressed by puncturing the cans and draining its contents so that they are "RCRA Empty". Puncturing cans will release

compressed gas and should eliminate the danger of the cans detonating under pressure. Used aerosol cans may be recycled as scrap metal once they no longer contain a significant amount of liquids or propellants and are no longer considered hazardous.

Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a hazardous waste in Pennsylvania.

Waste Management Requirements:

1. Empty spent cans using an aerosol can puncturing unit or properly store cans if punctured by a vendor.
2. Collect residues from punctured aerosol cans in a residue drum. The drum is considered "in-process" and no accumulation start date is required until drum is ready for disposal (approximately 70% full).
3. Place punctured cans in a properly labeled scrap metal bin/container.

3.7.2 FUEL (GASOLINE OR CONTAMINATED DIESEL)

Contaminated or spent fuels such as gasoline or diesel fuel contaminated with gasoline that cannot be used or burned for energy recovery are classified as hazardous waste due to ignitability. Gasoline is considered flammable, and thus is a hazardous substance. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a hazardous waste in Pennsylvania.

Waste Management Requirements:

1. Store all contaminated fuels in drums or tanks. Keep containers closed when not in use.
2. Label container with the words, "Hazardous Waste" with start accumulation dates.
3. Store in area with proper secondary containment and fire suppression equipment.
4. Do not discharge waste to the sanitary or stormwater system.
5. Disposal through contracted vendors must be accompanied by hazardous waste manifest.
6. For most County facilities that meet the VSQG or SQG, hazardous waste must be disposed within a year or 180-day timeframe, respectively. For LQGs, disposal must be accomplished within 90 days.

3.7.3 PARTS WASHER SOLVENT

PennDOT uses a variety of compounds for parts cleaning and degreasing, ranging from "green" compounds such as citric acid to "toxic" organic solvents containing chlorine, other halogens and strong bases.

- Spent degreasers or parts cleaners also contain contaminants introduced from the parts being cleaned.
- Parts cleaner solvents may also use petroleum distillates, mineral spirits, naphtha, all considered hazardous waste when spent due to ignitability.
- Waste solvents that contain chlorinated hydrocarbons are regulated as hazardous waste.

In general, spent solvents that exhibit the characteristic of toxicity or ignitability must be disposed as hazardous waste, or alternatively recycled through a vendor. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a hazardous waste in Pennsylvania.

Waste Management Requirements:

1. Review Safety Data Sheets on all degreaser and parts cleaning products to confirm hazardous characteristics.
2. Keep parts washer closed and non-circulating while not in use. Do not locate units near sources of ignition.
3. Segregate different spent abrasive waste stream to minimize cross-contamination. Collect and store solvents in DOT-approved containers (55-gallon drum or other compatible plastic container). Containers should be kept closed (tight lid) while not in use.
4. Label container with the words, "Hazardous Waste" with start accumulation dates.
5. If spent solvent is non-hazardous, dispose/recycle through contracted vendors.
6. If spent solvent is a hazardous waste, manage containers in accordance to hazardous waste requirements (labeling, storage, and shipping using a hazardous waste manifest).
7. Retain manifests, bills of lading or vendor pickup documentation per PennDOT Record Management Policy.

3.7.4 PAINT

Typical paint related wastes generated during routine PennDOT operations include: excess paint (solvent and water-based), paint solvents and thinners, air filters, paint truck wastes, degreasers, spent abrasives and empty paint containers. Paint residuals and solvents are typically classified as residual waste but may exhibit hazardous characteristics such as ignitability or contain metals such as lead, cadmium, or chromium. Water-based paints and residues may also be hazardous due to paint pigments that contain lead or chromium. Always consult SDS's on products to make a waste determination. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a hazardous waste in Pennsylvania.

Paint residuals and solvent may exhibit hazardous characteristics See **Section 2.6.2.1.1**

Waste Management Requirements:

1. Collect and store hazardous waste paints or solvents in sealed containers that are kept closed (tight lid) while not in use.
2. Label container with the words, "Hazardous Waste" with start accumulation dates.
3. Store in area with proper secondary containment and fire suppression equipment.
4. Disposal through contracted vendors must be accompanied by hazardous waste manifest.
5. For most County facilities that meet the VSQG or SQG, hazardous waste must be disposed within a year or 180-day timeframe, respectively. For LQGs, disposal must be accomplished within 90 days.

4.0 RESIDUAL WASTE MANAGEMENT

- How to properly Store, Handle, and Transport Residual Waste
- Generator Status and Specific Requirements
- Record Keeping and Reporting
- Detailed Requirements for Specific Residual Waste Streams

Residual Wastes are the most common wastes encountered from PennDOT Maintenance Operations.

Residual waste is a nonhazardous waste that is not Municipal Waste. It comprises the largest waste category generated by the Department. By definition: Residual Waste is a nonhazardous industrial waste including waste material (solid, liquid, or gas) produced by industrial, mining and agricultural operations. It excludes certain coal mining wastes and wastes from normal farming activities. Typical residual wastes generated during PennDOT maintenance operations include items like waste oil, rubber tires, shop trash, used vehicle parts, and absorbents. **Refer to Section 2.6.2 and Figure 1 to determine if your waste stream is regulated as a residual waste in Pennsylvania.**

The final destination for PennDOT's residual waste streams may include the following options:

1. Disposal – **See Section 4.2** (i.e., landfilling, incineration, underground injection, etc.)
2. Beneficial use (i.e., waste oil burning)
3. Recycling (i.e., processing for reuse, coproduct, etc.)

See Section 4.6 to determine how each of these options may apply to specific residual waste streams generated by the Department. Regulatory contact information for the residual waste program is provided in Appendix B.

4.1 GENERAL STORAGE REQUIREMENTS

Residual waste, like all waste, shall be stored in a manner which minimizes their impact on the environment. The following general storage requirements apply to all residual waste streams:

- **Mixing of Wastes -** Residual wastes shall not be comingled with hazardous waste, special handling waste, or any other materials that may create a risk of fire, explosion, or accumulation of harmful vapors or gases.
- **Determining the Composition of Mixed Waste Streams -** Although it is common practice at PennDOT facilities to comingle some residual waste (i.e. oily rags, vehicle filters, etc.) with municipal waste (i.e., office trash), this practice makes it challenging to effectively track the volume of residual waste generated at a facility. Under ideal circumstances, the segregation of residual from municipal wastes would be recommended. However, BOMO recognizes that this is often impracticable. As an alternative when waste streams are mixed, the County personnel charged with waste tracking may instead estimate the typical waste stream composition for recordation and generator status determination purposes. This estimation shall be based upon local generator knowledge and be reviewed for suitability on at least an annual basis.
- **Duration of Storage -** Residual waste shall not be stored greater than one (1) year prior to disposal. The waste accumulation time period starts when waste is first placed in or on the empty accumulation unit (container or tank).
- **Container -** Residual waste containers, like all waste containers shall be compatible with (i.e., does not react with) the waste material and designed to prevent leaks. The containers must be designed for easy handling for collection. Containers should be stored on pallets to protect them from standing water. Lids and/or bungs should be in place and tight except when adding or removing waste.

- **Labeling -** Waste containers shall be clearly labeled as ''residual waste'' or as the specific type of residual waste. For containers not owned by the Department, if the label is not affixed to the container, the label shall be placed immediately adjacent to the container. Labels shall include the accumulation start date to assist with tracking the duration of storage unless another effective method to monitor waste accumulation time has been established by the District.

- **Environmental Protection -** Residual wastes may not be stored in a matter that may cause impacts to Waters of the Commonwealth. Waste storage areas with the potential to discharge to the environment must be equipped with secondary containment (constructed of an impervious material) capable of holding 100% of the volume contained in the largest container plus a reasonable allowance for precipitation (additional 10%). Waste piles with little potential for discharge must be stored in a matter that minimalizes stormwater run on and off and potential migration of the waste material.

- **Storage Tanks -** For guidance relative to storage tanks, refer to Pub. 694.

4.2 SELF TRANSPORTATION AND DISPOSAL

If planning on transporting residual and/or municipal waste to a landfill utilizing Department vehicles, the following authorizations are required BEFORE removing it from the maintenance facility. The two (2) items that must be completed include:

1. Waste Transportation Safety Program (Act 190) Permit (Vehicle Authorization Sticker), correct vehicle signage, and

2. Landfill Acceptance of the Waste.

4.2.1 GETTING AN ACT 190 AUTHORIZATION STICKER FOR A PENNDOT VEHICLE

Waste transportation vehicles hauling municipal or residual waste to waste processing or disposal facilities in Pennsylvania typically require a valid Waste Transporter Authorization Sticker. Waste transportation vehicles require a sticker if they exhibit the following:

- The gross vehicle weight **greater than 17,000 lbs.**; and/or

- Trailers with a registered gross vehicle weight **greater than 10,000 lbs**.

PennDOT vehicles that meet this criteria and transport municipal or residual waste for disposal or processing must apply for and maintain an active **Act 90 Authorization Sticker and cab card**. The authorization sticker and cab card may be applied for directly from PADEP. Instructions may be found in the Solid Waste Management Program section of the PADEP website at: http://www.dep.pa.gov/Business/Land/Waste/SolidWaste/Municipal-Residual-Waste--Transportation/Pages/default.aspx.

Disposal facilities have the authority to reject waste if the transporter does not have valid Act 90 Sticker and signage. Designated PennDOT vehicles with Act 90 Authorization Stickers must maintain the following signage on both sides of the vehicle when transporting applicable residual waste:

- A sign that includes the **name and business address of the vehicle owner**. This address must include the city, state, and zip code. Counties should use the address where the vehicle is principally parked.

- The sign must include the specific **type of solid waste** that is being transported. Mixed municipal and residual waste shall be designated: Municipal/Residual Waste.

- The sign shall have **lettering that is 6 inches in height**. The required information shall be clearly visible and easily readable.

- The sign may be permanent or detachable. Magnetic or other temporary signs may be purchased for Department vehicles.

4.2.2 ENSURING THE DISPOSAL FACILITY ACCEPTS THE WASTE

For disposal of residual waste, most landfills in Pennsylvania will require that PennDOT complete one or both following forms:

Identify disposal requirements and necessary forms with the disposal facility **BEFORE** disposal.

- PADEP **Form U** (Request to Dispose or Process Residual Waste), which is submitted to the disposal facility prior for waste acceptance; and
- PADEP **Form 25R** (Source Reduction Strategy), which may be requested by PADEP or the disposal facility. For waste from Small Quantity Residual Waste Generators, remedial activities, and annual highway clean-up activities, a Source Reduction Strategy is not required. In these instances, Form 25R does not apply.

See Appendix D for copies of the forms and instructions. It is the responsibility of the PennDOT facility waste representatives to coordinate with the disposal facilities to determine whether these forms need to be submitted for disposal of residual waste streams. Form U/25R submission requirements are at the discretion of the disposal facility and are based upon their operating permit. Form U/25R requirements must be identified and satisfied before the waste is transported to the disposal facility.

4.3 GENERATOR REQUIREMENTS

Any PennDOT facility that generates more than an average of 2,200 pounds of residual waste per facility location per month is subject to specific recordkeeping and reporting requirements. PennDOT exemptions from counting toward these totals include:

- Parts, machinery, vehicles, and appliances as a result of repair or replacement activities;
- Waste oil or other materials that are recycled; and/or
- Waste from a spill, release, fire, accident or other unplanned event (including contaminated soil)

See Table 3 below for a summary of residual waste generator requirements:

TABLE 3 -
SUMMARY OF KEY RESIDUAL WASTE GENERATOR REQUIREMENTS

Requirements	<2,200 pounds generated per month	>2,200 pounds generated per month
Reporting	None	Biennial Reports and Source Reduction Strategy are required to be filed with PADEP for each waste stream generating in average or more than 2,200 lbs. of residual waste per month
Chemical Analysis of Waste	None	Form 26R's and associated chemical analysis are required to be filed with PADEP for each waste stream. This requirement is waived for individual types of waste that are generated in quantities of less than 2,200 pounds per month per generating location.
Accumulation Time Limit	One Year	
Recordkeeping	Generator is required to maintain records of the types and amounts of residual waste generated, the dates waste was generated and disposed. Records on transporters and disposal facilities (name, address, telephone numbers). These records must be maintained for 5 years	

4.4 RECORD KEEPING

Generators of residual waste are required to maintain the following records:

- Type of each waste generated;
- Amount of each waste generated;
- Date the waste was generated;
- Date the waste was disposed; and
- Records on transporters and disposal facilities (name, address, telephone numbers).

NOTE: For mixed wastes, the percentage of residual waste and other waste types must be determined for accurate record keeping.

These records must be maintained for 5 years. Note: It is common practice for certain shop related residual wastes to be mixed and disposed of with municipal waste in the same container (i.e., used vehicle parts and office waste). While this allowed, the percentage of residual waste must be determined for each mixed waste load for accurate record keeping. Rwy/SEMP Section recommends that each facility develop and conduct a brief study to determine the approximate percentage of residual waste for each mixed waste load. Contact your District SEMP Manager or the Rwy/SEMP Section for assistance with setting up this study. Refer to **Section 10.0** of this publication outlining procedures for the Department waste tracking protocols.

4.5 REPORTING

4.5.1 REGULATORY REPORTING REQUIREMENTS

For those facilities that generate **greater than 2,200 lbs. of residual waste per month**, a Biennial Report, Form 25R (Source Reduction Strategy (SRS)), and Form 26R (chemical analysis of waste) are required to be filed with PADEP for each applicable waste stream (See Generator Requirements – Section 4.3). Residual Waste Biennial Reports are prepared for even numbered calendar years and submitted to PADEP by March 1 of the following year. If it becomes necessary for a facility to prepare these documents, contact Rwy/SEMP Section for guidance. See **Appendix D** for copies of the forms and instructions.

4.5.2 OTHER REPORTING REQUIREMENTS

Reporting of recycled residual waste to the Department of General Services (DGS) is Commonwealth policy per a Management Directive 205.22 Amended issued September 19, 2014 (Recycling, Waste Reduction and Procurement of Environmentally Preferable Products). To conform with the management directive, PennDOT is required to report the recycling of any materials quarterly by March 25th, June 25th, September 25th, and December 23rd for any recyclables shipped, up to the reporting date. Reporting is conducted separately for each County or location (i.e., Central Office). Reports are submitted online using the DGS Bureau of Surplus and Supplies Survey Monkey recycling reporting tool. A copy of the management directive is provided in Appendix M.

There may be other local government reporting requirements, although most often these are restricted to Municipal Wastes. Since local requirements are highly variable, it is the responsibility of the local management to determine and fulfill this need.

4.6 COMMON MAINTENANCE RELATED RESIDUAL WASTES

This section provides additional waste management guidance for common residual wastes generated during PennDOT maintenance activities. The list of wastes provided in this section include:

4.6.1 Absorbents (Spent)

4.6.2 Aerosol Cans

4.6.3 Antifreeze

4.6.4 Asphalt Pavement (Used)

4.6.5 Batteries (Alkaline and Carbon-Zinc)

4.6.6 Catalytic Converter

4.6.7 Empty Pesticide Containers (Triple Rinsed)

4.6.8 Grinding Wheels; sanding Discs; Welding Rods; Broken Tools

4.6.9 Incandescent Lamps

4.6.10 Nonmetallic Drums (Plastic or Fiber)

4.6.11 Nonmetallic Auto Body Parts

4.6.12 Oil (Waste)

4.6.13 Oil/Water Separator Waste

4.6.14 Paint Waste (Non-Hazardous)

4.6.15 Recycled Asphalt Pavement (RAP)

4.6.16 Sandblast Grit

4.6.17 Scrap Metal

4.6.18 Sludge/Sediment

4.6.19 Spent Air Filters

4.6.20 Spent Oil/Fuel Filters

4.6.21 Tires/Rubber

4.6.22 Used Parts Washer Fluid (Aqueous/Citrus)

4.6.23 Wash Bay Grit Trap Waste

4.6.24 Wipes/Rags (Reusable and Disposable)

Please refer to the individual sections below to review procedures specific to each waste stream.

4.6.1 ABSORBENTS (SPENT)

Absorbent materials are used to address small spills or leaks on shop floors and may consist of pads, booms, or granular material. Absorbent material used to clean up oily spills can be disposed with residual waste (trash), as long it does not contain free product. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a Residual Waste in Pennsylvania.

Waste Management Requirements:

1. Store spent absorbents in a container meeting the requirements specified in **Section 4.1**.
2. Make sure no free liquids are present.
3. As soon as practicable, determine if the used absorbent is hazardous or not, which will likely be based on the type of material released as indicated in Section 2.6.2
    a. If material is non-hazardous (i.e., oily spills), manage and dispose of as Residual Waste.
    b. If material is hazardous (i.e., solvents, gasoline, etc.), manage and dispose of as hazardous waste, unless: the absorbent material was used to collect hazardous material that:
        i. Exhibits only the hazardous characteristic of ignitability; and

ii. The hazardous material/absorbent mixture was characterized and is no longer considered ignitable.

If the waste satisfies these conditions, it may be managed and disposed of as Residual Waste.

This exemption does not apply to spilled materials with hazardous characteristics listed as toxic, corrosive, or reactive. The absorbent material will be classified as hazardous if the spilled materials meet these characteristics and must be managed under the requirements detailed in **Section 3.0**.

4.6.2 AEROSOL CANS

All waste aerosol cans generated by Department forces shall be punctured and drained prior to disposal unless the vendor accepts empty aerosol cans "as is". All County 01 maintenance facilities should have an aerosol puncturing station for this purpose unless this process is performed by an approved waste contractor. The emptied and punctured cans shall be disposed of as recycled metal and not landfilled. Residue collected at the designated puncturing stations is considered in-process material until such time as the collection container requires emptying. At that point, the residue shall be characterized in accordance with **Section 2.6.2** and managed as appropriate.

Waste Management Requirements:

1. They shall be stored in containers meeting the requirements specified in Section 4.1.
2. It is PennDOT policy that all aerosol cans are recycled. Empty aerosol cans may usually be placed in with other metals destined for recycling. If stored separately, label container with the words, "Empty Aerosol Cans."
3. Recycling through vendors must be accompanied by Bill of Lading.

4.6.3 ANTIFREEZE

Used antifreeze is collected at PennDOT facilities as part of routine vehicle maintenance. While usually a Residual Waste, waste antifreeze contains potentially hazardous chemicals such as ethylene glycol, propylene glycol, corrosion inhibitors, and other additives. Therefore, waste antifreeze needs to be evaluated for the presence of hazardous waste characteristics prior to disposal. Occasionally, it may show a toxicity characteristic due to elevated lead, cadmium, or chromium levels. Generally, waste antifreeze is recycled. Once removed from the facility for recycling, used antifreeze is no longer managed as a waste for generator status and reporting purposes. If not recycled, used antifreeze must be managed as a waste for generator and reporting purposes. Waste antifreeze that tests hazardous must be managed as a hazardous waste. Otherwise, it is a Residual Waste. Coordinate with your waste vendor to determine how often waste antifreeze must be evaluated for hazardous characteristics for lawful disposal.

Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a hazardous or residual waste in Pennsylvania.

Waste Management Requirements:

1. Store used antifreeze in DOT approved container meeting the requirements specified in **Section 4.1**.
2. Keep containers closed when not in use.
3. Label container with the words, "Used Antifreeze".
4. Never discharge used antifreeze to a sewer system.
5. Always recycle used antifreeze when feasible. If the recycler also supplies recycled antifreeze for use, the facility is exempt from hazardous waste testing and management regulations.
6. Keep records of disposal, including amounts, and recycler information. See **Section 10.0** for record keeping procedures and requirements.

4.6.4 ASPHALT PAVEMENT (CHUNKS)

Used asphalt pavement typically consists of chunks and slabs and is **NOT Recycled Asphalt Pavement (RAP)** and cannot be used under the industry wide co-product determination unless milled/processed into RAP (Refer to **Section 4.6.15**). Per PA Bulletin [36 Pa.B. 2223], RAP is defined as small particles, typically up to less than 1 inch in size, of bitumen and inorganic materials produced by the mechanical grinding of bituminous pavement surfaces that have not been subject to a spill or release of regulated substances or mixed with other solid waste. RAP is not the equivalent of Used Asphalt Pavement, which is typically in the form of chunks, typically greater than 1 inch in size and thus is not considered to be clean fill under the Department's Management of Fill Policy.

For the purposes of this publication, recovered asphalt pavement falls into two (2) basic categories: (1) RAP, which are small pieces; and (2) "chunks," which are all other recovered asphalt pavements that are not RAP. Uncontaminated used asphalt chunks are considered a residual waste for disposal purposes and subject to the residual waste regulations when disposed of at a landfill. However, under the PADEP Management of Fill Policy, uncontaminated used asphalt chunks may be used as Clean Fill **if not impacted by a spill or release**. Due to potential future contaminant and waste issues, the Department strongly discourages the use of used asphalt chunks as fill.

Leftover asphalt pavement from paving/patching operations or asphalt pavement comingled with soils/stone/brick/concrete shall be managed in accordance with the size of the pieces. If the pavement is in small pieces similar to RAP, then it shall be managed as RAP (Refer to Section 4.6.15). Likewise, leftover asphalt pavement from paving/patching operations or asphalt pavement comingled with soils/stone/brick/concrete that are of a larger size than RAP shall be managed in accordance with this section.

Management of Used Asphalt Pavement as a Residual Waste:

1. Store used asphalt in a manner than minimalizes exposure to stormwater and prevents it from migrating out of the storage area, meeting the requirements specified in **Section 4.1.**
2. Label the waste pile with the words, "Used Asphalt".
3. Manage and dispose of used asphalt as a residual waste. Dispose of waste within one (1) year.

Management of Used Asphalt as Fill:

1. Store used asphalt in a manner that minimizes exposure to stormwater and prevents it from migrating out of the storage area, meeting the requirements specified in **Section 4.1.**
2. Label the used asphalt pile with the words, "Used Asphalt."
3. Before using used asphalt as Clean Fill, complete Environmental Due Diligence and documentation as specified in PennDOT Publication 281 *(Waste Site Evaluation Procedures Handbook).* Do not store used asphalt for more than one (1) year. Storage of greater than one (1) year is considered speculative accumulation and is not permitted under the Commonwealth's Residual Waste rules.

4.6.5 BATTERIES (ALKALINE AND CARBON-ZINC)

Small appliance batteries such as: **alkaline, carbon zinc, zinc air batteries** are considered non-hazardous, non-recyclable and can be disposed as residual (shop) or municipal (office) waste. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual or municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store used batteries within a leak free container meeting the requirements specified in **Section 4.1**.
2. Separate from non-compatible materials and waste.

3. Always tape terminals prior to disposal to prevent short circuiting and the accompanying fire hazard.
4. Inspect the batteries regularly for cracks and leaks.
5. Mark designated battery storage area with: "Waste Battery(ies)," or "Used Battery(ies)." signs.
6. Dispose of as residual (shop) or municipal (office) waste. Dispose of waste within one (1) year.

4.6.6 CATALYTIC CONVERTERS

Scrap catalytic converters are generated at PennDOT facilities as part of routine vehicle maintenance and repairs. Catalytic converters contain valuable metals and shall be recycled. Typically, there is a core charge for new catalytic converters necessitating the exchange of the old one. Remember, until it is exchanged/recycled, a scrap catalytic converter must be managed as a residual waste. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania. Only when removed from the facility for exchange/recycling are scrap catalytic converters no longer counted as a residual waste for generator status and reporting purposes.

Waste Management Requirements:

1. Store catalytic converters within a leak free container meeting the requirements specified in **Section 4.1**.
2. Separate from other materials and waste.
3. Mark designated storage area with: "catalytic converters" or "Residual Waste" signs.
4. Exchange or recycle scrap catalytic converters. Scrap catalytic converters shall be recycled within one (1) year.

4.6.7 EMPTY PESTICIDE CONTAINERS (TRIPLE RINSED)

Pesticides and herbicides are used for facility and road maintenance operations. For the purpose of this guidance, empty pesticide containers are those containers made of #2 High Density Poly Ethylene (HDPE) plastic that has been triple rinsed. Rinsate from the triple rinsing process is considered a Universal Waste as are all unused pesticide/herbicide products (**see Section 6.0**). Therefore, all rinsing should occur as part of spraying operations and be emptied into the sprayer product tank. Follow guidance for the management of empty pesticide containers by obtaining information concerning the Plastic Pesticide Container Recycling Program located on the Pennsylvania Department of Agriculture website at www.agriculture.pa.gov. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Empty containers shall be triple rinsed. Collect and reuse rinse water for pesticide application.
2. Do not release rinse water to stormwater or sanitary system or to ditch, stream or any other surface water.
3. Store empty pesticide containers separate from other wastes. Collect and store empty pesticide containers in a manner meeting the requirements specified in **Section 4.1**. Label storage container with the label, "Empty Pesticide Containers Only."
4. Once rinsed, the containers are considered non-hazardous and shall be disposed of in accordance with the PA Plastic Pesticide Container Recycling Program or returned to the vendor.

4.6.8 GRINDING WHEELS; SANDING DISCS; WELDING RODS; BROKEN TOOLS

Scrap broken tools and spent parts are generated at PennDOT facilities as part of routine vehicle maintenance and repairs. Broken tools and associated spent parts are managed as residual waste and typically disposed of via landfill. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store broken tools and spent parts within a leak free container meeting the requirements specified in **Section 4.1.**
2. Separate from non-compatible materials and waste.
3. Mark designated storage container with the name of the type of waste or "Residual Waste" signs.
4. Manage and dispose of as residual waste. Dispose of waste within one (1) year.

4.6.9 INCANDESCENT LAMPS

Incandescent lamps and bulbs are considered non-hazardous/non-recyclable and can be disposed as residual (garage or yard) or municipal waste (office). Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual or municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store used lamps and bulbs within a leak free container meeting the requirements specified in **Section 4.1.**
2. Label used lamps/bulb storage containers with one of the following phrases: "Waste Lamp(s)/Bulb(s)," "Used Lamp(s)/Bulb(s)," "Residual Waste," or "Municipal Waste" as applicable.
3. Manage and dispose of as residual (garage and stockpile) or municipal (office) waste as applicable. Dispose of waste within one (1) year.

4.6.10 NONMETALLIC DRUMS (PLASTIC OR FIBER)

Nonmetallic drums being prepped for disposal must be empty. A drum is defined as "empty" when it contains less than 1 inch (or less than 3 percent by weight) of material left, or when all pourable product has been removed, whichever is less. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Empty drums by pouring, pumping, and scraping in order to remove as much of the remaining material, as possible.
2. Store drums in a manner that meets the requirements specified in **Section 4.1**.
3. Dried paint or paint sludge is not likely to be hazardous waste unless it contains lead or chromium.
    a. Use SDSs on the product to make determination, or alternatively have it tested for characterization.
    b. If hazardous, it must be managed in full accordance with hazardous waste regulations (Refer to **Section 3.0**).

4. Drums may be disposed of via landfill as residual waste. Do not dispose any drums containing free liquids (e.g., not empty). Often, a disposal vendor will accept drums containing non-hazardous liquids if those liquids have been solidified through drying or through the addition of absorbents. Verify vendor acceptance prior to disposal.

5. Dispose of non-hazardous waste within one (1) year.

4.6.11 NONMETALLIC AUTO BODY PARTS

Scrap nonmetallic (fiberglass, plastic, carbon fiber, etc.) auto body parts are generated at PennDOT facilities as part of routine vehicle maintenance and repairs. These auto body parts are managed as residual waste and typically disposed of via landfill. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store fiberglass auto parts within a container meeting the requirements specified in **Section 4.1**.

2. Separate from non-compatible materials and waste.

3. Mark designated storage container with: "nonmetallic auto body parts" or "Residual Waste" signs.

4. Dispose of as residual waste. Dispose of waste within one (1) year.

4.6.12 WASTE OIL

Activities that contribute to waste oil generation include cleaning engines and parts, replacing engine and transmission fluids, and repairing and maintaining equipment. Waste oil is classified as residual waste in Pennsylvania, unless characterized as hazardous. All waste oil generated from vehicular and equipment maintenance **shall be recycled to the extent practicable.** Since PADEP encourages oil recycling in the Commonwealth, the generator (PennDOT) is not required to characterize oil for disposal purposes, unlike other waste streams. The disposal vendor is required to complete any needed characterization. There is no requirement for PennDOT to complete characterization and keep characterization records for non-hazardous waste oil. When removed from the facility for recycling waste oil is no longer counted as a residual waste for generator status and reporting purposes.

Mixing waste oil with hazardous substances (or waste) may result in managing and disposing of the oil as hazardous.

I**f PennDOT personnel have any reason to believe waste oil may exhibit a hazardous characteristic**, it shall be managed as a hazardous waste until determined otherwise. Waste oil that is suspected of being hazardous shall be stored in a separate container and shall not be mixed with other non-hazardous waste. When a hazardous characteristic of waste oil is suspected, the waste oil shall be tested as soon as practical to determine appropriate management and disposal requirements. Some examples when waste oil may be hazardous include: if it contains PCBs (generally this includes hydraulic oil that was placed into service prior to 1985), if it contains lead or chromium in concentrations above five (5) parts per million, if it has been mixed with a listed hazardous waste or has been mixed with flammable materials such as gasoline (making it potentially ignitable). Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Collect and store waste oil in containers meeting the requirements specified in **Section 4.1**.

2. Do not comingle hazardous wastes with waste oil.

3. Containers should be closed (tight lid) while not in use.

4. Be careful in transferring waste oil.

5. Contain any spills immediately with absorbent material, dispose of cleanup material as residual waste.

6. All containers, including ASTs and USTs should be labeled with the term "Waste Oil" AND "Residual Waste.".

7. Recycle all non-hazardous waste oil.

4.6.13 OIL/WATER SEPARATOR WASTE

Oil-water separators must be emptied at least annually. This is typically conducted by a contractor by pumping or vacuuming out the oily water and sediment/sludge. A waste determination must be made by the generator or contractor on the oily water/sediment/sludge prior to disposal. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Minimize sediment, solvent, gasoline and oil drippings from entering oil/water separators by using good housekeeping practices (drip pans, sweeping vs. wet floor wash).

2. Coordinate with a contractor to pump units and clean sediments at least once a year.

3. Dispose of as residual waste.

4.6.14 PAINT WASTE (NON-HAZARDOUS)

Typical paint related wastes generated during routine PennDOT maintenance operations include: excess paint (solvent and water-based), paint solvents and thinners, air filters, paint truck wastes, degreasers, spent abrasives and empty paint containers. Paint residuals and solvents are typically classified as residual waste but may exhibit hazardous characteristics such as ignitability or contain metals such as lead, cadmium, or chromium. Water-based paints and residues may also be hazardous due to paint pigments that contain lead or chromium. Review SDSs for each product to make a waste determination. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

3. Collect and store waste paint in containers (55-gallon drum or other compatible container) meeting the requirements specified in **Section 4.1**.

3. Containers should be kept closed (tight lid) while not in use.

3. Be careful when transferring waste paint. Contain any spills immediately and dispose of cleanup material (See **Section 7.0**). Label all containers with the term "Waste Paint".

3. Dried paint or paint sludge is not likely to be classified as hazardous waste unless it is lead or chromium-based paint. Use product SDSs to make a determination, or alternatively have it tested for characterization. If hazardous, it must be managed in full accordance with hazardous waste regulations.

3. Manage and dispose of non-hazardous paint waste as residual waste. Non-hazardous paint waste must be disposed of within one (1) year. **Prior to disposal, coordinate with disposal contractor to determine if additional treatment (such as solidification) is needed for acceptance.**

4.6.15 RECYCLED ASPHALT PAVEMENT (RAP)

RAP is milled asphalt/aggregate pavement material that is generated during roadway rehabilitation activities. Per PA Bulletin [36 Pa.B. 2223], RAP is defined as small particles, typically up to less than 1 inch in size, of bitumen and inorganic materials produced by the mechanical grinding of bituminous pavement surfaces that have not been subject to a spill or release of regulated substances or mixed with other solid waste. RAP is not the equivalent of Asphalt Pavement, which is typically in the form

Storage of RAP for more than 2 construction seasons requires written approval from PADEP.

of chunks, typically greater than 1 inch in size. RAP cannot be considered to be clean fill under the Department's Management of Fill Policy. RAP shall be recycled to the extent possible. To promote recycling, when generated, RAP may be turned over to a qualified vendor or be reused by the Department in compliance with PADEP Industry-Wide Co-Product Determination #1. When RAP is not managed under the above-referenced coproduct determination, it is a residual waste and must be managed as appropriate. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Leftover asphalt pavement from paving/patching operations or asphalt pavement comingled with soils/stone/brick/concrete shall be managed in accordance with the size of the pieces. If the pavement is in small pieces similar to RAP, then it shall be managed in accordance with this section. Likewise, leftover asphalt pavement from paving/patching operations or asphalt pavement comingled with soils/stone/brick/concrete that are of a larger size than RAP shall be managed as Asphalt Pavement (Chunks) (Refer to **Section 4.6.4**).

Waste Management Requirements (RAP as Co-Product):

1. **RAP must not be stored for longer than two construction seasons prior to use.**
   - Note: The County shall maintain records to track the quantity and length of storage of RAP at a stockpile so as to clearly demonstrate compliance with the two (2) construction season accumulation limit requirement. Storage longer than two (2) construction seasons requires written approval to be obtained from the PADEP Regional Office.
2. RAP may be used as an **aggregate, a sub-grade or a sub-base material** for roadway construction, when used alone or blended with other materials in a manner that complies with PennDOT Specifications, as outlined in Publication 408 for roadway construction directly beneath, and contained by a road surface paved with Portland cement concrete or bituminous pavement;
3. RAP may be used as a **construction material for compacted roadway shoulder applications**, including compacted shoulder pothole patching material in roadway or driveway apron applications as long as the material is covered with a thin bituminous coating (sealer) prior to the end of the construction season that placement occurred. This bituminous coating must comply with PennDOT Specifications as outlined in Publication 408;
4. RAP may be used as a **construction material for compacted shoulder backup applications** (the compacted area adjacent to the shoulder);
5. RAP may be used as a **construction material to construct or repave** needed roadway or vehicle use areas such as parking lots or driveways if such application is performed when the RAP contains enough asphalt or additional binder to keep the material in place after compaction by mechanized rolling;
6. RAP may be used as a **hot or cold mix product** meeting applicable industry hot or cold mix product specifications.
7. RAP must **not create a nuisance** or be harmful or present a threat of harm to the public health, safety or the environment.
8. RAP must be managed in a manner that **prevents wind and water dispersal**.
9. RAP and RAP/soil mixtures shall not be transferred to any municipality or private property owner.

Management of RAP as Residual Waste:

1. Prior to use, RAP must be stored and managed as a residual waste.
2. RAP may be stored no longer than two construction seasons and must be documented in inventory. If RAP is stored for more than two construction seasons, it is considered speculative accumulation.
3. RAP shall not be speculatively accumulated. To apply the PADEP Industry-wide Coproduct Determination #1 (i.e., 2 construction seasons accumulation), the District/County **MUST** have a plan to use the RAP within that timeframe. If not managed in accordance with the above-referenced coproduct determination, RAP shall be disposed of within 1 year as a Residual Waste.
4. Label the waste pile with, "Recycled Asphalt Pavement".
5. Any RAP remaining after two construction seasons, even if there was a valid plan to recycle it, shall be disposed of as a Residual Waste.

4.6.16 SANDBLAST GRIT

Sandblast grit waste is generated during routine PennDOT vehicle maintenance activities (i.e. vehicular painting operations). Sandblast grit waste is managed as residual waste and typically disposed of via landfill. However, sandblast grit may exhibit hazardous characteristics such as ignitability or contain metals such as lead, cadmium, or chromium. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store sandblast grit within a leak free container meeting the requirements specified in **Section 4.1**.
2. Keep separate from non-compatible materials and waste.
3. Mark designated storage area with: the name of the type of waste or "Residual Waste" signs.
4. Sandblast grit is not likely to be hazardous waste unless it was mixed with heavy metals or flammable substances. If unsure, have it tested for characterization. If hazardous, it must be managed in full accordance with hazardous waste regulations (See **Section 3.0**).
5. If determined as non-hazardous, manage and dispose of as a residual waste.

4.6.17 SCRAP METAL

Scrap metal parts are generated at PennDOT facilities as part of routine vehicular and roadside maintenance and repairs. Scrap metal **shall be recycled to the extent possible**. Metal parts are managed as residual waste until they are recycled. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania. Only when removed from the facility for recycling is scrap metal no longer counted as a residual waste for generator status and reporting purposes.

Waste Management Requirements:

1. Store scrap metal parts (metal pumps; piping; storage tanks) within a leak free container meeting the requirements specified in **Section 4.1**.
2. Separate from non-compatible materials and waste.
3. Inspect regularly for cracks and leaks from potential residual liquids.
4. Mark designated storage area with: "Scrap Metal" or "Residual Waste" signs.
5. Recycle scrap metal to the extent possible. Do not store scrap metal for more than one (1) year.

4.6.18 SLUDGE/SEDIMENT

Inlet boxes, trench drains and pipes are periodically inspected and cleaned as necessary. The location of these roadway features will often determine the potential for contamination. Sludge and sediment from these sources shall be managed as fill. Environmental Due Diligence (including documentation) shall be completed utilizing the process provided in Publication 281, Section 7.0. Once the regulatory status (i.e., Fill Determination) of the fill is determined, it shall be managed as appropriate. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. If sludge/sediment requires dewatering, utilize absorbent booms/pigs to capture any visible contamination. Dispose of used booms/pigs as residual waste.
2. Manage and dispose of dewatered sludge/sediment in accordance to its fill regulatory status.

4.6.19 SPENT AIR FILTERS

Spent air filters are generated at PennDOT facilities as part of routine vehicle maintenance and repairs. Spent air filters are managed as residual waste and typically disposed of via landfill. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store spent air filters within a leak free container meeting the requirements specified in **Section 4.1**.
2. Separate from non-compatible materials and waste.
3. Mark designated storage area with: “Spent Air Filters” or “Residual Waste” signs. Mark start accumulation date.
4. Manage and dispose of spent air filters as residual waste.

4.6.20 SPENT OIL/FUEL FILTERS

Oil filters are removed from vehicles during normal vehicle maintenance activities and may contain residual waste oil. There are two types of oil filters:

- **Terne-plated oil filters** exhibit the toxicity characteristic for lead. PADEP requires that used terne-plated oil filters be managed as hazardous waste.
- **Non-terne plated oil filters** do not exhibit hazardous characteristics and are subject to residual waste regulations if properly drained and recycled.
- **Used fuel (gas) filters** are potentially hazardous waste due to the presence of high levels of lead and/or benzene. Fuel filters should be drained. Once drained, fuel filters are considered RCRA empty. RCRA empty fuel filters may be managed and disposed of as Residual Waste. Alternatively recycle RCRA empty gas filters as scrap metal.

Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Immediately after the oil filter is removed from the vehicle, puncture the dome end and hot-drain (at near-engine temperatures) for a minimum of 12 hours. Note: oil filters that drip oil are not considered properly drained. After draining, the oil filter can be properly containerized.
2. Store used oil filters in leak proof containers, or placed inside a plastic liner within a drum, meeting the requirements specified in **Section 4.1**:
3. Containers must be clean of other contaminates.

4. Label container as "Used Oil Filters," or “Residual Waste.”

5. Consolidation of used oil filters from the maintenance facilities to a centralized location is allowable (County Maintenance Facility to District Facility).

6. Recycle filters as scrap metal to the extent possible. Note: Many used oil filter recycling contractors will only take used oil filters contained in drums supplied by the contractor. This may involve a drum deposit.

7. If filters are not recycled, manage and dispose of as residual waste.

4.6.21 TIRES/RUBBER

Used tires are either generated from vehicle maintenance repairs and occasionally from roadside clean-up activities. PADEP requires used tires to be recycled. PennDOT contracts with vendors to pick up used tires. Minimize storage of waste tires at PennDOT facilities, absolute maximum limit of 500 tires in open storage or 1,500 in enclosed storage cannot be exceeded without PADEP approvals. Used tires and tire pieces are managed as residual waste until they are recycled. Only when removed from the facility for recycling are used tires no longer counted as a residual waste for generator status and reporting purposes. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store used tires under cover or indoors. Accumulating excess waste tires represents a financial liability and potentially increases the risk of a fire hazard and breeding grounds for mosquitoes.

2. Do not accumulate used tires for more than one (1) year.

3. Recycle used tires to the extent possible. Generally, only clean whole tires are accepted for recycling. If no vendor will accept excessively dirty whole tires or pieces of tires, dispose of as residual waste. This means that small quantities of tire shreds or those tires not suitable for recycling may be placed in a residual waste dumpster.

4. Retain records of used tire pickups to demonstrate they have not accumulated more than one year onsite, or more than 1,500 tires in total count, at any time.

4.6.22 USED PARTS WASHER FLUID (AQUEOUS/CITRUS)

PennDOT uses a variety of formulations for parts cleaning and degreasing. Constituents range from “innocuous” compounds such as citric acid to “toxic” organic solvents containing chlorine and other halogens. Until parts washer fluid is “spent” (no longer effectively cleans parts), it is not a waste. Once “spent,” it is then considered a waste. Spent degreasers or parts cleaners may also contain contaminants introduced from the parts cleaning process. Parts cleaner solvents may use petroleum distillates, mineral spirits, naphtha, all considered hazardous waste when spent due to ignitability. Waste solvents that contain chlorinated hydrocarbons are regulated as hazardous waste. This section only covers aqueous based solvents classified as residual waste. Solvent-based wastes or those with ignitable characteristics are covered in **Section 3.0**.

Until no longer useable, parts washer fluid is not considered a waste. In addition, contaminants in useable parts washer fluid are considered “in process.” Once the parts washer fluid is exhausted or otherwise no longer useable, it shall be recycled or disposed of within one (1) year.

Used parts washer fluid **shall be recycled to the extent possible**. Used parts washer fluid is managed as hazardous or residual waste, as applicable, until they are recycled. Only when removed from the facility for recycling is used non-hazardous parts washer fluid no longer counted as a residual waste for generator status and reporting purposes. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Review SDS on all degreaser and parts cleaning products.
2. Keep parts washer closed and non-circulating while not in use. Do not locate units near sources of ignition.
3. Collect and store solvents in DOT-approved containers (55-gallon drum or other compatible container). Parts washer lids and containers should be kept closed (tight lid) when not in use.
4. All containers, including tanks should be labeled with the term "Spent Solvents".
5. If spent solvent is non-hazardous, recycle to the extent possible or manage and dispose of as a residual waste.
6. If spent solvent is hazardous, manage waste in accordance to hazardous waste requirements (labeling, storage, and shipping – See **Section 3.0**).

4.6.23 WASH BAY GRIT TRAP WASTE

Characterization data was collected from several Districts and by the Rwy/SEMP Section. These results are presented in Strike-Off-Letter #493-15-05 (**Appendix N**).

From this information and Rwy/SEMP Section observations, Rwy/SEMP can conclude the following:

- Wash bay grit trap waste is typically not a hazardous waste.
- Wash bay grit trap waste typically has low levels of man-made contaminants, and as a default (e.g., no further testing is needed), may be managed as a Residual Waste.
- There may be opportunities for individual facilities to manage wash bay grit trap waste as fill (Regulated or Clean). It is; however, reasonable to assume that the subject waste has been impacted by a release or co-mingled with other waste. Therefore, to manage grit trap waste as fill, it must be free from other trash and debris, and its regulatory status (i.e., a Fill Determination) must be determined and documented in accordance with the provisions provided in PennDOT Publication 281, Section 7.0.

Follow procedures outlined in PUB 281, Section 7.0 if you are considering to utlize grit trap waste as fill

While it may appear preferable to manage grit trap waste as fill, be advised that there are additional efforts and associated costs when utilizing the fill management approach. See Figures 1 and 2 (see **Appendix N**) for that process. To manage grit trap waste as fill, the facility at a minimum shall collect two (2) years of quarterly samples of the grit trap waste to account for seasonal variations. In addition, each year thereafter, the grit trap waste shall be sampled in rotating seasons (summer, fall, winter, spring) so that each season is accounted for over a four (4) year period to verify characterization. As an alternative, each batch of grit trap waste managed as fill shall be characterized. Documentation for the management fill is prescribed in PennDOT Publication 281, Section 7.0. Due to these additional efforts, the facilities are advised to fully evaluate and document the costs/benefits before utilizing either fill management option.

When managing grit trap waste as a waste, chemical analysis requirements will be determined by the receiving facility (usually communicated through the vendor). Depending on the receiving facility's operating permit and regulatory climate, waste characterization may be required more or less often. The facilities are advised to ensure all characterization testing is the responsibility of the vendor by specifying this requirement in any applicable contract or purchase order.

Waste Management Requirements (Residual Waste):

1. Collect and store grit trap waste in containers meeting the requirements specified in **Section 4.1**.
2. Label storage container with the term, "Grit Trap Waste" or "Residual Waste."

3. Do not accumulate waste for more than one (1) year.

4. Dispose of as Residual Waste.

4.6.24 WIPES/RAGS (REUSABLE AND DISPOSABLE)

Rags used for vehicle maintenance, cleanup of spills and drips may be contaminated with solvents, oils and other substances that deem them hazardous (ignitable) or residual waste (oily rags).

When properly managed, solvent-contaminated shop rags and wipes are conditionally excluded from regulation as a hazardous waste. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Waste Management Requirements:

1. Store wipes/rags only in leak free, closed containers. Line container with plastic/garbage bag. Do not comingle with any other materials or wastes.

2. Label containers using the term, "Excluded Solvent-Contaminated Wipes."

3. Accumulate waste disposable wipes for no more than 180 days.

4. For Reusable Wipes, send to a laundry or dry cleaner whose discharge goes to a publicly owned treatment works (POTW). For Disposable Wipes, seal in a separate, closed trash bag and dispose of with other residual waste.

5.0 MUNICIPAL WASTE MANAGEMENT

- How to Properly Store, Handle, and Transport Municipal Waste
- Record Keeping and Reporting
- Detailed Requirements for Specific Municipal Waste Streams

Municipal waste is garbage, refuse, industrial lunchroom or office waste and other materials, including solid, liquid, semi-solid, or contained gaseous materials resulting from operation of residential, municipal, commercial, or institutional establishments, and from community activities. In addition, municipal wastes also include non-hazardous sludges from municipal, commercial or industrial water supply treatment plants, waste water, treatment plants, or air pollution control facilities.

Typical municipal wastes generated as part of PennDOT maintenance operations include office and lunchroom related trash, vegetative material from land clearing, and paper or cardboard products that are not recycled. **Refer to Section 2.6.2 to determine if your waste stream is regulated as a municipal waste in Pennsylvania.**

Pennsylvania's residual and municipal waste programs have many similarities. However, some of the most significant differences between the two waste programs include:

- Municipal landfills may not accept liquid wastes (there are differences in landfill design parameters) whereas residual waste landfills can; and
- Certain waste streams are assigned to specific type of disposal facilities to prevent facilities from being overwhelmed by waste they are not meant to manage.

See **Section 5.5** for more information on how each of these options may apply to specific municipal waste streams generated by the Department. Regulatory contact information for the municipal waste program is provided in **Appendix B**.

5.1 GENERAL STORAGE REQUIREMENTS

Municipal waste, like all waste, should be stored in a manner which minimizes their impact on the environment. The following general storage requirements apply to all municipal storage areas:

- **Mixing of wastes:** Municipal wastes shall not be mixed with hazardous wastes, special handling waste, or any other materials that may create a risk of fire, explosion, or accumulation of harmful vapors or gases. Regulations in the Commonwealth allow the comingling of municipal and residual wastes. Verify the acceptability of comingling municipal and residual waste with the vendor prior to doing so.
- **Duration of Storage:** Municipal waste shall not be stored longer than one (1) year prior to disposal without written approval from PADEP.
- **Containers:** Municipal waste containers shall be designed to prevent leaks and constructed of rust and corrosion resistant materials. The containers must be watertight, clear of insects and rodents, and be designed for easy handling for collection. Containers shall be equipped with a tight-fitting lid or cover, or otherwise sealed.
- **Labeling:** Waste containers must be clearly labeled as ''municipal waste'' or as the specific type of municipal waste. If using a combined municipal/residual waste container, label using the term, "Municipal/Residual Waste."
- **Environmental Protection:** Municipal wastes may not be stored in a manner that causes impacts to Waters of the Commonwealth. Surface water run-on to municipal waste storage areas shall be minimized.

5.2 TRANSPORTATION AND DISPOSAL USING DEPARTMENT FORCES

Department forces and vehicles should not be utilized to transport waste generated in the normal course of business at PennDOT maintenance facilities (garages, offices and stockpiles). Instead, existing waste contracts should be applied to waste hauling and disposal.

Department personnel and vehicles may be used to transport waste generated from remedial activities, such as the Adopt a Highway and intermittent roadside clean-up. For the purpose of this section, remedial activities are those clean-up activities that are non-routine in nature, that include various and non-specific waste material, and/or that produce a waste stream over a relatively brief period.

Vehicles hauling municipal or residual waste to waste processing or disposal facilities in Pennsylvania typically require a valid Waste Transporter Authorization Sticker. Waste transportation vehicles require a sticker if they exhibit the following:

- The gross vehicle weight **greater than 17,000 lbs**.; and/or
- Trailers with a registered gross vehicle weight **greater than 10,000 lbs**.

PennDOT vehicles that meet this criteria and transport municipal or residual waste for disposal or processing must apply and maintain an active **Act 90 Authorization Sticker**. Disposal facilities have the authority to reject waste if the transporter does not have valid Act 90 Sticker and signage. Designated PennDOT vehicles with Act 90 Authorization Stickers must maintain the following signage:

- A sign that includes the **name and business address of the vehicle owner**. This address must include the city, state, and zip code. Districts should use the address where the vehicle is principally parked.
- The sign must include the specific **type of solid waste** that is being transported. Mixed municipal and residual waste shall be designated: Municipal/Residual Waste.
- The sign shall have **lettering that is 6 inches in height.** The required information shall be clearly visible and easily readable.
- The sign may be permanent or detachable. Magnetic signs may be purchased for Department vehicles.

Instructions and applications for the Act 90 Authorization Sticker may be found on the PA Department of Environmental Protection web site under the Municipal and Residual Waste Transportation and Safety Program.

5.3 RECORD KEEPING

Generators of municipal waste are required to maintain accurate operational records that are sufficiently detailed to demonstrate that municipal waste is being stored and disposed of pursuant to PADEP regulation. Refer to **Section 10.0** of this publication outlining procedures for the Department waste tracking system.

Note: It is common practice for certain shop related residual wastes to be mixed and disposed of with municipal waste in the same container (i.e., oily rags). While this allowed, the facility must determine which fraction of each mixed waste load consists of residual waste for accurate record keeping. It is recommended that each facility develop and conduct a brief study to determine the approximate fraction of residual waste for each mixed waste load (by weight). Contact Rwy/SEMP Section for assistance with study details.

> If residual waste is mixed and disposed with municipal waste, you must determine the percentage of residual waste for accurate record keeeping - See **Section 4.4.**

5.4 REGULATORY REPORTING

There are no state or federal reporting requirements for generators of municipal waste. However, certain local or county solid waste authorities may require a generator of municipal waste to report on disposal or recycling activities based on local/county ordinances. A typical requirement is to report the tonnage of recyclables generated annually.

Contact your local and county solid waste auhorities to determine if any waste reporting or notification requirements exist.

It is recommended that the PennDOT representative responsible for waste tracking at each facility contact their local and county solid waste authorities to determine if any waste reporting or notification requirements exist for municipal waste disposal activities associated with maintenance operations.

In addition to the reporting required by PADEP, reporting of recycled municipal waste is required to the Department of General Services (DGS) per a management directive issued September 19, 2014 (Recycling, Waste Reduction and Procurement of Environmentally Preferable Products (205.22 Amended)). To comply with the management directive, PennDOT is required to report the recycling of any materials quarterly by March 25th, June 25th, September 25th, and December 23rd for any recyclables shipped, up to the reporting date. A copy of the management directive is provided in **Appendix M**.

Reporting is conducted separately for each County or location (i.e., Central Office). Reports are submitted online using the DGS Bureau of Surplus and Supplies recycling reporting tool. Refer to **Section 10.0** of this publication for detailed instructions on how to us the Department's waste tracking system for quarterly DGS reporting.

5.5 COMMON MAINTENANCE RELATED MUNICIPAL WASTES

This section provides addition waste management guidance for common municipal wastes generated during PennDOT maintenance activities. The list of wastes provided in this section include:

5.5.1 Aerosol Cans

5.5.2 Aluminum Cans

5.5.3 Batteries (Alkaline, Carbon-Zinc)

5.5.4 Clearing / Grubbing / Vegetative Waste

5.5.5 Construction and Demolition (C&D) Waste

5.5.6 Incandescent Lamps

5.5.7 Street Sweepings

5.5.8 Trash

5.5.1 AEROSOL CANS

A vast majority of aerosol cans generated at PennDOT facilities are considered residual waste. Only cans generated in offices and lunch rooms are classified as municipal waste when empty.

Waste Management Requirements:

1. Store aerosol cans within a leak free container. Separate from non-compatible materials and waste. Inspect regularly for cracks and leaks.
2. See **Section 10.0** for record keeping procedures and requirements.

5.5.2 ALUMINUM CANS

Empty aluminum cans should be managed as a source separated recyclable material, which is a municipal waste managed for the purpose of recycling. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store aluminum cans within a leak free container. Separate from non-compatible materials and waste. Inspect regularly for cracks and leaks.

2. Mark designated storage area with: "Aluminum Cans" signs. Recycle aluminum cans.

3. See Section 10.0 for record keeping procedures and requirements.

5.5.3 BATTERIES (ALKALINE, CARBON-ZINC)

Small appliance batteries such as: **alkaline, carbon zinc, zinc air batteries** are considered non-hazardous, non-recyclable and can be disposed as residual or municipal waste (trash). Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store in containers meeting the requirements specified in **Section 5.1**. Tape electrodes to prevent short circuits.

2. Do not store municipal waste batteries for more than 1 year.

3. See **Section 10.0** for record keeping procedures and requirements.

5.5.4 CLEARING / GRUBBING / VEGETATIVE WASTE

Segregated material from land clearing, grubbing, and excavation activities which may include (but not be limited to) uncontaminated soil, downed trees, sumps, vegetation, etc. may be managed as Clean Fill. If not managed as Clean Fill , it is a Municipal Waste. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store clearing/grubbing waste for disposal in a manner than minimalizes exposure to stormwater and prevents it from migrating out of the storage area.

2. If managed as Clean Fill, label clearing and grubbing material as "Clean Fill." If managed as Municipal Waste, label the material with the words, "Clearing/Grubbing Waste" or "Municipal Waste," and the document the accumulation start date.

3. If managed as a municipal waste, do not store clearing and grubbing waste for more than 1 year.

4. See **Section 10.0** for record keeping procedures and requirements.

5.5.5 CONSTRUCTION AND DEMOLITION (C&D) WASTE

C&D Waste is waste resulting from the construction or demolition of buildings and other structures, including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, block and unsegregated concrete. The term does not include the following if they are separate from other waste and are used as clean fill:

- Uncontaminated soil, rock, stone, gravel, brick and block, concrete and used asphalt.
- Waste from land clearing, grubbing and excavation, including trees, brush, stumps and vegetative material.

Waste Management Requirements:

1. Store in containers meeting the requirements specified in **Section 5.1**.

2. Do not store C&D waste in a manner that could cause a fire or nuisance.

3. Dispose of C&D waste within one (1) year.

4. See **Section 10.0** for record keeping procedures and requirements.

5.5.6 INCANDESCENT LAMPS

Small incandescent lamps and bulbs are considered non-hazardous, non-recyclable, and can be disposed as residual or municipal waste (trash). Refer to Section 2.6.2 to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

Waste Management Requirements:

1. If possible, store used lamps in the original box or a box of similar size. To prevent breakage, box spacers may be needed. In any event, store in containers meeting the requirements specified in **Section 5.1**. Do not store for more than 1 year.
2. If stored separately, label used lamps/bulb storage containers with one of the following phrases: "Waste Lamp(s)/Bulb(s)", "Used Lamp(s)/Bulb(s)." If comingled with other Municipal Waste, label with the phrase, "Municipal Waste."
3. See **Section 10.0** for record keeping procedures and requirements.

5.5.7 STREET SWEEPINGS

Street sweepings consist of antiskid, soils, salt, leaves, plastic, broken glass, small pieces of metal, litter and other debris. Sweepings are removed from streets, parking lots and sidewalks by PennDOT personnel to improve the appearance and safety of public roadways and prevent pollution of local waterways. Street sweepings shall be managed and disposed of as municipal waste.

Antiskid may be reclaimed from street sweepings provided that it meets current specifications and has been checked for contaminants, staining and odors.

Street sweepings exclusively consisting of antiskid, soils and/or aggregate (has removed or otherwise does not contain trash, litter, leaves and debris) may be used as fill if a fill determination is completed and documented as provided for in Section 7.0 of Publication 281 (Waste Site Evaluation Handbook).

Waste Management Requirements:

1. Street sweepings to be disposed of shall be stored in containers that meet the requirements specified in **Section 5.1**.
2. Label the pile with the words:
   a. "Street Sweepings" when managing street sweepings as municipal waste and document the accumulation start date. Do not store for longer than 1 year prior to disposal.
   b. "Antiskid" when managing reclaimed antiskid from street sweepings.
   c. "Clean Fill" when managing cleaned/uncontaminated street sweepings as clean fill.
3. See **Section 10.0** for record keeping procedures and requirements.

5.5.8 TRASH

Manage general office and lunchroom trash pursuant to the general municipal waste guidelines presented in **Section 4.0.** Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

Waste Management Requirements:

1. Store in containers meeting the requirements specified in **Section 5.1**
2. Mark designated storage area with: "Municipal Waste" signs.
3. Do not store municipal waste for greater than 1 year.
4. See **Section 10.0** for record keeping procedures and requirements.

6.0 UNIVERSAL WASTE MANAGEMENT

- How to Properly Store, Handle, and Transport Universal Waste
- Generator Status and Specific Requirements
- Record Keeping and Reporting
- Detailed Requirements for Specific Universal Waste Streams

Universal wastes are specific hazardous wastes generated by many entities throughout the Commonwealth in relatively small quantities. Therefore, EPA established the universal waste classification to promote recycling of these specific hazardous wastes, while reducing the burden to generators from managing them in the same stringent manner as traditional hazardous wastes.

For PennDOT maintenance operations, Universal Wastes typically include materials such as rechargeable batteries, pesticides, mercury-containing equipment and certain types of lamps (fluorescent bulbs).

Refer to Section 2.6.2 to determine if your waste stream is regulated as a universal waste in Pennsylvania. It is PennDOT's policy to recycle all universal waste streams. Regulatory contact information for the universal waste program is provided in **Appendix B**.

6.1 GENERAL STORAGE AND MANAGEMENT

Universal waste, like all waste, shall be stored in a manner which minimizes their impact on the environment. Given that it is extremely unlikely for any PennDOT facility to be classified as a Large Quantity Generator of Universal Waste, the general storage requirements outlined below apply to Small Quality Generator Facilities. **Note** – Specific storage and handling requirements for each Universal Waste stream is provided in **Section 6.6**.

- **Duration of Storage:** Universal waste shall be stored no longer than one year prior to disposal. Containers shall be marked with the accumulation start date to be able to demonstrate that no universal waste has been stored longer than one year unless there is an immediate one-to-one changeout of such items.
- **Labeling:** Waste containers and/or storage areas must be clearly labeled to mark the type of universal waste. Containers shall be labeled with the accumulation start date to assist with tracking the duration of storage.
- **Training:** All personnel that handle or have responsibility for managing universal wastes must be informed of the proper handling and emergency procedures appropriate to the types of wastes handled at the facility. Training is only required as needed to ensure employee proficiency. The Districts shall determine the level and frequency of training based upon employee responsibility. Training records shall be maintained for all currently designated employees in accordance with District records policy.
- **Environmental Protection:** Releases of universal waste must be immediately contained, including wastes and their residues. Inadvertent releases of universal waste shall be managed as a hazardous waste until a waste determination is conducted in accordance with **Section 2.6.2**. Following the waste determination, the released material will be managed in accordance with the resultant waste classification. **Note – Refer to the specific management requirements for each universal waste stream provided in Section 6.6, as some universal wastes are automatically considered hazardous if broken or ruptured.**

Cracked or damaged universal wastes (such as fluorescent tubes) must be managed and disposed of as a hazardous waste.

6.2 TRANSPORTATION AND DISPOSAL

It is common practice for PennDOT facilities to transport universal wastes between facilities to dedicated storage areas (i.e., transporting waste bulbs from a stockpile to a maintenance facility).

If PennDOT personnel self-transports universal waste from a PennDOT facility, the handler of the waste becomes a universal waste transporter. A universal waste transporter must then comply with the following requirements while transporting the universal waste. A universal waste transporter is:

- Prohibited from disposing of universal waste (recycling only);
- Responsible for immediately containing all releases of universal wastes and other residues from universal wastes; and
- Prohibited from transporting the universal waste to a place other than a universal waste storage area or destination facility.

While universal wastes do not require a hazardous waste manifest, they may still be regulated by the United States Department of Transportation (U.S. DOT) as "hazardous materials".

6.3 GENERATOR CATEGORIES AND ASSOCIATED REQUIREMENTS

PADEP and EPA classify generators of universal wastes into two categories based on the total accumulated amount of universal waste at a facility during any given time. These two categories include: Small Quantity Generator (SQG) and Large Quantity Generator (LQG). Given the nature of PennDOT's maintenance operations, it is extremely unlikely for any facility to be categorized as a LQG, which are subject to specific recordkeeping and reporting requirements. Refer to Section 10.0 of this publication outlining procedures for the Department waste tracking system. See Table 4 below for a summary of generator requirements:

TABLE 4 -
SUMMARY OF KEY UNIVERSAL WASTE GENERATOR REQUIREMENTS

Category Requirements	Small Quantity Generator <11,020 pounds generated per month	Large Quantity Generator >11,020 pounds generated per month
Accumulation Time Limit	One year	One year
EPA Notification/Reporting	None	Send notification to the local EPA administrator to recieve a EPA I.D. Number
Recordkeeping	None – Not required to keep records of waste shipments	Yes – Must keep records of waste shipments
Training	Inform all employees who manage universal wastes of proper handling and emergency procedures appropriate to the types of wastes generated at the facility	Inform all employees of proper handling and emergency procedures appropriate to the types of wastes generated at the facility

6.4 RECORD KEEPING

Given the nature of PennDOT's maintenance operations, it is extremely unlikely for any facility to be categorized as a LQG, and therefore will not be subject to recordkeeping and reporting requirements. However, a facility is required to keep track of the accumulation time of universal waste. Therefore, it is the responsibility of the facility to keep records of waste accumulation to be able to demonstrate that no universal waste has been stored longer than one year. Typically, this is accomplished by placing the accumulation start date on the waste item or container.

If any facility will qualify as a LQG resulting from unforeseen circumstances, contact Rwy/SEMP Section for additional guidance relative to universal waste reporting and record keeping procedures.

6.5 REPORTING

As stated above in **Section 6.4**, it is extremely unlikely for any facility to be categorized as a LQG, and therefore will not be subject to recordkeeping and reporting requirements. If any facility will qualify as a LQG resulting from unforeseen circumstances, contact Rwy/SEMP Section for additional guidance relative to universal waste reporting and record keeping procedures.

6.6 COMMON MAINTENANCE RELATED UNIVERSAL WASTES

This section provides addition waste management guidance for common universal wastes generated during PennDOT maintenance activities. The list of wastes provided in this section include:

6.6.1 Batteries (Automotive)

6.6.2 Batteries (Rechargeable)

6.6.3 Computers, Computer Monitors, Televisions, & other Electronic Devices Collected from the Roadside

6.6.4 Electrical Ballasts

6.6.5 Fluorescent Tubes and Other Regulated Lamps

6.6.6 Mercury Containing Equipment

6.6.7 Pesticides

6.6.8 Printer Cartridges

6.6.1 BATTERIES (AUTOMOTIVE)

Spent automotive **lead-acid batteries are universal waste and** are exempt from hazardous waste regulations provided they are recycled. Typically, PennDOT purchases lead-acid batteries from bid vendors, with a service agreement which requires the vendor to pick-up and recycle (i.e., core exchange) the used batteries. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Waste Management Requirements:

1. Store waste batteries that have no cracks in designated area, indoor or protected by the elements.
2. Battery Storage Area should be curbed, non-reactive, and have an impermeable surface. Do not store in area with floor drain unless a battery storage container is used.
3. Inspect regularly for cracks and leaks.
4. Segregate used batteries from non-compatible material and waste.

5. Label used batteries (i.e. each battery) or container with any one of the following phrases:" Universal Waste - Battery(ies)", "Waste Battery(ies)", or "Used Battery(ies)".

6. Store used batteries at the facility no longer than one year, if more frequent recycling is not possible. Ensure documentation exist to show that accumulated batteries have not been stored for more than one (1) year.

7. If a waste battery shows signs of leaking, is cracked or damaged immediately place damaged battery in acid-resistant, leak-proof, closed container; a five-gallon plastic pail or bucket with top is adequate. Contain and collect any spills with absorbent, following proper safety procedures. Spill waste must be disposed of as a hazardous waste, unless the battery recycler accepts the waste. As an alternative, released battery acid may be treated with baking soda and water. Once the acid is neutralized (stops fizzing), it may be disposed of as residual waste.

8. If a mandatory battery exchange is a contractual requirement (i.e., exchanging the used battery is a necessary part of the transaction to get a new battery), then the used battery shall be managed as a Universal Waste. However, since the used battery serves as a commodity (i.e., has value) in the acquisition of the new battery, it is not a waste for waste tracking and DGS reporting purposes.

6.6.2 BATTERIES (RECHARGEABLE)

Spent, non-automotive, universal waste batteries include: nickel-cadmium, nickel metal hydride, mercuric oxide, silver oxide, and lithium batteries. These types of used batteries are exempt from hazardous waste regulations provided they are recycled. (Note: alkaline, carbon zinc, zinc air batteries are considered non-hazardous, non-recyclable and can be disposed in the municipal or residual trash depending on where they were generated). Refer to Section 2.6.2 to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Waste Management Requirements:

1. Store waste batteries that have no cracks in designated leak-proof container. Tape over electrodes to prevent short circuits and potential fires.

2. Inspect regularly for cracks and leaks.

3. Segregate used batteries from non-compatible material and waste.

4. Label used batteries (i.e. each battery) or container with any one of the following phrases: "Universal Waste - Battery(ies)", "Waste Battery(ies)", or "Used Battery(ies)".

5. Store used batteries at the facility no longer than one year, if more frequent recycling is not possible.

6. If a waste battery shows signs of **leaking, is cracked or damaged** immediately place damaged battery in acid-resistant, leak-proof, closed container; a five-gallon plastic pail or bucket with top is adequate. Contain and collect any spills with absorbent, following proper safety procedures. **Spill waste** must be managed as and disposed of as a **hazardous waste, unless the battery recycler accepts the waste**.

6.6.3 COMPUTERS, COMPUTER MONITORS, TELEVISIONS, & OTHER ELECTRONIC DEVICES COLLECTED FROM THE ROADSIDE

Broken or no longer needed electronic devices purchased by the Commonwealth shall be returned to your local IT Unit for disposal purposes.

While not technically universal waste, computers, computer monitors, televisions, and other electronic devices (Covered Devices) are managed as universal wastes as they are banned from land disposal and must be recycled. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Picking up and removal of wastes from the roadside is considered remediation. Consequently, there is no requirement for documenting disposal for waste tracking purposes.

Utilize the Commonwealth's E-Marketplace at the following link: http://www.emarketplace.state.pa.us/BidContracts.aspx# to access contracts for the recycling of electronic waste collected from roadside areas.

Waste Management Requirements:

1. Store covered devices indoors or protected by the elements.
2. Label covered devices or container with any one of the following phrases: "Universal Waste", "Not Municipal Waste", or "Covered Devices – Not Municipal Waste".
3. Store covered devices at the facility no longer than one year, if more frequent recycling is not possible.

6.6.4 ELECTRICAL BALLASTS

In a fluorescent lighting system, the ballast regulates the current to the lamps and provides sufficient voltage to start the lamps. Old electrical ballasts may contain capacitors with PCBs, lead, or mercury, and therefore must be disposed of with care. If not recycled, electrical ballasts must be managed as hazardous waste. Typically, ballasts are only encountered when electrical repair is done at a PennDOT facility. In virtually all cases, the licensed electrician and not a PennDOT maintenance employee may do this work. The licensed electrician shall dispose of the old ballast as part of the contracted service.

In the unlikely event that a maintenance employee encounters an electrical ballast within the right-of-way, contact the Rwy/SEMP Section for disposal guidance.

6.6.5 FLUORESCENT TUBES AND OTHER REGULATED LAMPS

PADEP regulates a wide array of used lamps under the universal waste program. Types of used lamps covered by this program include: used fluorescent lamps, high-intensity discharge (HID) lamps, neon, mercury vapor, high pressure sodium, and metal halide lamps. If not recycled, used lamps must be managed as hazardous waste. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Waste Management Requirements:

1. Store used lamps in the original box or a box of similar size. To prevent breakage, box spacers may be needed. Track start accumulation dates.
2. If used lamps are **cracked or damaged**, immediately place broken bulb pieces in a leak-proof, closed container; a five-gallon plastic pail or bucket with top is adequate. Contain and collect any spilled material, following proper safety procedures. **Cracked or damaged fluorescent tubes must be disposed of as a hazardous waste, unless the recycler accepts the waste.**
3. Keep box/container in a designated storage location.
4. If lamps break, store the broken glass and end caps in a sealed container (5-gallon plastic pail). Place a hazardous waste label on the sealed container. In addition, write "broken lamps" on the container.
5. Label used lamps storage containers with one of the following phrases: "Universal Waste - Lamp(s)", "Waste Lamp(s)", "Used Lamp(s)."
6. Dispose of used lamps using a licensed recycler.
7. Lamps must be removed (recycled) within a year. Small Quantity Universal Waste Generators are not required to maintain waste shipment records.

6.6.6 MERCURY CONTAINING EQUIPMENT

The following types of mercury containing equipment are considered universal waste when discarded: thermostats, switches, thermometers, relays, manometers, barometers, thermocouples, and gauges. All these types of waste are exempt from hazardous waste regulations, provided they are recycled. If not recycled, they must be managed as hazardous waste. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

In the unlikely event that a maintenance employee is required to dispose of mercury containing equipment, contact the Rwy/SEMP Section for disposal guidance.

6.6.7 PESTICIDES

Pesticides and herbicides are used for facility and road maintenance operations. Unused pesticide/herbicide products would typically be considered hazardous waste, because most products contain hazardous substances. When a pesticide is discarded or recalled, it becomes a universal waste and must be managed as such per PADEP regulations. Pesticide/herbicide empty containers also need to be properly managed prior to disposal.

To the extent possible, Counties shall to use up all pesticides in a manner consistent with the product label and any other accompanying documentation. In those circumstances when a County cannot utilize a quantity of pesticide, desires to dispose of the surplus pesticide, and if the pesticide is still viable, the County in possession of the pesticide will offer it to another County for appropriate use.

The Pennsylvania Department of Agriculture (PDA) manages a pesticide collection program, called PDA Chemsweep Program, designated to provide free disposal to old, unusable or unwanted pesticide products.

If a County wishing to dispose of a pesticide cannot identify another County to take surplus pesticide, or if the pesticide is no longer viable, the County shall utilize the previously identified Chemsweep program for disposal purposes. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Waste Management Requirements:

1. Store pesticides/herbicides in accordance with Department of Agriculture requirements. See Pub. 23, Section 13.4 for further guidelines.
2. Only PennDOT personnel with a Herbicide/Pesticide Applicator's license, Certified Technician or personnel supervised by a Certified Applicator with direct verbal and visual communication, may apply, use and handle herbicides and pesticides.
3. Store excess or waste pesticides in accordance with the Department of Agriculture requirements: in original closed container or overpack that is labeled appropriately.
4. Empty containers shall be triple rinsed. Collect and reuse rinse water. Do not release rinse water to stormwater or sanitary system or to ditch, stream or any other surface water. Once rinsed, the containers are considered non-hazardous and may be disposed as a municipal/residual waste or be sent for recycling.
5. Label waste or discarded pesticides clearly with on the following phrases: "Universal Waste-Pesticide(s),", or "Waste-Pesticide(s)." Dispose of waste within one year.

6.6.8 PRINTER CARTRIDGES

1. While not technically universal waste, spent laser printer cartridges are managed as universal wastes as the toner contained in the cartridges tends to have hazardous characteristics. Once empty, the cartridge must be recycled to avoid being managed as hazardous waste. Within the Department, printer cartridges are supplied and exchanged with the IT Unit. Disposal of PennDOT laser cartridges shall be through the IT Unit.

2. In the unlikely event that a maintenance employee encounters a printer cartridge within the right-of-way, contact the Rwy/SEMP Section for disposal guidance.

7.0 REMEDIATION DERIVED WASTES

- How is Remediation Derived Waste Managed in Pennsylvania?
- Facility Incidents vs Roadway Incidents
- PennDOT's Responsibilities when Responding to an Incident
- Transportation and Disposal of Remediation Derived Waste

This section provides guidance on properly managing wastes generated from non-routine events, including but not limited to spills or releases at PennDOT facilities and PennDOT right-of-way's.

7.1 PENNDOT ORIGINATED VS. NON-PENNDOT ORIGINATED RELEASES WORKER HEALTH & SAFETY

Whether Department employees may or may not respond to a hazardous materials incident is first and foremost an employee safety issue. Policy associated with employee safety resides with the Bureau of Human Resources (BHR). Consequently, health & safety information presented in this section is not policy, but provided for informational purposes only. **All questions relative to employee safety should be directed to the BHR.**

7.1.1 PENNDOT ORIGINATED RELEASES

In general, Department maintenance personnel may respond to releases that originate directly from PennDOT owned or rented equipment and associated materials. This is due to employee familiarity with the correct handling and potential hazards associated with such equipment and materials. However, every situation is unique. The on-site supervisor should make an assessment whether their employees, training, equipment and resources are sufficient to respond.

Responding to a PennDOT originated release is considered a non-reimbursable activity. Assembly application for these activities are covered in the PennDOT Foreman's Manual (Publication #113).

7.1.2 NON-PENNDOT ORIGINATED RELEASES

In general, Department maintenance personnel may act only as a First Responder relative to an emergency response to an uncontrolled hazardous materials incident. An "uncontrolled" incident is one where an accumulation of hazardous substances creates a (known or unknown) threat to the health and safety of individuals or the environment or both, and to which Department employees are not trained, equipped and/or authorized to address the situation.

A "First Responder" is an individual who is likely to witness or discover a hazardous substance release and who has been trained to initiate an emergency response sequence by notifying the proper authorities of the release. Department employees should take no further action beyond notifying the authorities of the release and preventing the motoring public from approaching the impacted area. Once proper authorities and qualified response personnel have taken control of the incident, Department personnel, as determined by the immediate supervisor (usually a foreman or ACMM), may support the response action as appropriate. This may include, but not be limited to providing sorbent materials/soil, trucks and equipment, and traffic control.

Responses to incidental releases of hazardous substances (i.e., small fuel/vehicular fluid releases) where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by Department maintenance employees in the immediate release area, are not considered to be an emergency response. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses. Typically, Department maintenance personnel have the material and knowledge to appropriately respond to these incidental releases.

Roadside clean-ups typically involve municipal and residual wastes. When properly equipped and under appropriate supervision, Department maintenance personnel may remove non-hazardous

roadside waste.

Typically, responses to non-PennDOT originated releases are considered reimbursable activities. Assembly application for these activities are covered in the PennDOT Foreman's Manual (Publication #113).

7.2 REMEDIATION VS. WASTE GENERATION

Federal and state waste management programs require significant documentation and reporting of waste streams generated by day-to-day industrial and commercial processes and practices. However, while isolated, accidental and/or non-routine waste generation (Remediation-Derived Waste) still requires the waste be properly managed, an exemption is provided for some of the more onerous documentation and reporting aspects. In general, the following applies to remediation-derived waste:

When in doubt, contact Rwy/SEMP Section.

- Contaminated media generated because of a spill, release, fire, accidents **do not count toward a facility's generator's status.** Specifically, emergency response scenarios involving:
    - **Residual Waste:** are not required to count the material toward their status per Pennsylvania Residual Waste Regulation
    - **Hazardous Waste:** A one-time or temporary EPA identification number shall be obtained from PADEP Division of Reporting and Fee Collection (see **Appendix B** for contact information). This process allows for facilities to manage hazardous wastes for a limited period of time that were generated due to unforeseen circumstances, and thus do not count towards their generator status.
- PADEP may immediately approve emergency storage, transportation, or disposal of remediation derived waste, if the methods are necessary to prevent or mitigate harm to the public health, safety or the environment.

7.3 RELEASES AT PENNDOT MAINTENANCE FACILITIES

The Combined Facilities Response Plan (CFRP) is a maintenance facility's plan to prevent the release of contamination to the environment and to quickly and effectively mitigate the effects should an accidental release occur (see Pub. 694). Every Department maintenance facility is required to have and utilize a CFRP. As a planning tool, it is anticipated that facility personnel are familiar with the materials present, their general hazards and how to respond to releases. Response to releases from contractors or other non-PennDOT sources is the responsibility of the contractor. The Department reserves the right to take any actions it deems necessary to prevent negative impacts to the environment, public, employees, Department equipment and the facility. In all instances, wastes generated from unplanned releases shall be managed in accordance with the type of waste generated (see Section 2.0).

7.4 RELEASES FROM PENNDOT VEHICLES AND EQUIPMENT

The Department is responsible for releases from PennDOT vehicles and equipment that results from employee actions and/or normal work activities. PennDOT vehicular and equipment incidents resulting from the action of non-PennDOT employees, including but not limited to accidents caused by others, vandalism and negligence are the liability of the party or parties that caused the incident. In any event, Department maintenance employees generally have the knowledge and ability to address or otherwise mitigate environmental impacts resulting from such releases. The immediate supervisor, usually a foreman or ACMM, shall assess immediate hazards (e.g., employee and public safety, environmental risk, etc.), determine what activities, if any, maintenance employees may do in response to the release, direct PennDOT maintenance employee activities, make the appropriate notifications to authorities as applicable, and summon additional resources as appropriate.

In general, Department employees should make every reasonable effort to prevent negative impacts to the public and environment. Wastes generated from unplanned releases shall be managed in accordance with the type of waste generated (see **Section 2.0**).

7.5 ROW RELEASES FROM NON-PENNDOT SOURCES

Policy regarding incidents in this section are covered by PennDOT's All-Hazards Incident Management Manual (Pub. 911). This section summarizes those policies and details waste-related issues. Releases to PennDOT right-of-way (ROW) generally result from motor vehicle accidents, equipment and container failure, illegal dumping or abandonment. The party or parties who created the incident are legally responsible for clean-up and disposal activities. However, there may be situations where the responsible party is unknown or unresponsive, and/or the risk to human health and the environment is such that the Department needs to take action.

- TABLE 5 -
SUMMARY OF KEY UNIVERSAL WASTE GENERATOR REQUIREMENTS

Partner	Responsibilities
PennDOT	• Provide traffic control • Activate detours as necessary • Transmit public information as needed (HAR, DMS, 511) • Provide materials such as anti-skid • Remove debris • Assess system damage
Law Enforcement	• Establish Unified Command position • Dispatch or request towing firm • Investigate crimes/preserve evidence • Direct fire police • Notify DEP of hazardous material incidents • Complete incident reporting/documentation
County Emergency Management Agency (911)	• Coordinate efforts at the scene, including evacuation efforts if required • Support efforts of those at the scene
DEP	• Provide monitoring of exposures • Ensure clean-up of hazardous materials follows applicable regulations • Issue emergency permits
Fire/Rescue Company	• Suppress fire • Direct rescue/extrication • Assist with traffic control using Fire Police under police authority
Emergency Medical Services (EMS)	• Address medical needs at the scene • Transport injured or ill
PEMA	• Plan and respond in times of significant event • Coordinate Intelligence/resource among entities/agencies
Towing/Recovery	• Deploy when dispatched by authorities • Remove vehicle/debris as directed
HazMat Unit	• Address potential or actual release • Prioritize cleanup activities
Coroner/Medical Examiner	• Investigate manner of death and documentation • Authorize movement of the deceased

7.5.1 PENNDOT FIRST RESPONDER RESPONSIBILITIES AND LIMITATIONS

As previously indicated in **Section 7.1.2**, in the event of a **hazardous materials incident**, PennDOT is considered a First Responder - Awareness level. See **Table 5** above for a comprehensive summary of first and secondary responder responsibilities as defined by Pub. 911.

7.5.2 CRIME SCENE PRESERVATION AND NOTIFICATION

PennDOT personnel will cooperate with law enforcement and/or coroner representatives that were dispatched to the incident associated with the release. PennDOT personnel will communicate with those authorities at the scene to help preserve evidence, and promote the reopening of any affected traffic lanes. Refer to Pub. 911 for further guidance.

7.5.3 MANAGEMENT OF ROADSIDE REMEDIATION DERIVED WASTES

The immediate supervisor, usually a foreman or ACMM, shall assess immediate hazards (e.g., employee and public safety, environmental risk, etc.), determine what activities, if any, maintenance employees may do in response to the release, direct PennDOT maintenance employee activities, make the appropriate notifications to authorities as applicable, and summon additional resources as appropriate.

In general, Department employees should make every reasonable effort to prevent negative impacts to the public and environment. Wastes generated from unplanned releases shall be managed in accordance with the type of waste generated (see Section 2.0).

7.5.3.1 HAZARDOUS WASTE CONSIDERATIONS

When managing **hazardous waste** within the ROW, an existing facility-specific EPA Identification (ID) Number shall **NOT** be used on manifests that accompany the disposal of these wastes. Under no circumstances shall hazardous waste originating from the ROW be brought to, staged or otherwise stored at a Department maintenance facility. For these situations, **Temporary EPA ID Numbers** shall be obtained and used. Waste shall be staged and/or stored within reasonable proximity to where it was found. **Section 6.3** provides shipping and disposal requirements for hazardous waste. The following guidelines apply for handling and disposing of waste generated for spill cleanup scenarios:

Hazardous Waste Management Tips:

1. A **Uniform Hazardous Waste Manifest** must be used to transport and dispose of RCRA hazardous cleanup waste generated from spills or releases. PennDOT is not responsible to provide PADEP a copy of the manifest, unless the hazardous waste is destined to be shipped out of state.

2. PennDOT representative must contact PADEP (Central or Regional Office) to obtain approval for transporting and disposing of the spill cleanup material to an approved hazardous waste handling facility. Specifically:

   - Obtain Temporary or Provisional EPA ID Number or waiver from PADEP for transportation; and

   - Confirm acceptance of waste to an approved hazardous waste handling facility prior to transportation and disposal.

3. A Uniform Hazardous Waste Manifest (UHWM) must be filled out to accompany the shipment of waste. A special note must be made indicating the waste was generated from a spill emergency and not by PennDOT, along with citing 25 Pa Code 263a.30. Insert the following statement in **Block 14** of the hazardous waste manifest:

   "Waste Generated from Emergency Response Activities (i.e. abandoned waste / vehicular accident) located in PENNDOT right-of-way. NOT generated by PENNDOT operations. [PA Chapter 263a.30]"

4. PennDOT Districts are **not** required to sign the hazardous waste manifest for these spills of hazardous material. If the responsible party or their designated contractor does not sign the manifest, a PADEP or local HAZMAT official should.

7.5.3.2 RESIDUAL AND MUNICIPAL WASTE CONSIDERATIONS

In general, most wastes commonly removed from the ROW are Residual Waste. See **Section 4.0 and Section 5.0** for Residual and Municipal waste management requirements respectively.

Care should be taken by maintenance personnel when managing any ROW waste. Under various circumstances, hazards associated with wastes may not be readily evident. These includes Special Handling Wastes detailed in **Section 8.0**, and Roadside Clean-up by Department forces and Adopt-a-Highway Program wastes detailed in **Section 9.0**. If at any time a Department employee is not comfortable with managing any waste, the waste should not be approached and this concern brought to their supervisor for guidance.

8.0 SPECIAL HANDLING WASTES

- Overview of Different Kind of Special Handling Wastes
- Specific Management Procedures for Common Special Handling Wastes

Special Handling Wastes is waste that requires the application of special storage, collection, transportation, processing or disposal techniques due to the quantity of material generated or its unique physical, chemical or biological characteristics. The term includes sewage sludge, infectious waste, chemotherapeutic waste, ash residue from a solid waste incineration facility, asbestos containing waste and PCB containing waste.

Policy associated with employee safety resides with the Bureau of Human Resources (BHR). Consequently, health & safety information presented in this section is not policy, but provided for informational purposes only. **All questions relative to employee safety should be directed to the BHR.**

Contact the Rwy/SEMP Section for further assistance.

The following sections outline waste management requirements for special handling wastes commonly associated with PennDOT maintenance operations.

8.1 INFECTIOUS, CHEMOTHERAPEUTIC, AND SHARPS WASTE

As part of roadside maintenance operations, PennDOT personnel may encounter Infectious, Chemotherapeutic, or Sharps Wastes (ICW) that were abandoned or part of a spill cleanup scenario. To be clear on what constitutes these waste types, they are defined by Pennsylvania waste management regulation as the following:

- **Infectious Waste:** Municipal and residual waste which is generated in the during medical activities of human beings or animals, in the preparation of human or animal remains for interment or cremation, or in the production or testing of biologicals. These wastes may consistent of (but not be limited to): infectious agents, human or animal tissues, blood, or hair.
- **Chemotherapeutic Waste:** Waste resulting from the production or use of agents used for the purpose of inhibiting or stopping the growth of cancer cells.
- **Used Sharps Waste:** Broken glass, needles, syringes, vials, etc. that have been used in animal or human patient care or treatment.

PennDOT maintenance personnel should not be cleaning up these wastes. If such waste is encountered, PennDOT forces shall inform their ACMM. The ACMM shall then take the necessary steps to utilize local HAZMAT resources or utilize the Agency-wide Remediation Services Contract to effect clean-up and disposal.

However, it is understood that employees may inadvertently collect such waste material. In such cases, maintenance personnel shall:

1. Inform the ACMM immediately.
2. To the extent practicable, the ACMM shall ensure the waste shall be segregated from other wastes, safely containerize ICSW waste in a sealed, leakproof, container. while wearing appropriate PPE.
3. Label and store waste in contained area.
4. To transport the waste:
    a. Use a licensed ICW transporter to transport the waste to an approved disposal facility; or
    b. Utilize PennDOT vehicle that has an Act 90 registration sticker.

5. Complete, PADEP Form 2540-FM-BWM0240 to accompany the shipment of waste. A special note must be made in the ICW Form, Block 24, indicating the ICW waste was generated from a spill emergency and not by PennDOT, along with citing 25 Pa Code 284.632(c). Insert the following statement in **Block 24** of the ICW Form (See **Appendix H**) "The ICW waste was generated due to a spill emergency and not PennDOT. The ICW waste was generated and removed in a manner consistent with PA Code 284.632(c)."

6. Provide a copy of the ICW Form to the licensed ICW transporter to ensure proper disposal.

8.2 ASBESTOS WASTE

Asbestos-containing building material waste is considered a Municipal Waste, but subject to Residual Waste regulations with additional special handling requirements. The special handling requirements apply to any material that contains > 1% asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure (friable). The term also includes nonfriable ACM after such previously nonfriable material becomes damaged to the extent that, when dry, it may be crumbled, pulverized or reduced to powder by hand pressure.

PennDOT maintenance personnel should not be cleaning up these wastes. If such waste is encountered, PennDOT forces shall inform their ACMM. The ACMM shall then take the necessary steps to utilize local HAZMAT resources or utilize the Agency-wide Remediation Services Contract to effect clean-up and disposal.

1. However, it is understood that employees may inadvertently collect such waste material. In such cases, maintenance personnel shall: Inform the ACMM immediately.

2. To the extent practicable, the ACM shall ensure that the waste is segregated from other wastes and stored in the following manner:

   - Contain the waste in leak proof containers while wet.
   - Utilize multiple plastic bags with a cumulative thickness of 12 mils or more.
   - Label bags with an identification and warning label consistent with the National Emission Standard for Asbestos

8.3 PCB CONTAINING WASTE

PCB containing wastes such as electrical ballasts, old caulk, or old hydraulic oil may be classified as residual, universal, or hazardous wastes, but still require special handling and management per PADEP regulation.

PennDOT maintenance personnel should not be cleaning up these wastes. If such waste is encountered, PennDOT forces shall inform their ACMM. The ACMM shall then take the necessary steps to utilize local HAZMAT resources or utilize the Agency-wide Remediation Services Contract to effect clean-up and disposal.

9.0 ROADSIDE WASTES AND ADOPT-A-HIGHWAY PROGRAM WASTES

- Overview of Different Kind of Roadside Wastes
- Specific Management Procedures for Common Roadside Wastes

As part of PennDOT's roadside maintenance operations, it is common to generate or encounter certain waste streams associated with public highway travel or roadside repairs or upgrades. These wastes include (but are not limited to) vehicle debris, Adopt-a-Highway litter pickup, illegal dumping, and vehicle accidents. Each of the wastes described in this section may require additional handling requirements or characterization efforts to perform an appropriate waste determination.

9.1 STREET SWEEPINGS

Street sweepings consist of antiskid (cinders, coal (bottom) ash, rock, and sand), salt, leaves, plastic, broken glass, small pieces of metal, litter and debris. Sweepings are removed from streets, parking lots and sidewalks by PennDOT personnel to improve the appearance and safety of public roadways and prevent pollution of local waterways.

Street sweepings can be managed and disposed of as municipal waste (Section 5.5.7), but is typically reused as antiskid provided that it is screened to separate all non-reusable debris, such as silt, trash, litter, leaves, etc., from the reusable antiskid material and visually checked for contaminants, staining or odors. For street sweepings to be reused as fill, the user must conform to the environmental due diligence requirements as specified in PennDOT Publication 281 (Waste Site Evaluation Procedures Handbook), Section 7.0. This due diligence assessment must be documented using PennDOT forms described in Publication 281.

If the visual examination shows no staining, odors or other evidence of contaminants, the antiskid may be managed as clean fill and used in an unrestricted manner, including the following:

- Reuse as antiskid;
- Remixed with new salt mixture for winter application to roads;
- As the sub-grade beneath a paved municipal road or parking lot;
- For filling potholes;
- As shoulder repair material along roads within the municipally or privately owned public right-of-way; and
- Other fill

If the visual examination shows staining, odors or other evidence of contaminants, the antiskid material must evaluated further and documented using PennDOT Form EDD-VI as described in Publication 281. This may include laboratory testing in accordance with PADEP's Management of Fill Policy (Document No. 258-2182-773) provided in Appendix I. Otherwise, the material must be disposed of at a permitted landfill. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a municipal waste in Pennsylvania.

<u>Waste Management Requirements:</u>

1. If contaminated street sweepings are planned for disposal, store in a manner than eliminates exposure to stormwater and prevents it from migrating out of the storage area.
2. Label the waste pile with the words, "Street Sweepings" and the document the accumulation start date.
3. Properly transport and dispose of street sweepings waste at a solid waste landfill.

9.2 TIRES AND ASSOCIATED SHREDS

Used tires are either generated from vehicle maintenance repairs and occasionally from clean-up activities. PADEP requires used tires to be recycled. PennDOT is contracted with vendors to pick up used tires. Minimize storage of waste tires at PennDOT facilities, absolute maximum limit of 500 tires in open storage or 1,500 in enclosed storage cannot be exceed without PADEP approvals. Refer to Section 2.6.2 to confirm if your waste stream is regulated as a residual waste in Pennsylvania.

Maximum quantity of tires stored cannot exceed 500 (open storage) or 1,500 (enclosed storage) without PADEP approval.

Waste Management Requirements:

1. Recycled used tires. Contract vendors that will pick up used tires for recycling, or replacement. If the tires cannot be recycled, they must be managed and disposed of as residual waste.
2. Store used tires under cover or indoors. Accumulating excess waste tires represents a financial liability and potentially increases the risk of a fire hazard and breeding grounds for mosquitoes.

Retain records of used tire pickups to demonstrate they have not accumulated more than one year onsite, or more than 1,500 tires in total count, at any time.

9.3 ELECTRONICS WASTE MANAGEMENT

While not technically universal waste, computers, computer monitors, televisions, and other electronic devices (Covered Devices) are managed as universal wastes as they are banned from land disposal and must be recycled. Refer to **Section 2.6.2** to confirm if your waste stream is regulated as a universal waste in Pennsylvania.

Waste Management Requirements:

1. Store covered devices indoors or protected by the elements.
2. Label covered devices or container with any one of the following phrases: "Universal Waste", "Not Municipal Waste", or "Covered Devices – Not Municipal Waste".
3. Recycle covered devices within ninety (90) days (recommended). Store covered devices at the facility no longer than one year, if more frequent recycling is not possible.

9.4 ILLICIT DRUG MANUFACTURING

One of the more dangerous types of wastes that may be encountered during roadside maintenance operations are by-products associated with illicit drug manufacturing, most commonly, the production of methamphetamine.

According to the Pennsylvania State Police Community Awareness Bulletin 05-2015, Methamphetamine is "cooked" using common household ingredients which creates a toxic residue that can saturates everything it comes in contact with. An increasingly popular method, known as the "one-pot" method, is of great concern as it is easily transported, as well as highly flammable and explosive. Because the process is easily transported, it has been found discarded along roadways. The remnants, by-products, and equipment used to cook Methamphetamine may resemble the following:

- Urine filled plastic bottles with a brown or cloudy residue inside a bottle
- Plastic bottles with plastic tubing attached
- Coffee filters containing a white substance or dark red sludge
- Glass cookware or frying pans containing a powdery residue
- Jars containing a clear liquid with a white or red colored solid on the bottom

Since this waste is highly toxic and may represent an explosion hazard (i.e., can spontaneously detonate), it must be approached, managed, and disposed of as a hazardous waste. As a result:

- DO NOT disturb, open or attempt to move containers with chemicals or suspected chemicals;
- Immediately inform supervisor and request assistance.
- DO NOT sniff any containers;
- Remain upwind and uphill from hazardous substances to avoid contamination.
- Decontaminate yourself and your clothing, especially before entering a vehicle.
- Wash your hands and face thoroughly.
- Report the incident to 9-1-1 and the appropriate PennDOT emergency contacts.
- Allow qualified individuals to manage and dispose of the waste

10.0 WASTE TRACKING AND RECORD KEEPING

- Explains how to access the PennDOT's waste tracking tool
- Explains how information is collected

PennDOT's waste tracking tool was developed to streamline and support aspects of waste recordkeeping and reporting. The waste tracking tool consists of a Microsoft Excel spreadsheet with multiple tabs that allows PennDOT to track each District's waste. Copies of the waste tracking tool and corresponding guidance material are provided in Appendix O. Counties are required to scan and e-mail all waste/recycling receipts, including but not limited to bills of lading, manifests, invoice receipts and weigh slips to a resource account, PD, SEMP Waste Tracking <RA-PDSEMPWASTETRACK@pa.gov>. A Rwy/SEM Programs Section consultant then verifies the information. Once the information is verified, the consultant enters the information into PennDOT's waste tracking tool (spreadsheet). The waste tracking tool is available for District and County use as a read only file located on the Department's shared drive at P:\PENNDOT SHARED\SEMP EMS\WASTE TRACKING SPREADSHEETS STATEWIDE.

BOMO shall analyze the information provided and determine how to manage Generator Status for Hazardous and Residual wastes. Biennial reporting determinations for both Hazardous and Residual wastes shall be completed by BOMO. Instructions for making biennial reports shall be communicated from BOMO to the Districts as appropriate.

Individual Counties shall report recycled materials information through the DGS Survey Monkey at https://www.surveymonkey.com/r/RecyclingReport. Reporting to DGS shall be completed quarterly for any recyclables shipped (up to the reporting date) and not previously reported. Specific due dates for DGS reporting are as follows.

- March 25th
- June 25th
- September 25th
- December 23rd

There may be additional local waste and recycling reporting requirements. These requirements are based upon local municipal and/or county ordinances. See **Section 4.5.2** for details.