

LONGWOOD UNIVERSITY

Office of Environmental, Occupational Health, Safety and Emergency Management
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Date Policy Issued:	Contact/Subject Matter Expert:	Procedure Owner/Approver:
	Environmental, Occupational Health, Safety, and Emergency Management Office (EHS&EM)	Director, EHS & EM Office / Vice President of Administration and Finance
Effective Date of Policy:	Supersedes:	Governing Standard:
	N/A	Environmental, Occupational Health, Safety, and Emergency Management Policy

What is the purpose of this policy?	This document serves as Longwood University's Hazardous Waste Management Program. The Program is designed to ensure that all hazardous waste (HW) are handled in a manner consistent with federal and state regulations; that the stored accumulation of hazardous waste is monitored effectively, waste is disposed of properly; any potential waste reduction or less hazardous chemical usage initiatives are evaluated on a regular basis; and responses to any hazardous waste incident related to the University are coordinated and mitigated with and by the proper authorities. The program's prescribed oversight and control of hazardous waste are based on regulatory requirements and are designed to assure compliance with all federal and state regulations.
Does this policy apply to me?	This Policy applies to Longwood University faculty, staff, students and contractors.
What are the terms I should be familiar with?	<p><u>Accumulation Limit:</u> The amount of time, designated by law, that a chemical waste can be stored on site, prior to disposal.</p> <p><u>Acid:</u> Any of a class of chemical compounds whose aqueous solutions have one or more of the following characteristics: sour taste, the ability to make litmus dye turn red and to cause other indicator dyes to change to characteristic colors, the ability to react with bases and certain metals to form salts, a substance that yields hydrogen ions when dissolved in water, and has a pH of 6.9 to 1.</p> <p><u>Base:</u> Any class of chemical compounds with one or more of the following properties: bitter taste, slippery feeling in solution, ability to turn litmus blue and to cause other indicators to take on characteristic colors, ability to neutralize acids to form salts, and has a pH of 7.1 to 14.</p> <p><u>Central Accumulation Area:</u> A controlled area managed by the manager responsible for the area or their designated trained person where chemical waste is stored until disposed through a licensed vendor to a state permitted facility.</p> <p><u>Disposal:</u> All hazardous waste on Longwood University property shall be disposed of in accordance this procedure and the federal and state</p>

regulations.

NOTE: No person while on Longwood University property has the authority to discharge, deposit, inject, dump, or place any solid waste or hazardous waste (whether containerized or un-containerized) into or on any land or water so that such solid waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any drain, stream, water source including ground waters.

EHS&EM: Environmental, Health, Safety and Emergency Management Office for Longwood University responsible all EHS&EM policies, programs and the federal and state standards and laws with which they are mandate-environmental sustainment throughout the United States.

EPA Identification Number: The number assigned by the EPA or VDEQ to each generator, transporter, and processing, storage or disposal facility.

Generator: any person, by site, who produces hazardous waste or solid waste; any person who possesses hazardous waste or solid waste to be shipped to any other person; or any person whose act first causes the solid waste to become subject to regulation. Person within this plan refers to an individual, institution, college, division or department, Federal Agency, State, Political subdivision of a State, municipality, or any interstate body.

Halogenated: A compound containing one or more of the halogen elements (fluorine, chlorine, bromine, iodine).

Hazardous Material: a substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

Hazardous Waste: any solid waste material listed or identified in Title 40 Code of Federal Regulations, Part 261, Subpart C and D or exhibiting the characteristics of ignitability, corrosively, reactivity, or EPA toxicity also defined in Part 261. Hazardous wastes can be liquids, solids, contained gases, or sludge's. They can be the by-products of University processes or simply discarded products, like cleaning fluids or pesticides. Tables containing the listing and characteristics of hazardous wastes are shown in **Appendix A.**

Material Safety Data Sheet (MSDS): is a detailed information document designed to provide both workers and emergency personnel with the proper procedures for handling or working with chemical substances

Organic: a chemical compound containing carbon.

Pesticide: is a substance or mixture of substances used for preventing, controlling, or lessening the damage caused by a pest.

Resource Conservation and Recovery Act (RCRA): enacted in 1976, is a Federal law of the United States contained in 42 U.S.C. §§6901-6992k. RCRA gave the U.S. Environmental Protection Agency (EPA) the authority to control hazardous waste from "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste.

Satellite Accumulation: An area controlled by a department, where hazardous chemical waste is generated. Once the container is full, the department transfers the waste for storage prior to disposal, by Lab Director

Small Quantity Generator(SQG): is an agency is considered a small quantity

	<p>generator if the agency generates less than 2200 pounds (1000 kilograms) but more than 220 pounds (100 kilograms) of hazardous waste per calendar</p> <p><u>Solvent:</u> A substance, usually a liquid, in which other substances are dissolved.</p> <p><u>Toxicity Characteristic Leaching Procedure (TCLP):</u> EPA test method for determining whether a given toxic chemical exhibits a concentration causing it to be considered hazardous.</p> <p><u>Treatment, Storage and Disposal Facility(TSDF):</u> is any company or person who wishes to store, treat (chemically, incinerate, etc.) or dispose (put in a landfill, dump, ground, air, water, etc.) of hazardous waste</p> <p><u>Uniform Hazardous Waste Manifest:</u> is a form prepared by all generators who transport, or offer for transport, hazardous waste for off-site treatment, recycling, storage, or disposal.</p> <p><u>Universal Waste:</u> is a hazardous waste that has been classified by the Environmental Protection Agency as a waste that can be disposed of under certain guidelines. There are four categories of universal waste:</p> <ol style="list-style-type: none"> 1. Batteries 2. Pesticides 3. Mercury-containing equipment 4. Lamps <p><u>Waste Container:</u> Any vessel made of an appropriate material that is utilized to contain a hazardous waste. See Lab Director or EHS&EM for guidance on selection and use of appropriate waste containers.</p>
What topics are addressed in this policy?	<p>Applicability</p> <p>Responsibilities</p> <p>Authority</p> <p>Generator Status</p> <p>Accumulation</p> <p>Container Management</p> <p>Waste Storage</p> <p>Waste Disposal</p>
What does this policy require of me?	<p>APPLICABILITY</p> <p>Compliance with the plan is critical and requires full cooperation by all Longwood University faculty, staff, students, and contractors where applicable. The main focus of the plan is the management of hazardous chemical waste.</p> <p>Longwood University Generator Status</p> <p>Longwood University is currently classified as a “Small Quantity Generator” (SQG) of hazardous waste and must comply with the Federal and State regulations on waste disposal associated with this classification. SQG are subject to accumulation time limits and accumulation volume limits. Longwood University is not permitted to treat or dispose of hazardous waste. All waste must be transported to a permitted off-site facility for further storage, treatment, and/or disposal. It is illegal to dispose of hazardous waste by</p>

dilution, evaporation, or dumping into the sanitary or storm sewers or into the local landfill. The EHS&EM Office under the support of the Laboratory Director collects and properly stores hazardous waste until shipped for disposal, and maintains permanent records (manifests) of all disposed waste.

A SQG must meet the following requirements, we must;

1. Generate only no than 220 pounds (100 kg) but less than 2,200 pounds (1,000 kg) of non acute hazardous waste in any calendar month. As an estimate of liquid waste, this is approximately 25 to 250 gallons depending on the density of the hazardous waste and/or
2. Generate in a calendar month less than 2.2 pounds (1 kg) of acutely toxic or severely toxic hazardous waste. Acutely hazardous wastes have "P" in their waste number and severely toxic wastes are those with an "S" in their waste number. Additional acutely hazardous wastes are identified by an (H) in the hazard code column of the other listings.

SUMMARY OF HAZARDOUS WASTE GENERATOR STATUS

(SQG)	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	One-half to five drums, or 25 to 250 gallons ¹	Less than 1 kilogram (2.2 pounds) ²	6,000 kilograms (13,200 pounds)	180 days, unless shipping over 200 miles, then 270 days
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- A. EPA Identification Number – VAD???????????
- B. Treatment Storage and Disposal Facility (TSDF) - **Longwood University is not a TSDF.**

This plan applies to all Longwood University facilities, departments, and operations.

The Hazardous Materials and Waste Management Plan covers the following chemical waste categories:

1. **Ignitable Wastes** (flammable and combustible materials that are liquid, solid, or gaseous)
2. **Corrosive Wastes** (strong acids or bases)
3. **Reactive Wastes** (explosive or unstable materials)
4. **TCLP Wastes** (subject testing using the toxicity characteristic leaching procedure)
5. **Toxic Wastes** (materials that contain heavy metals and other organic constituents)
6. **Acute Hazardous Waste** (one of 500 chemicals listed by the Environmental Protection Agency)

Universal Waste (Batteries, Pesticides, Mercury-containing equipment, lamps)

HAZARDOUS MATERIAL AND WASTE MANAGEMENT PLAN

Requirements - Longwood University shall comply with all requirements of USEPA, RCRA (40 CFR Parts 260-268) for the appropriate management of hazardous waste. In conjunction with these requirements, Longwood University shall adhere to the following guidelines.

Waste Characterization – Waste characterization is identifying all waste streams and making the proper determination to ensure the waste we generate is hazardous or non hazardous. When we change the materials we use, or the waste generating process changes, or there are other activities within our systems change that may impact the type of waste, it will be necessary to re-evaluate the waste characterization. We must identify and keep any records obtained in the determination (i.e., analysis results, material safety data sheet (MSDS), or other documentation such as product information from a supplier or manufacturer) at least three years from the time the waste was last sent for treatment, storage, or disposal. Longwood has chosen our hazardous waste vendor to conduct the characterization determination and all documentation shall be filed in the EHS&EM Office.

Waste Minimization - All activities that generate hazardous chemical waste covered under this plan shall be conducted in a manner to minimize unnecessary generation of such hazardous wastes. General principles for waste minimization are:

- a. Eliminating the use of a hazardous substance
- b. Substitution of the hazardous substance with a less or non hazardous material
- c. Reducing the amount of a hazardous material used in a process.

Longwood University's selected waste disposal contractor shall consider options for waste recycling, reuse, detoxification, neutralization or otherwise rendering the waste non-hazardous, whenever possible. Used, expired, or unwanted hazardous materials shall be characterized by hazard category and disposed in a proper and timely manner.

In laboratory settings, faculty and students shall use techniques that require minimal volumes of hazardous materials for analytical procedures, student practicum, demonstration, and research whenever possible.

Hazardous Waste Determination (pursuant to 40 CFR §262.11)

The requirements of this plan apply to all solid wastes in order to ascertain whether a waste stream is defined as hazardous waste or can be excluded from regulation. This includes materials that have no intended use or reuse.

A chemical waste may be considered hazardous due to a general characteristic, the process by which it was generated or because it is specifically listed by name. The material is "hazardous waste" if it meets one or more of the following:

1. Is listed in 40 CFR 261.33 (Appendix A), or

It meets the definition of one of the following [40 CFR 261.21 - 261.24 (Appendix A)]:

- (a) Ignitability (flashpoint < 60°C or supports combustion. Has an EPA Hazardous Waste Number of D001).
- (b) Reactivity (e.g., responds violently to air or water, cyanides, explosives, unstable chemicals. Has an EPA Hazardous Waste Number of D003);
- (c) Corrosively (pH <4 or >10. Has an EPA Hazardous Waste Number of D002);
- (d) EPA Toxicity (e.g., pesticides, heavy metals, poisons. Has an EPA Hazardous Waste Number of D004-D043);
- (e) Universal Waste;
- (f) Material is not excluded from regulations.

2. Is a mixture or solution containing a listed (Appendix A) waste and a non- hazardous waste.

Accumulation of Hazardous Waste (pursuant to 40 CFR § 265.16(a))

Risk Minimization - All laboratory personnel shall observe safe work practices when working with hazardous materials and accumulating hazardous wastes. Hazardous chemicals SHALL NEVER be poured or disposed of into any stream or other water source to include any laboratory or other drains or disposed in the regular trash or a regulated medical waste "red bag".

- 1) **Segregation** - Hazardous chemicals shall be used, stored and handled in accordance with requirements of Virginia Statewide Fire Prevention Code and the Virginia Department of Environmental Quality. Incompatible waste chemicals shall not be mixed in the same waste container (consult Laboratory Director, Chemical Hygiene Officer or EHS&EM for guidance, if necessary).
- 2) **Inspections** - Personnel responsible for hazardous chemical waste management shall keep a log book and shall inspect their satellite accumulation areas weekly.
 - a. The log book shall track the type of chemical being placed, the person placing the waste in the container, the date and the amount being placed, this does not have to be and indicate mixture, acid, halogenated or non-halogenated.

- 3) **Emergency Response** - Longwood University has developed and maintains a full hazardous materials emergency contingency plan. This emergency response system is activated by calling the Longwood University police department at X2092. Departmental personnel shall follow their Hazardous Materials Emergency Response Guide in the event of a spill or release of a hazardous chemical substance or waste. The Guide is provided by EHS&EM and is posted in all areas where hazardous materials are present. EHS&EM will review the Guide annually and update it as necessary.
- 4) **Inventory Control Measures** – Each department using or storing chemicals shall review the annual tracking document provided by the EHS&EM annually. This document shall be updated within 45 days from the request and returned to the EHS&EM Office. EHS&EM shall review the documents and update the main chemical inventory database maintains a database. Departments must take the steps necessary to ensure proper and timely disposal of old, expired or unwanted chemicals. This can be accomplished by;
 - i. Keep chemical purchases to a minimum.
 - ii. Employ elimination, substitution, and source reduction procedures.
 - iii. Retain a chemical inventory for each area of responsibility. Departments must work with EHS&EM to establish and maintain their chemical inventory.
 - iv. Ensure that all containers have a label that meets the OSHA Hazard Communication Standard requirements, e.g., (manufactured labels shall not be defaced or removed nor container can be used for another chemical.
 - v. Date reactive materials and materials with expiration dates when received and opened to ensure proper disposal before the expiration date.
 - vi. Redistribute excess chemicals to colleagues where applicable.
 - vii. Adhere to laboratory vacating procedures (Chemical Hygiene Plan) when relocating, leaving or renovating to ensure an area is free of old chemicals and properly decommissioned.
 - viii. Container Management (pursuant to 40 CFR Part 265): Whenever hazardous chemical wastes are placed into a container for disposal, the generator of the waste must immediately label the container with the words "Hazardous Waste" using labels provided by the EHS&EM or the Laboratory Director. The generator of the waste must ensure that all waste containers are kept closed unless adding or removing waste. When filled, the generator must date the container label with the current date and arraign for the Laboratory Director to move the container to the Central Accumulation Area (CAA) for that building within 3 days. Containers in the Satellite Accumulation

Area (SAA) shall be inspected by the generator at least weekly for leakage, deterioration, and damaged labels. The EHS&EM and the Laboratory Director shall inspect each SAA quarterly to ensure compliance standards are being met.

a. Empty Containers:

- 1) Typical hazardous wastes - the container must be completely emptied through pouring, etc. and no liquid shall remain in the container.
- 2) Acute hazardous wastes - the container must be completely emptied and triple rinsed to remove residual liquid and vapor. The rinse water shall be contained and prepared for disposal as hazardous waste.
- 3) Empty compressed gas cylinders shall be returned to the vendor or owner for re-use or disposal whenever possible.

Requests for Hazardous Waste Disposal:

A "Chemical Waste Disposal Request" forms (available directly from EHS&EM. Listing the chemical name/constituents and percentage for each chemical added to the container, must be maintained for all hazardous waste containers.

1. The Laboratory Director shall mail, fax, or email a completed disposal request form approximately one week before the container is full.
2. Once confirms a drop-off date, the chemical hygiene officer shall transport the waste along with the original Disposal Request form for each container to the CAA.

Financial Considerations:

Analytical costs for determining unknown ingredients in unlabeled or improperly labeled containers will be the responsibility of the department generating the waste material. EHS&EM will work with the department to conduct unknown testing of hazardous waste streams through the hazardous waste contract vendor.

1. Disposal costs for the following atypical waste types shall be charged directly to the department generating the waste. (EHS&EM will work with the departments to achieve this through a departmental budget adjustment)
 - a. Containers of hazardous chemicals earmarked for disposal due to a laboratory closure;
 - b. Any amount of a potentially explosive, peroxide forming compound whose expiration date has passed;
 - c. Certain highly toxic or otherwise highly hazardous materials essential to a special research project (e.g., PCB wastes, mixed wastes);
 - d. Quantities of non-lab materials (e.g., cleaning materials, dental applications, pharmaceuticals, etc.) that have accumulated over time and

cannot be disposed of as non-hazardous solid waste; and

e. Hazardous chemical spills that require the assistance of an outside contractor to cleanup

Storage of Wastes in Central Waste Accumulation Areas (CAA)

EHS&EM with the support of the Laboratory Director has jurisdiction over all SAAs and CAAs University-wide and manages all activities conducted in and associated with these areas.

- a. All chemical wastes shall be stored in a safe manner. The containers shall be leak free, sturdy, tightly closed, and in good condition. Waste containers shall be stored so that each label is visible and each container is available for inspection.
- b. The Laboratory Director shall inspect CAAs weekly. An inspection log shall be completed and sent to the EHS&EM Office a monthly basis. These records shall be kept on file for 3 years. The inspection log shall be provided by the EHS&EM Office. EHS&EM staff and the Laboratory Director shall conduct quarterly inspections to ensure compliance for all CAA's.
- c. During all activities within the CAA, a minimum of one means of communication shall be available to summon assistance in case of emergency. This may be achieved via telephone, two-way radio, and/or voice contact.
- d. CAA's shall be outfitted with the following equipment, including but not limited to:

- 1) Standard or intrinsically safe electrical features
- 2) General ventilation
- 3) Local exhaust ventilation
- 4) Impervious flooring
- 5) Secondary containment
- 6) Fire suppression
- 7) Portable fire extinguisher
- 8) Fire alarm system
- 9) Standard or spark proof telephone
- 10) Shower and eye wash
- 11) Poly-coated storage shelves

Disposal of Wastes via Licensed Disposal Vendor (pursuant to CFR 40 §262.12(c))

- a. No wastes shall be stored in the CAA beyond the waste accumulation limited allowed by law, e.g., 180 days for Small Quantity Generator – SQG. This will be ensured by the Laboratory Director and the EHS&EM and tracked using the container full date on the Hazardous Waste label.
- b. The Laboratory Director in conjunction with the EHS&EM shall contact the licensed transportation/disposal vendor under contract with Longwood University to arrange pick-up and disposal of wastes from the CAA to ensure that the designated waste accumulation limit is not exceeded.
The vendor shall be responsible for packing, labeling and shipping all

wastes to a designated treatment, storage, and disposal facility (TSDF) with the appropriate EPA ID Number. The vendor shall also prepare appropriate hazardous waste manifests and "Land Ban" forms for the EHS&EM representative's review.

- a. The Laboratory Director/Chemical Hygiene Officer in conjunction with the EHS&EM shall inspect all manifests for accuracy and ensure that the transportation vehicle is properly placarded before leaving the premises. Hazardous waste manifests and all other transportation and disposal related documents shall only be signed by a trained and responsible representative.

Appropriate copies of the manifest shall be forwarded to the origin and destination state. Generator copies of the Hazardous Waste Manifest and all associated records shall be retained in the EHS&EM Office for a period not less than three years. The disposal vendor shall be notified by telephone if the TSD copy of the manifest is not returned to the EHS&EM Office within 30 days from shipment, as required by RCRA regulations

Are there specific responsibilities identified within this policy?

RESPONSIBLE PARTIES

Individual handlers of hazardous waste have specific duties and responsibilities under state and federal law and Longwood policy regarding hazardous waste handling and disposal. These responsibilities include hazardous waste identification and waste minimization as well as proper waste storage and disposal.

Environmental Health, Safety and Emergency Management Office

(EHS&EM): The EHS&EM is responsible for the implementation, oversight, and maintenance of the Hazardous Waste Management Program. It will also serve as technical authority having jurisdiction over all matters that involve hazardous materials and waste as they relate to Longwood University.

1. Laboratory Director/chemical Hygiene Officer – Responsible Trained

Longwood Employee: is responsible for the collection, storage, labeling and disposal of all hazardous waste, hazardous waste recordkeeping, the submittal of all documents to regulatory authorities, and the authorization and tracking of hazardous waste manifests.

2. Faculty: the faculty member responsible for any course that uses hazardous materials or generates any hazardous waste is ultimately responsible:

1. For the storage and transfer of all waste materials generated to the appropriate waste containers during the course term;
2. For ensuring that all teaching assistants for the course have received training on the hazardous waste management plan;
3. To ensure all their staff and students receive chemical hazard and safety training;
4. For ensuring students and all teaching assistants have the proper safety personal protective equipment available and

- for its use when applicable;
5. For understanding the potential hazards of the chemicals they use;
 6. For the collection of waste materials during and at the end of each class period;
 7. For ensuring all chemical containers they purchase are labeled with the appropriate hazard designations, and
 - a. all labels are not defaced or damaged during use;
 - b. chemical containers are not used for another chemical or other substance.
 8. Ensuring all chemical containers have appropriate lids and the lids are secured when the container is not in use;
 9. Provide an MSDS to the EHS&EM Office prior to the use of the chemical and retain a copy for emergency operations in the classroom.
 10. For purchasing only safe quantities of hazardous chemicals for the periods they are required to be used ;
 11. For not disposing of any hazardous material or hazardous waste into any stream, water source, down any drain inside or outside of the facility to include sanitary sewer drains.

NOTE: Any person identified as releasing or pouring any hazardous material or hazardous waste into any stream or placing into any drain will be considered for immediate termination of their employment or student status at Longwood University. Any contractor found to release any hazardous material or hazardous waste into any stream, water source or use any Longwood University drain to dispose of any such materials shall be terminated and removed from the bid list. All remediation and removal charges shall be accepted by the contractor.

12. Reporting any spill of a hazardous waste to the EHS&EM immediately.

Staff/Managers/Supervisors: Designated staff/managers/supervisors of all departments are responsible for:

1. The proper storage of all chemicals in their area;
2. Not purchasing excessive quantities of hazardous materials;
3. Arranging for the proper storage, transfer, and disposal of any generated hazardous waste in their department;
4. Notifying the EHS&EM immediately when:
 - a. a chemical spill of any amount occurs
 - b. a fuel spill of any amount occurs
 - c. a hazardous chemical enters a stream or other water source to include any sanitary drain or storm sewer

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Are there related documents I should read to fully understand this policy and its requirements?	<p>C. <u>Longwood University Policy - 5601 EHS&EM Policy</u></p> <p>D. <u>EPA 40 CFR Part 260</u> – Hazardous waste management system</p> <p>E. <u>EPA 40 CFR Part 261</u> – Identification and listing of hazardous waste</p> <p>F. <u>EPA 40 CFR Part 262</u> – Standards applicable to generators of hazardous waste</p> <p>G. <u>EPA 40 CFR Part 273</u> – Standards for universal waste management</p> <p>H. <u>EPA 40 CFR Part 279</u> – Standards for management of used oil</p> <p>I. <u>Statewide Fire Prevention Code Chapter 4, Section 407</u> –Hazard Communication</p> <p>J. <u>Statewide Fire Prevention Code Chapter 27</u> – Hazardous Materials</p> <p>K. <u>OSHA 29CFR 1910.120</u> – Hazardous Waste Operations and Emergency Response</p> <p>L. <u>OSHA 29 CFR 1910.1200</u> – Hazard Communication</p> <p>M. <u>OSHA 29 CFR 1910.1450</u> – <u>Occupational Exposure to Hazardous Chemicals in Laboratories.</u></p> <p>N. <u>DOT 49 CFR</u> – Hazardous Materials Transportation</p> <p>O. <u>42 U.S.C. §§6901-6992k</u> - Resource Conservation and Recovery Act of 1976.</p>				
Record Requirements:	<p>Longwood University EPA/VDEQ Identification Number</p> <p>Material Safety Data Sheets</p> <p>Hazardous Materials/Waste Training Documentation</p> <p>Copy Hazardous Waste Contractor Training Documentation and Certification</p> <p>Copy Hazardous Waste Contractor Authorized EPA License and Permit number</p>				
Revision History:	<u>Revision No.</u>	<u>Issue Date</u>	<u>Description of Change</u>		

Appendix A**Identification of Hazardous Waste****40 CFR 261.21 Characteristic of Ignitability.**

- F. A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:
1. It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60C (140F), as determined by a Pensky- Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (incorporated by reference, see 40 CFR 260.1 1), or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 (incorporated by reference, see 40 CFR 260.1 1), or as determined by an equivalent test method approved by the Administrator under procedures set forth in 40 CFR 260.20 And 40 CFR 260.21.
 2. It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.
 3. It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under 40 CFR 260.20 and 40 CFR 260.21.
 4. It is an oxidizer as defined in 49 CFR 173. 1 51
- G. A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of DOO1.

40 CFR 261.22 Characteristic of Corrositivity.

- A. A solid waste exhibits the characteristic of corrositivity if a representative sample of the waste has either of the following properties:
1. It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in 40 CFR 260.11.
 2. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per

year at a test temperature of 55C (130F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-0169 as standardized in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in 40 CFR 260.11.

3. A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

40 CFR 261.23 Characteristic of Reactivity.

A. A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has *any* of the following properties:

1. It is normally unstable and readily undergoes violent change without detonating.
2. It reacts violently with water.
3. It forms potentially explosive mixtures with water.
4. When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.
5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.
6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.
7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.
8. It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

B. A solid waste that exhibits the characteristic of reactivity has the EPA Hazardous Waste Number of D003.

40 CFR 261.24 Toxicity Characteristic.

- A. A solid waste exhibits the characteristic of toxicity if the extract from a representative sample of the waste contains any of the contaminants listed in Table I at a concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself is considered to be the extract for the purpose of this section.

- B. A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table I which corresponds to the toxic contaminant causing it to be hazardous.

Table I - Maximum Concentration of Contaminants for the Toxicity Characteristic

^[1] HW #	Contaminant	^[2] CAS #	Regulatory Level (mg/l)	^[1] HW #	Contaminant	^[2] CAS #	Regulatory Level (mg/l)
D004	Arsenic	7440-38-2	5.0	D032	Hexachlorobenzene	118-74-1	^[3] 0.13
D005	Barium	7440-39-3	100.0	D033	Hexachlorobutadiene	87-68-3	0.5
D018	Benzene	71-43-2	0.5	D034	Hexachlororthane	67-72-1	3.0
D006	Cadmium	7440-43-9	1.0	D008	Lead	7439-9-1	5.0
D019	Carbon Tetrachloride	56-23-5	0.5	D013	Lindane	58-89-9	0.4
D020	Chlordane	57-74-9	0.03	D009	Mercury	7439-97-6	0.2
D021	Chlorobenzene	108-90-7	100.0	D014	Methoxychlor	72-43-5	10.0
D022	Chloroform	67-66-3	6.0	D035	Methyl ethyl ketone	78-93-3	200.0
D007	Chromium	7440-47-3	5.0	D036	Nitrobenzene	98-95-3	2.0
D023	o-Cresol	95-78-7	^[4] 200.0	D037	Pentachlorophenol	87-86-5	100.0
D024	m-Cresol	108-39-4	^[4] 200.0	D038	Pyridine	110-86-1	^[3] 5.0
D025	p-Cresol	106-44-5	^[4] 200.0	D010	Selenium	7782-49-2	1.0
D026	Cresol	-----	^[4] 200.0	D011	Silver	7440-22-4	5.0
D016	2,4-D	94-75-7	10.0	D039	Tetrachloroethylene	127-18-4	0.7
D027	1,4-Dichlorobenzene	106-46-7	7.5	D015	Toxaphene	8001-35-2	0.5
D028	1,2-Dichloroethane	107-06-2	0.5	D040	Trichloroethylene	79-01-6	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7	D041	2,4,5-Trichlorophenol	95-95-4	400.0
D030	2,4-Dinitrotoluene	121-14-2	^[3] 0.13	D042	2,4,6-Trichlorophenol	88-06-2	2.0
D012	Endrin	72-20-8	0.02	D017	2,4,5-TP (Silvex)	93-72-1	1.0
D031	Heptachlor (& its epoxide)	76-44-8	0.008	D043	D043 Vinyl Chloride	75-01-4	0.2

^[1] EPA Hazardous waste number.

^[2] Chemical abstracts service number.

^[3] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

^[4] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/L.

40 CFR 261.33 Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded as described in 40 CFR 261.2 (a)(2)(i), when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

- A. Any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section.
- B. Any off-specification commercial chemical or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in paragraph (e) or (f) of this section.
- C. Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this section, unless the container is empty as defined in 40 CFR 261.7(b)
- D. Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section, or any residue or contaminated soil, water or other debris resulting from the cleanup off a spill, into on any land or water, of any off-specification commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section.

[Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in..." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraph (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraph (e) or (f), such waste will be listed in either 40 CFR 261.31 or 40 CFR 261.32 or will be identified as a hazardous waste by the characteristics set forth in Subpart C of this part]

- E. The commercial chemical products, manufacturing chemical intermediate off-specification commercial chemical product or manufacturing chemical intermediates referred to in paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to be the small quantity exclusion defined in 40 CFR 261.5(e).

[Comment: For the convenience of the regulated community the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), and R (Reactivity). Absence of a letter indicates that the compound only is listed for acute toxicity]

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
P023	107-20-0	Acetaldehyde, chloro-	P012	1327-53-3	Arsenic oxide As ₂ O ₃
P002	591-08-2	Acetamide N-(aminothioxomethyl)-	P011	1303-28-2	Arsenic Oxide As ₂ O ₅
P057	640-19-7	Acetamide, 2-fluoro-	P011	1303-28-2	Arsenic pentoxide
P058	62-74-8	Acetic acid, fluoro-, sodium salt	P012	1327-53-3	Arsenic trioxide
P002	591-08-2	1-Acetyl-2-thiourea	P038	692-42-2	Arsine, diethyl-
P003	107-02-8	Acrolein	P036	696-28-6	Arsonous dichloride, phenyl-
P070	116-06-3	Aldicarb	P054	151-56-4	Azinidine
P203	1646-88-4	Aldicarb sulfone	P067	75-55-8	Aziridine, 2-methyl-
P004	309-00-2	Aldrin	P013	542-62-1	Barium cyanide
P005	107-18-6	Allyl Alcohol	P024	106-47-8	Benzenamine, 4-chloro-
P006	20859-73-8	Aluminum phosphide (R,T)	P077	100-01-6	Benzenamine, 4-nitro-
P007	2763-96-4	5-(aminomethyl)-3-isoxazolol	P028	100-44-7	Benzene, (chloromethyl)-
P008	504-24-5	4-Aminopyridine	P042	54-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)
P009	131-74-8	Ammonium picrate (R)	P046	122-09-8	Benzeneethanamine, alpha, alpha-dimethyl-
P119	7803-55-6	Ammonium Vanadate	P014	108-98-5	Benzenethiol
P099	506-61-6	Argentate (1-), bis(cyano-C)-, potassium	P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate
P010	7778-39-4	Arsenic Acid H ₃ AsO ₄	P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. With (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1).

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
P001	[1]81-81-2	2H-1 Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenyl butyl)-, & salts when present at concentrations greater than 0.3%.	P030	-----	Cyanides (soluble cyanide salts), Not otherwise specified
P028	100-44-7	Benzyl chloride	P031	460-19-5	Cyanogen
P015	7440-41-7	Beryllium power	P033	506-77-4	Cyanogen chloride
P017	598-31-2	Bromoacetone	P033	506-77-4	Cyanogen chloride (CN)Cl
P018	357-57-3	Brucine	P024	106-47-8	p-Chloroaniline
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio) -, O-[methylamino]carbonyl oxime	P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P021	592-01-8	Calcium cyanide	P027	542-76-7	3-Chloropropionitrile
P021	591-01-8	Calcium cyanide Ca(CN) ₂	P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P189	55285-14-8	Carbamic acid, [(dibutylamino)-thio] methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester.	P016	542-88-1	Dichloromethyl ether
P191	644-64-4	Carbamic acid, dimethyl-,1-[(dimethyl-amino)carbonyl]-5-methyl-1H-pyrazol 3-yl ester.	P036	696-28-6	Diclorophenylarsine
P192	119-38-0	Carbamic acid, dimethyl-3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester	P038	692-42-2	Diethylarsine
P190	1129-41-5	Carbmic acid, methyl-, 3-methylphenyl ester	P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P127	1563-66-2	Carbofuran	P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P022	75-15-0	Carbon disulfide	P043	55-91-4	Diisopropylfluorophosphate (DFP)
P095	75-44-5	Carbonic dichloride	P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta, 5alpha,8alpha,8abeta)-
P189	55285-14-8	Carbosulfan	P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a, 5,8,8a-hexahydro-, (1alpha,4alpha, 4abeta, 5beta, 8beta,8abeta)-
P023	107-20-0	Chloroacetaldehyde	P037	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2alpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-
P029	544-92-3	Copper cyanide	P051	¹ 71-20-8	2,7:3,6-Dimethanonaphth[2,3-]oxirene 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6, 6a,7,7a-octahydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-& metabolites
P029	544-92-3	Copper cyanide Cu(CN)			
P202	64-00-6	m-Cumenyl methylcarbamae			

HW #	CAS #	SUBSTANCE
P044	60-51-5	Dimethoate
P046	122-09-8	alpha, alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan
P047	^[1] 534-52-1	4,6-Dinitro-o-cresol, & salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosporamide, octamethyl-
P111	107-49-3	Diposphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	Dithiolane-2- carboxaldehyde ,2,4-dimethyl-,O- [(methylamino)-carbonyl]oxime
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin
P051	72-20-8	Endrin, & metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P194	23135-22-0	Ethanimidothioc acid,2-(dimethyl amino)-N- [[methylamino) carbonyl] oxy]- 2-oxo-, methyl ester.
P066	16752-77-5	Ethanimidothioic acid,N [(methyl-amino)carbonyl]oxy]- ,methyl ester.
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride
P197	17702-57-7	Formparanate

HW #	CAS #	SUBSTANCE
P065	628-86-4	Fulmic acid, mercury(2+)salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	80-34-4	Hydrazine,methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin
P192	119-38-0	Isolan
P202	64-00-6	3-Isoprppylphenyl N-methylcarbamate
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethyl carbamodi-thioato-S,S'),
P196	A539-36-3	Manganese dimethyldithiocarbamate
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	624-86-4	Mercury fulminate(R,T)
P082	62-83-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N' - [3-[[(methyl amino)-carbonyl] oxy]phenyl]-, monohydrochloride.
P197	17702-57-7	Methanimidedamide, N,N-dimethyl-N'-[2-methyl-4- [[methylamino) carbonyl]oxy]phenyl]-
P050	115-29-7	6,9-Methano-2,4,3,-benzodi oxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P199	2032-65-7	Methiocarb
P066	16752-77-5	Methomyl

HW #	CAS #	SUBSTANCE
P068	60-34-4	Methyl hydrazine
P064	624-83-9	2-Methylactonitrile
P071	298-00-0	Methyl parathion
P190	1129-41-5	Metholcarb
P128	315-8-4	Mexacarbate
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-9-3	Nickel carbonyl Ni(CO) ₄ (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cyanide Ni(CN) ₂
P075	¹ 54-11-5	Nicotine & salts
P076	10102-43-9	Nitric oxide
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen oxide NO
P078	10102-44-0	Nitrogen dioxide NO ₂
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramide
P087	20816-12-0	Osmium oxide OsO ₄ , (T-4)
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro

HW #	CAS #	SUBSTANCE
P047	¹¹¹ 534-52-1	Phenol 2-methyl-4-6-dinitro- & salts
P020	88-85-7	Phenol,2-(1methylprophyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-tinitro-, ammonium salt (R)
P128	315-18-4	Phenol 4-(dimethylamino)-3,5-dimethyl methylcarbamate (ester).
P199	2032-65-7	Phenol,(3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-,methyl carbamate
P201	2631-37-0	Phenol, 3-methyl-5-(1-methyl ethyl)-, methyl carbamate.
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-0	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)methyl]ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl]ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2oxoethyl]ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methyl-ethyl)ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl)ester
P040	297-97-2	Phosphorothioic acid, O,O-diethylO-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-4[(dimethyl-amino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl)ester
P204	57-47-6	Physostigmine
P188	57-64-7	Physostigmine salicylate.
P110	78-00-2	Plumbane,tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Potassium silver cyanide

HW #	CAS #	SUBSTANCE
P201	2631-37-0	Promecarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-O-[(methylamino)carbonyl]oxime
P203	1646-88-4	Propanal, -methyl-2(methylsulfonyl)-O-[(methylamio)carbonyl]oxime.
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenile, 3-chloro-
P069	75-86-5	Propanenile, 2-ydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	4-Pyridinamine
P075	^[1] 54-11-5	Pyridine, 3-(1-methyl-2-yrrolidinyl)-, (S)-, & salts
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-methyl-carbamate (ester, (3aS-cis)-
P114	12039-52-0	Seleniuos acid, dithallium (1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	^[1] 57-24-9	Strychnidin-10one, & salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	^[1] 57-24-9	Strychnine, & salts
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)

HW #	CAS #	SUBSTANCE
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl ₂ O ₃
P114	12039-52-0	Thallium(I) selenite
P115	746-18-6	Thallium(I) sulfate
P109	36196-18-4	Thiodiphosphoric acid, tetraethyl ester
P045	39196-4	Thiofanox
P049	541-53-7	Thiomidodicarbonic diamide [(H ₂ N)C(S)] ₂ NH
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-8-4	Thiorea, 1-naphthalenyl-
P093	103-85-5	Thiorea, phenyl-
P185	26419-73-8	Tirpate
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichoromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide V ₂ O ₅
P120	1314-62-1	Vanadium pentoxide
P084	45-49-40-0	Vinylamine, N-methyl-N-nitroso
P001	^[1] 81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(Dimethylcarbamodithioato-S, S')-,
P121	557-21-1	Zinc cyanide
P121	57-21-1	Zinc cyanide Zn(CN) ₂
P122	1314-84-7	Zinc Phosphide Zn ₃ P ₂ , when present at concentrations greater than 10% (R,T)
P205	137-30-4	Ziram

F. The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in paragraphs (a) through (d) of this section, are identified as toxic wastes (T), unless otherwise designated and are subject to the small quantity generator exclusion defined in 40 CFR 261.5 (a) and (g).

[Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), R (Reactivity), I (Ignitability) and C (Corrositivity). Absence of a letter indicates that the compound is only listed for toxicity.]

These wastes and their corresponding EPA Hazardous Waste Numbers are:

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
U394	30558-43-A2213		U278	22781-23-3	Bendiocarb
U001	75-07-0	Acetaldehyde (I)	U364	22961-82-6	Beniocarb phenol
U034	75-87-6	Acetaldehyde, trichloro-	U271	17804-35-2	Benomyl
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-	U157	56-49-5	Benz[j] aceanthrylene, 1,2-dihydro-3-methyl
U005	53-96-3	Acetanide, N-9H-flouren-2-yl-	U016	225-51-4	Benz[c]acridine
U240	194-75-7	Acetic acid, (2, 4- dicholorophenoxy), salts & esters	U017	98-87-3	Benzal chloride
U112	141-78-6	Acetic acid, ethyl ester (1)	U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynl)-
U144	301-04-2	Acetic acid, lead (2+) salt	U018	56-55-3	Benz[a]anthracene
U214	563-68-8	Acetic acid, thallium(1+) salt	U094	57-97-6	Benz[a]anthracene, 7,12dimethyl-
See F027	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	U0353	106-49-0	Benzenamine, 4 methyl
U002	67-64-1	Acetone (1)	U158	101-15-5	Benzenamine, 4,4' methylenebis [2-chloro-
U003	75-05-8	Acetonitrile, (I, T)	U222	636-21-5	Benzenamine, 2-methyl-hydrochloride
U004	98-86-2	Acetophenone	U181	99-55-8	Benzenamine, 2-methyl-5-nitro
U005	53-96-3	2-Acetylaminofluorene	U019	71-43-2	Benzene (I,T)
U006	75-36-5	Acetyl chloride (C,R,T)	U038	510-15-6	Benzenacetic acid, 4 chloro-alpha (\$-chlorophenyl)-alpha-hydroxy-,ethyl ester
U007	79-06-1	Acrylamide	U030	101-55-3	Benzene, 1-bromo-4-phenoxy
U008	79-10-7	Acrylic acid (I)	U035	305-03-3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U009	107-13-1	Acrylonitrile	U037	108-90-7	Benzene, chloro-
U011	61-82-5	Amitrole	U221	25376-45-8	Benzenediamine, ar-mthyl
U012	62-53-3	Aniline (I,T)	U028	117-81-7	1,2 Benzenedicarboxylic acid, (2-ethylhexyl) ester

U136	75-60-5	Arsinic acid, dimethyl-	U069	84-74-2	1,2 Benzenedicarboxylic acid, dibutyl ester
U014	492-80-8	Auramine	U088	84-66-2	1,2 Benzenedicarboxylic acid, diethyl ester
U015	115-02-6	Azaserine	U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U010	50-07-7	Azirino [2',3'≤3, 4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[(aminocarbonyloxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-1aalpha,8beta,8aalpha,8balph)]-	U107	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
U280	101-27-9	Barban	U070	95-501-1	Benzene, 1,2-dichloro-

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
U071	541-73-1	Benzene, 1,3-dichloro-	U095	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U072	106-46-7	Benzene, 1,4-dichloro-	U225	75-25-2	Bromoform
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene) bis[4-chloro-	U030	101-55-3	4-Bromophenyl phenyl ether
U017	98-87-3	Benzene, (dichloromethyl)-	U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl-(R,T)	U172	924-16-3	1-Butanamine, n-butyl-N-nitroso-
U239	1330-20-7	Benzene, dimethyl- (I,T)	U031	71-36-3	1-Butanol (I)
U201	108-46-3	1,3-Benzenediol	U159	78-93-3	2-Butanone (I,T)
U127	118-74-1	Benzene, hexachloro-	U160	1338-23-4	2-Butanone, peroxide (R,T)
U056	110-82-7	Benzene, hexahydro- (I)	U053	4170-30-3	2-Butenal
U220	108-88-3	Benzene, methyl-	U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-	U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*), 7aalpha]]-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-	U031	71-36-3	n-Butyl alcohol (I)
U055	98-82-8	Benzene, (1-methylethyl)- (I)	U136	75-60-5	Cacodylic acid
U169	98-95-3	Benzene, nitro-	U032	13765-19-0	Calcium Chromate
U183	608-93-5	Benzene, pentachloro-	U215	6533-73-9	Carbonic acid, dithallium (1+) salt
U185	82-68-8	Benzene, pentachloronitro-	U033	353-50-4	Carbonic difluoride
U020	98-09-9	Benzenesulfonic acid chloride (C,R)	U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U020	98-09-9	Benzenesulfonyl chloride (C,R)	U033	353-50-4	Carbon oxyfluoride (R,T)
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-	U211	56-23-5	Carbon tetra chloride
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-chloro-	U034	75-87-6	Chloral
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-	U035	305-03-3	Chlorambucil
U023	98-07-7	Benzene, (trichloromethyl)-	U036	57-74-9	Chlordane, alpha & gamma isomers
U234	99-35-4	Benzene, 1,3,5-trinitro-	U026	494-03-1	Chlornaphazin
U021	92-87-5	Benzidine	U03	108-90-7	Chlorobenzene
U202	¹ 81-07-2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, and salts	U038	510-15-6	Chlorobenzilate
U278	22781-23-3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.	U039	59-50-7	p-Chloro-m-cresol
U364	22961-82-6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-	U042	110-75-8	2-Chloroethyl vinyl ether
U203	94-57-7	1,3-Benzodioxole, 5-(2-propenyl)-	U044	67-66-3	Chloroform
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	U046	107-30-2	Chloromethyl methyl ether
U367	1563-38-8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-	U047	91-58-7	Beta-Chloronaphthalene
U090	94-58-6	1,3-Benzodioxole, 5-propyl-	U048	95-57-8	o-Chlorophenol
U064	189-55-9	Benzo[rsst]pentaphene	U049	3465-93-3	4-Chloro-m-cresol
U248	¹ 81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less	U032	13765-19-0	Chromic acid H ₂ CrO ₄ , calcium salt
U022	50-32-8	Benzo[a]pyrene	U050	218-01-9	Chrysene
U197	106-51-4	p-Benzoquinone	U051	Creosote
U023	98-07-7	Benzotrichloride (C,R,T)	U052	1319-77-3	Cresol (Cresylic acid)
U085	1464-53-5	2,2'-Bioxirane	U053	4170-30-3	Crotonaldehyde
U021	92-87-5	[1,1'-Biphenyl]-4,4'-diamine	U055	98-82-8	Cumene (I)
U073	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	U246	506-68-3	Cyanogen bromide (CN)Br

U091 119-90-4

[1,1'-Biphenyl]-4,4'-diamine, 3,3'-

U197 106-51-4

2,5-Cyclohexadiene-1,4-dione

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
U056	110-82-7	Cyclohexane (I) Cyclohexane,	U101	105-67-9	2,4-Dimethyphenol
U129	58-89-9	1,2,3,4,5,6-hexachloro-, (1alpha, 2alpha, 3 beta, 4alpha, 6beta)-	U102	131-11-3	Dimethy phthalate
U057	108-94-1	Cyclohexanone (I)	U103	77-78-1	Dimethyl sulfate
U130	77-47-4	1,3-cyclopentadinene, 1,2,3,4,5,5-hexachloro-	U105	121-14-2	2,4-Dinitrotoluene
U058	50-18-0	Cyclophosphamide	U106	606-20-2	2,6-Dinitrotoluene
U240	194-75-7	2,4-D, salts & esters	U107	117-84-0	Di-n-octyl phthalate
U059	20830-81-3	Daunomycin	U108	123-97-1	1,4 Dioxane
U060	72-54-8	DDD	U109	122-66-7	1,2-Diphenylpydrazine
U061	50-29-3	DDT	U110	142-84-7	Dipropylamine (I)
U062	2303-16-4	Diallate	U111	621-64-7	Di-n-propylnitrosamine
U063	57-70-3	Dibenz[a,h]anthracene	U041	106-89-8	Epichlorhydrin
U064	189-55-9	Dibenzo[a,i]pyrene	U001	75-07-0	Ethanal (I)
U066	96-12-8	1,2-Dibromo-3-chloropropane	U404	121-44-8	Ethanamine, N,N-diethyl-
U069	84-74-2	Dibutyl phthalate	U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U070	95-50-1	o-Dichlorobenzene	U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'2-(2-thienylmethyl)-
U071	541-73-1	m-Dichlorobenzene	U067	106-93-4	Ethane, 1,2-dibromo-
U072	106-46-7	p-Dichlorobenzene	U076	75-34-3	Ethane, 1,1-dichloro-
U073	91-94-1	3-3'-Dichlorobenzidine	U077	107-06-2	Ethane, 1,2-dichloro-
U074	764-41-0	1,4-Dichloro-2-butene (I,T)	U131	67-72-1	Ethane, hexachloro-
U075	75-71-8	Dichlorodifluoromethane	U024	111-91-1	Ethane, 1,1'-[methylenebis(oxy)bis[2-chloro-
U078	75-35-4	1,1 Dichloroethylene	U117	60-29-7	Ethane, 1,1'-oxybis-(I)
U079	156-60-5	1,2-Dichlorethylene	U025	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
U025	111-44-4	Dichloroethyl ether	U184	76-01-7	Ethane, pentachloro-
U027	108-960-1	Dichloroisoropyl ether	U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U024	111-91-1	Dichloromethoxy ethane	U209	79-34-5	Ethane 1,1,2,2-tetrachloro-
U081	120-83-2	2,4-Dichlorophenol	U218	62-55-5	Ethanethioamide
U082	87-65-0	2,6-Dichlorophenol	U226	71-55-6	Ethane, 1,1,1-trichloro-
U084	542-75-6	1,3-Dichlorophenol	U227	79-00-5	Ethane, 1,1,2-trichloro-
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)	U410	59669-26-0	Ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
U108	123-91-1	1,4-Diethyleneoxide	U394	30558-43-1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester
U028	117-81-7	Diethylhexyl phthalate	U359	110-80-5	Ethanol, 2-ethoxy-
U395	5952-26-1	Diethylene glycol, dicarbamate	U173	1116-54-7	Ethanone, 2,2'-(nitrosoimino)bis-
U086	1615-80-1	N,N'-Diethylhydrazine	U395	5952-26-1	Ethanol, 2,2'-oxybis-dicarbamate
U087	3288-58-2	O,O-Diethyl S-methyl dithiophosphate	U004	98-86-2	Ethanone, 1-phenyl
U088	84-66-2	Diethyl phthalate	U043	75-01-4	Ethene, chloro-
U089	56-53-1	Diethylstilbesterol	U042	110-75-8	Ethene, (2-Chloroethoxy)-
U090	94-58-6	Dihydrosafrole	U078	75-35-4	Ethene, 1,1-dichloro-
U091	119-90-4	3,3'-Dimethoxybenzindine	U079	156-60-5	Ethene, 1,2-dichloro- (E)-
U092	124-40-3	Dimethylamine (I)	U210	127-18-4	Ethene, tetrachloro-
U093	60-11-7	p-Dimethylaminoazobenzene	U228	79-01-6	Ethene, trichloro-
U094	57-97-9	7,12-Dimethylbenz[a]anthracene	U112	141-78-6	Ethyl acetate (I)
U095	119-93-7	3,3'-Dimethylbenzindine	U113	140-88-5	Ethyl acrylate (I)
U096	80-15-9	Alpha, alpha-Dimethylbenzylhydroperoxide (R)	U238	51-79-6	Ethyl carbamate (urethane)
U097	79-44-7	Dimethylcarbamoyl chloride	U117	60-29-7	Ethyl ether (I)
U098	57-14-7	1,1-Dimethylhydrazine	U114	111-54-6	Ethylenebisdithiocarbamic acid, salts & esters
U099	540-73-8	1,2-Dimethylhydrazine	U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride	U163	70-25-7	MNNG
U359	110-80-5	Ethylene glycol monoethyl ether	U147	108-31-6	Maleic anhydride
U115	75-21-8	Ethylene oxide (I, T)	U148	123-33-1	Maleic hydrazide
U116	96-45-7	Ethylenethiourea	U149	109-77-3	Malononitrile
U076	75-34-3	Ethylidene dichloride	U150	148-82-3	Melphalan
U118	97-63-2	Ethyl methacrylate	U151	7439-97-6	Mercury
U119	62-50-0	Ethyl methanesulfonate	U152	126-98-7	Methacrylonitrile (I, T)
U120	206-44-0	Fluoranthene	U092	124-40-3	Methanamine, N-Methyl-(I)
U122	50-00-0	Formaldehyde	U029	74-83-9	Methane, bromo-
U123	64-18-6	Formic Acid (C,T)	U045	74-87-3	Methane, chloro- (I,T)
U124	110-00-9	Furan (I)	U046	107-30-2	Methane, chloromethoxy-
U125	98-01-1	2-Furancarboxaldehyde (I)	U068	74-95-3	Methane, dibromo-
U147	108-31-6	2,5-Furandione	U080	75-09-2	Methane, dichloro-
U213	109-99-9	Furan, Tetrahydro (I)	U075	75-71-8	Methane, dichlorodifluoro-

HW #	CAS #	SUBSTANCE	HW #	CAS #	SUBSTANCE
U125	98-01-1	Furfural (I)	U138	74-88-4	Methane, iodo-
U124	110-00-9	Furfuran (I)	U119	62-50-0	Methanesulfonic acid, ethyl ester
U026	18883-66-4	Glucopyranose, 2-decoxy-2-(3-methyl-3-nitrosoureido)-, D-	U211	56-23-5	Methane, tetrachloro-
U206	18883-66-4	D-Glucose, 2-deoxy-2-[[[(methylnitrosoamino)-	U153	74-93-1	Methanethiol (I,T)
U126	765-34-4	Glycidylaldehyde	U225	75-25-2	Methane, tribromo-
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nirtoso-	U044	67-66-3	Methane, trichloro-
U127	118-74-1	Hexachlorobenzene	U121	75-69-4	Methane, trichlorofluoro-
U128	87-68-3	Hexachlorobutadiene	U036	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
U130	77-47-4	Hexachlorocyclopentadiene	U154	67-56-1	Methanol (I)
U131	67-72-1	Hexachloroethane	U155	91-80-5	Methapyrilene
U132	70-30-4	Hexachlorophene	U142	143-20-0	1,3,4-Metheno-2H-cyclobuta [cd]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachloroactahydro-
U243	1888-71-7	Hexachloropropene	U247	72-43-5	Methoxychlor
U133	302-01-2	Hydrazine (R,T)	U157	67-56-1	Methyl alcohol (I)
U086	1615-80-1	Hydrazine, 1,2-dimethyl-	U029	74-83-9	Methyl bromide
U098	57-14-7	Hydrazine, 1,1-dimethyl-	U186	504-60-9	1-Methylbutadiene (I)
U099	540-73-8	Hydrazine, 1,2-dimethyl-	U045	74-87-3	Methyl chloride (I,T)
U109	122-66-7	Hydrazine, 1,2-diphenyl-	U156	79-22-1	Methyl chlorocarbonate (I,T)
U134	7664-39-3	Hydrofluoric acid (C,T)	U226	71-55-6	Methyl chloroform
U134	7664-39-3	Hydrogen fluoride (C,T)	U157	56-49-5	3-Methycholanthrene
U135	7783-06-4	Hydrogen sulfide	U158	101-14-4	4,4'-Methylenebis (2-chloroaniline)
U135	7783-06-4	Hydrogen sulfide H ₂ S	U068	74-95-3	Methylene bromide
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl (R)	U080	75-09-2	Methylene chloride
U116	96-45-7	2-imidazolidinethione	U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U137	193-39-5	Indeno [1,2,3-cd]pyrene	U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U190	85-44-9	1,3-Isobenzofurandione	U138	74-88-4	Methyl iodide
U140	78-83-1	Isobutyl alcohol (I,T)	U161	108-10-1	Methyl isobutyl ketone (I)
U141	120-58-1	Isosafrol	U162	80-62-6	Methyl methacrylate (I,T)
U142	143-50-0	Kepone	U161	108-10-1	4-Methyl-2-pentanone (I)
U143	303-34-4	Lasiocarpine	U164	56-04-2	Methylthiouracil

U144 301-04-2 Lead acetate

U010 50-07-7 Mitomycin C

HW #	CAS #	SUBSTANCE
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HW #	CAS #	SUBSTANCE
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U146 1335-32-6 Lead, bis (acetate-O)tetrahydroxytri

U059 20830-81-3 5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-

U145 7446-27-7 Lead phosphate

U167 134-32-7 1-Naphthalenamine

U146 1335-32-6 Lead subacetate

U168 91-59-8 2-Naphthalenamine

U129 58-89-9 Lindane

U026 494-03-1 Naphthalenamine, N,N'-bias(2-

U165 91-20-3 Naphthalene

U132 70-30-4 Phenol, 2,2'-methylenebis[3,4,6-trichloro-

U047 91-58-7 Naphthalene, 2-chloro-

U411 114-24-1 Phenol, 2-(methylethoxy)-,methylcarbamate

U166 130-15-4 1,4-Naphthalenedione

U170 100-02-7 Phenol, 4-nitro-

U236 72-57-1 2,7-Naphthalenedisulfonic acid, 3,3'-[3,3'-dimethyl[1,1'-diphenyl]-4,4'-diyl]bis(azo)bis[5-amino-4-hydroxy-, tetrasodium salt

See F027 87-86-5 Phenol, pentachloro-

U279 63-25-2 1-Naphthanlenol, methylcarbamate

See 58-90-2 Phenol, 2,3,4,6-tetrachloro-F027

U168 130-15-4 1,4-Naphthoquinone

See 95-95-4 Phenol,2,4,5-trichloro-F027

U167 134-32-7 Alpha-naphthylamine

See 88-06-2 Phenol, 2, 4, 6-trichloro-F027

U168 91-59-8 Beta-naphthylamine

U150 148-82-3 L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-

U217 10102-45-1 Nitric Acid, thallium (1+) salt

U145 7446-27-7 Phosphoric acid, lead (2+) salt (2:3)

U169 98-95-3 Nitrobenzene (I,T)

U087 3288-58-2 Phosohorodithioic acid, O,O-diethyl S-methyl ester

U170 100-02-7 p-Nitrophenol

U189 1314-80-3 Phosphorus sulfide (R)

U171 79-46-9 2-Nitropropane (I,T)

U190 85-44-9 Phthalic anhydride

U172 924-16-3 N-Nitrosodi-n-butylamine

U191 109-06-8 2-Picoline

U173 1116-54-7 N-Nitrosodiethanolamine

U179 100-75-4 Piperidine, 1-nitroso-

U174 55-18-5 Nitrosodiethylamine

U192 23950-58-5 Pronamide

U176 759-73-9 N-Nitroso-N-ethylurea

U194 107-10-8 1-Propanamine (I,T)

U177 684-93-5 N-Nitroso-N-methylurea

U111 621-64-7 1-Propanamine, N-nitroso-N-propyl

U178 615-53-2 N-Nitroso-N-methylurethane

U110 142-84-7 I-Propanamine, N-propyl- (I)

U179 100-75-4 N-Nirtosopiperidine

U066 96-12-8 Propane, 1,2-dibromo-3-chloro-

U180 930-55-2 N-Nirtosopyrrolidine

U083 78-87-5 Propane, 1,2-dichloro-

U181 99-55-8 5-Nitro-o-toluidine

U149 109-77-3 Propanedinitrile

U193 1120-71-4 1,2-Oxathiolane, 2,2-dioxide

U171 79-46-9 Propane, 2-nitro-(I,T)

U058 50-18-0 2H-1,3,2-Oxazaphosphorin-2-amine,N,N-bis(2-chloroethyl)tetrahydro-,2-oxide

U027 108-60-1 Propane, 2,2'-oxybis [2-chloro-

HW #	CAS #	SUBSTANCE
U115	75-21-8	Oxirane (I,T)
U126	765-34-4	Oxiranecarboxyaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-
U042	123-63-7	Paraldehyde
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Pentachloroethane
U185	82-68-8	Pentachloronitrobenzene (PCNB)
See F027	87-86-5	Pentachlorophenol
U161	108-10-1	Pentanol, 4-methyl-
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U048	95-57-8	Phenol, 2-chloro-
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	Phenol, 2,6-dichloro-
U089	56-53-1	Phenol, 4,4'-(1,2-ethenediyl)bis-, (E)
U101	105-67-9	Phenol, 2,4-dimethyl
U052	1319-77-3	Phenol, methyl-
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-86-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U167	56-04-2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930-55-2	Pyrrolidine, 1-nitroso-
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	181-07-2	Saccharin,& salts

HW #	CAS #	SUBSTANCE
U193	1120-71-4	1,3-Propane sultone
See F027	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy-
U235	123-72-7	1-Propanol, 2, 3-dibromo-,phosphate (3:1)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U002	67-64-1	Propanone (I)
U007	79-06-1	2-Propenamide
U084	542-75-6	1-Propene, 1,3-dichloro-
U243	1888-71-7	1-Propene 1,1,2,3,3-hexachloro-
U009	107-13-1	2-Propenenitrile
U152	126-98-7	2-Propenenitrile, 2-methyl-, (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-2	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-ethyl ester
U162	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U373	122-42-9	Propham
U411	114-26-1	Propoxur
U387	52888-80-9	Prosulfocarb
U194	107-10-8	n-Propylamine (I,T)
U083	78-87-5	Propylene dichloride
U223	26471-62-5	Toluene diisocyanate (R,T)
U328	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	636-21-5	o-Toluidine hydrochloride
U389	2303-17-5	Triallate
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U408	118-79-6	2,4,6-Tribromophenol
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene

U203	94-59-7	Safrole	U121	75-69-4	Trichloromonofluoromehtane
U204	7783-00-8	Selenious acid	See F027	95-95-4	2,4,5-Trichlorophenol
U204	7783-00-8	Selenium dioxide	See F027	88-06-2	2,4,6-Trichlorophenol
U205	7488-56-4	Selenium sulfide	U404	121-44-8	Triethylamine
U205	7488-56-4	Selenium sulfide SeS ₂ (R,T)	U234	99-35-4	1,3,5-trinitrobenzene (R,T)
U015	115-02-6	L-Serine, diazoacetate (ester)	U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
See F027	93-72-1	Silvex (2,4,5-TP)	U235	126-72-7	Tris(2,3-dibromopropyl) phosphate
U206	18883-66-4	Streptozotocin	U236	72-57-1	Trypan blue
U103	77-78-1	Sulfuric acid, dimethyl ester	U237	66-75-1	Uracil mustard
U189	1314-80-3	Sulfur phosphide (R)	U176	759-73-9	Urea, N-ethyl-N-nitroso-
See F027	93-76-5	2,4,5-T	U177	684-93-5	Urea, N-Methyl-N-nitroso-
U207	95-94-3	1,2,4,5-Tetrachlorobenzene	U043	75-01-4	Vinyl chloride
U208	630-20-6	1,1,1,2-Tetrachloroethane	U248	81-81-2	Warfarin, & salts when present at concentrations of 0.3% or less
U209	79-34-5	1,1,2,2-Tetrachloroethane	U239	1330-20-7	Xylene (I)
U210	127-18-4	Tetrachloroethylene	U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[3,4,5-trimethoxybenzolyloxy)]-methyl ester, (3beta, 16beta, 17alpha, 18beta, 20 alpha)-
See F027	58-90-2	2,3,4,6-Tetrachlorophenol	U249	1314-84-7	Zinc phosphide Zn ₃ P ₂ , when present at concentrations of 10% or less
U213	109-99-9	Tetrahydrofuran (I)	U214	630-20-6	Thallium (I)acetate
U215	6533-73-9	Thallium (I) carbonate	U216	7791-12-0	Thallium (I)chloride
U216	7791-12-0	Thallium Chloride TlCl	U217	10102-45-1	Thallium (I) nitrate
U218	62-55-5	Thioacetamide	U410	59669-26-0	Thiodicarb
U153	74-93-1	Thiomethanol (I,T)	U244	137-26-8	Thioperoxydicarbonic diamide [(H ₂ N)C(S)] ₂ S ₂ ,tetramethyl-
U409	23564-05-8	Thiophanate-methyl	U219	62-56-6	Thiourea
U244	137-26-8	Thiram	U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine			

^[1] CAS Number given for parent compound only.

APPENDIX B**Common Halogenated and Non-halogenated Organic Solvents**

Halogenated solvents (i.e. solvents containing the chlorine, fluorine, bromine, or iodine element) pose special disposal problems. As a direct result of these problems, most halogenated solvents are expensive to dispose of. Because of the high cost of disposal, halogenated solvents should be collected separately for most other solvents. A breakdown by solvent type is listed below to help generators categorize their waste solvents.

Common Halogenated and Non-Halogenated Organic Solvents:

Halogenated Solvents

Chloroform
Methylene Chloride (Dichloromethane)
Carbon tetrachloride
Trichloroethane
Tetrachloroethane

Non-halogenated Solvents

Methyl alcohol Ethyl
Alcohol Diethyl
ether Benzene
Acetonitrile Hexane
Pentae
Phenol
Tolulene
Xylene
Ethyl acetate
Cyclohexae
Butanol Acetone

Please note: Formaldehyde is consolidated under a separate waste stream and must not be mixed with other solvents.

APPENDIX C

Instructions for the Chemical Waste Disposal Form

Note: The numbers of the following section refer to the boxed numbers on the example Longwood Chemical Waste Disposal Form

Complete each of the sections of the waste form with the information requested. Note any special information requirements, explained below where necessary:

1. Principal Investigator: Name the investigator whose project is generating the waste.
2. Person Completing Form: Name the person who actually prepared the waste form.
3. Identification / Description of Waste Chemicals
 - ⇒ If the waste is a mixture of one or more constituents, place an "x" in the box marked "MIX".
 - ⇒ List all components of the waste using their common chemical MSDS names. Estimate and indicate the volume (liquids) or weight (solids) each represents in the container.
 - ⇒ Do not use chemical name abbreviations or formulas.
 - ⇒ The identification and quantity of any solids present in liquid waste must also be listed if such solids/sludges cannot be separated.
Example 1: Do not write "aqueous lead waste", write "1000 ppm lead nitrate in dilute nitric acid". Example 2: If several chemicals have been poured in one container, mark the box, "MIX" and list the volume or weight of each component as follows: Acetone- 1L, Hexane- 500 ml., Methanol -250 ml.
4. State: Circle the appropriate letter to indicate the present physical state of the waste. Circle S" for solid, "L" for liquid, and "G" for Gas
5. pH: For liquid wastes, indicate with one significant digit the pH of the material. Determination by the use of pHDrion Papers is acceptable.
6. Number, Size, & Type of Container(s): In order, show how many, and of what volume/weight, and of what type of container, are included in this entry. Differing types of containers should be listed on separate lines of the form.
Example 3: If you had 20 containers of waste in 4 liter bottles, your entry would be: 20 x 4 L bottles.

Example 4: If you had one, 5 gallon can of methylene chloride and 10 gallon mixture of trichloroethane and acetone in two, 5 gallon metal cans, you would need to use two lines of the form. For the methylene chloride you would enter on one line: 1 x 5 gal. can. For the two cans of the mixture of trichloroethane and acetone you would enter, on the next line down: 2 x 5 gal. cans.

7. Volume or Weight in Container: Indicate the sum total volume or weight of each container. Differing sizes of containers should be listed on separate lines of the form.

Example 4: If you had 5 bottles of liquid potassium chloride in the same size containers, each containing 400 milliliters, the entry would be: 400 ml each.

Example 5: If you had two containers of calcium hydroxide, one liquid and one solid, they would be listed on separate lines. In addition, section 5 of the form would indicate that one item was a liquid ("L") and the other was a solid ("S").

8. (Safety Office use Only) I.D. Number: Leave blank.

9. Special Handling Instructions: Note any access restrictions, or any special hazards associated with the waste.

10. Signature of Person

The person who completed the form must sign it.

11. Date Signed

Longwood Chemical Waste Disposal Form(Read Instructions on Back Before
Completing)

PI Name (1)

Person Completing Form(2)

(Please Print)

(Please Print Full Name)

<div> <input type="checkbox"/> </div> <div> Identification / Description of Waste (3) </div>	<div> State (4) </div>	<div> pH (5) </div>	<div> Number, Size & Type of Container [6] (ex: 3 x 1 L. Bottle) </div>	<div> Volume or Weight in Container [7] (eg:750 mL in each) </div>	<div> Safety Office ID#[8] </div>
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				
<div> Mix <input type="checkbox"/> </div>	<div> S L G </div>				

Special Notes or Handling Instructions [9]:

Certification: I hereby declare that the identification / description of the waste chemicals in accurate and complete to the best of my knowledge.

Signed^[10]: _____ Date^[11]: _____

Hazardous Waste Container Request

Please return requests to Ray Heinrich Science Center Room 302, fax to 2652, or
email heinricht@longwood.edu

<u>Building/Room Number</u>	<u>Department</u>	<u>New Waste Stream</u> <input type="checkbox"/> Yes or <input type="checkbox"/> No
<u>Contact</u>	<u>Phone Number</u>	<u>Email Address</u>

Waste Identification		
<u>DO NOT</u> use abbreviations or chemical formulas – Use chemical or generic names		
Control # (EH&S* Use)	Contents	Container Size Needed

If there are any questions feel free to ask at ext 2471

Figure II-4
LOGIC DIAGRAM FOR
IDENTIFYING HAZARDOUS WASTES

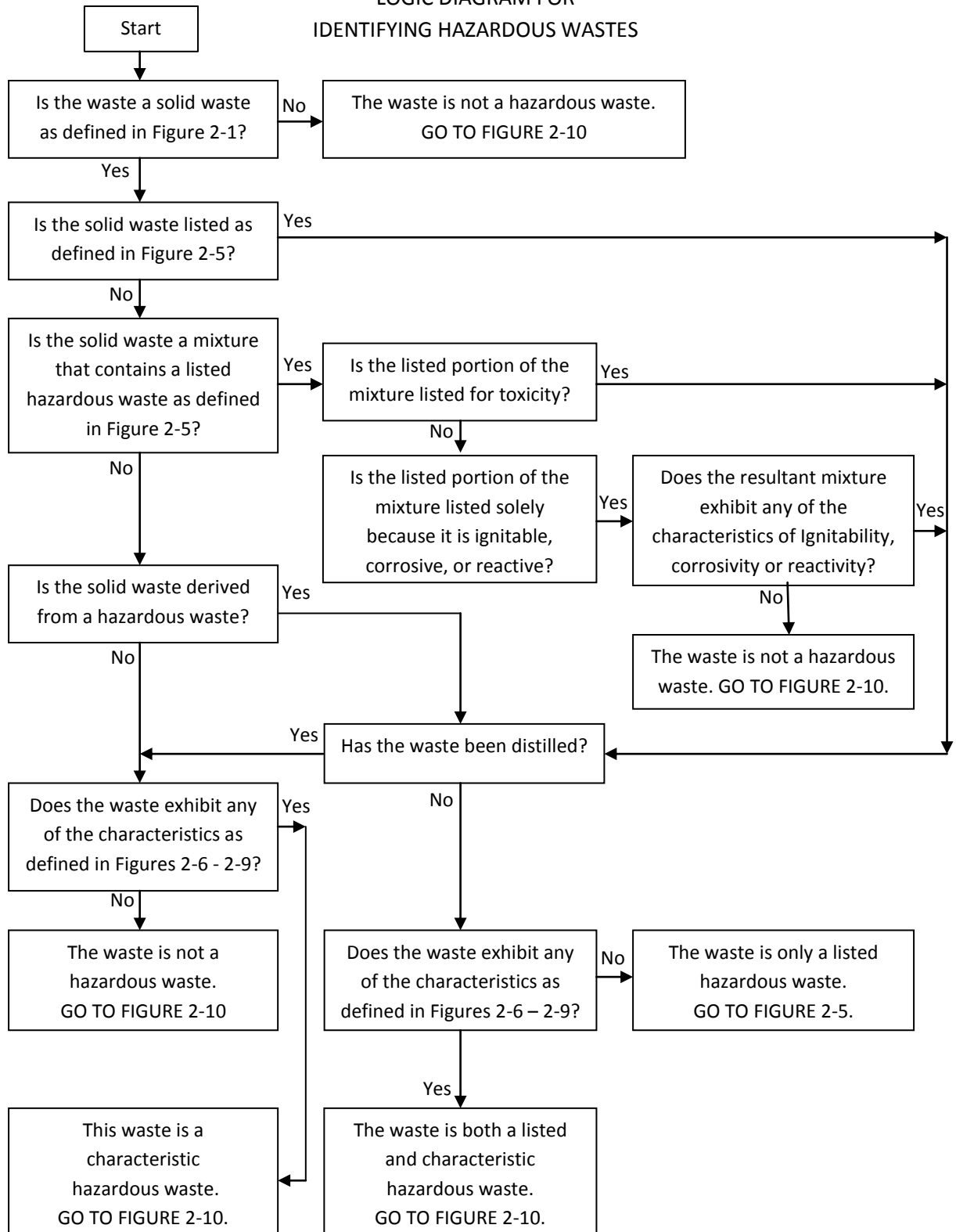


Figure II-1

LOGIC DIAGRAM FOR IDENTIFYING SOLID WASTES

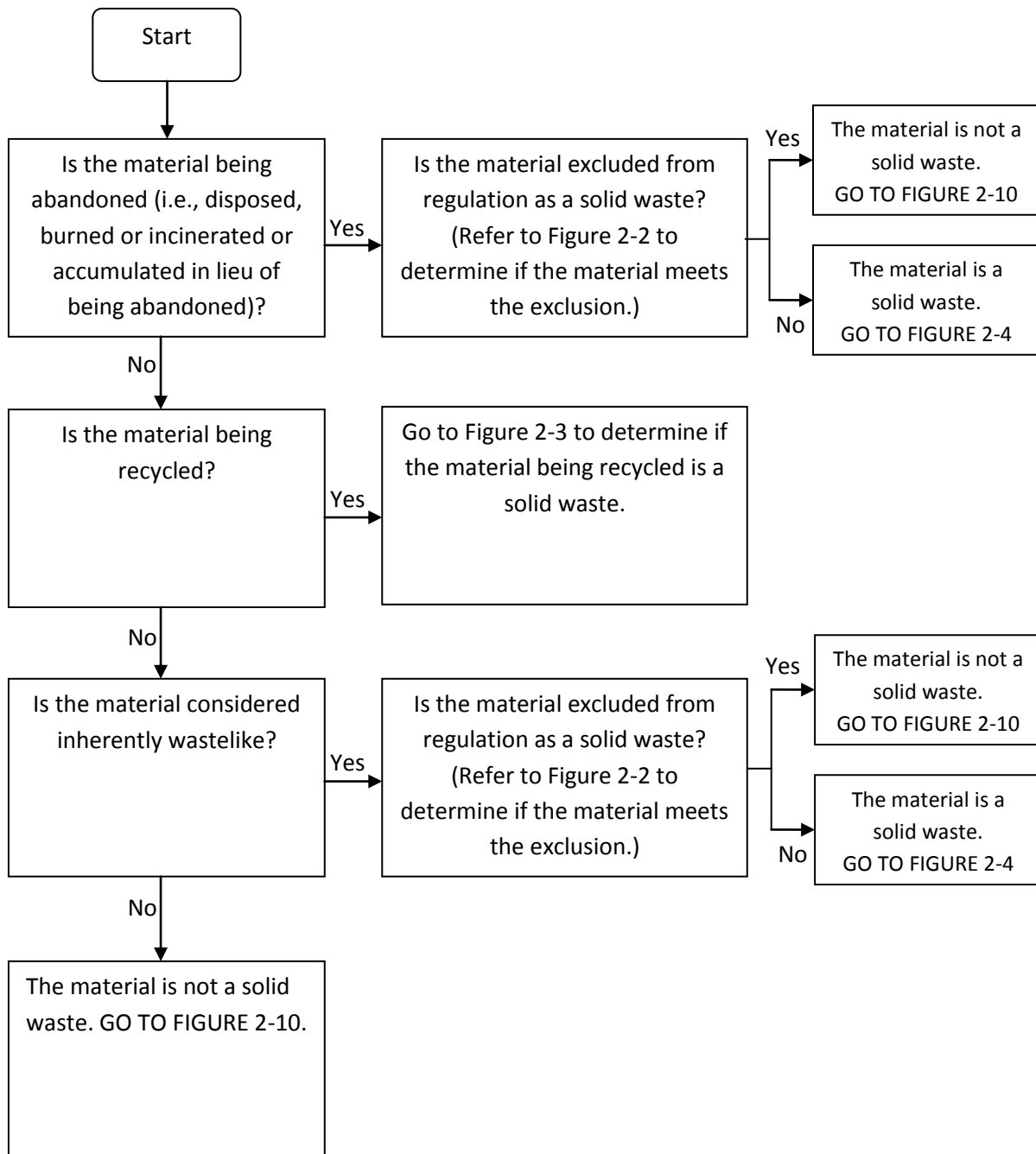


Figure II-2
LOGIC DIAGRAM FOR DETERMINING IF A SOLID WASTE
EXHIBITS THE CHARACTERISTICS OF CORROSIVITY

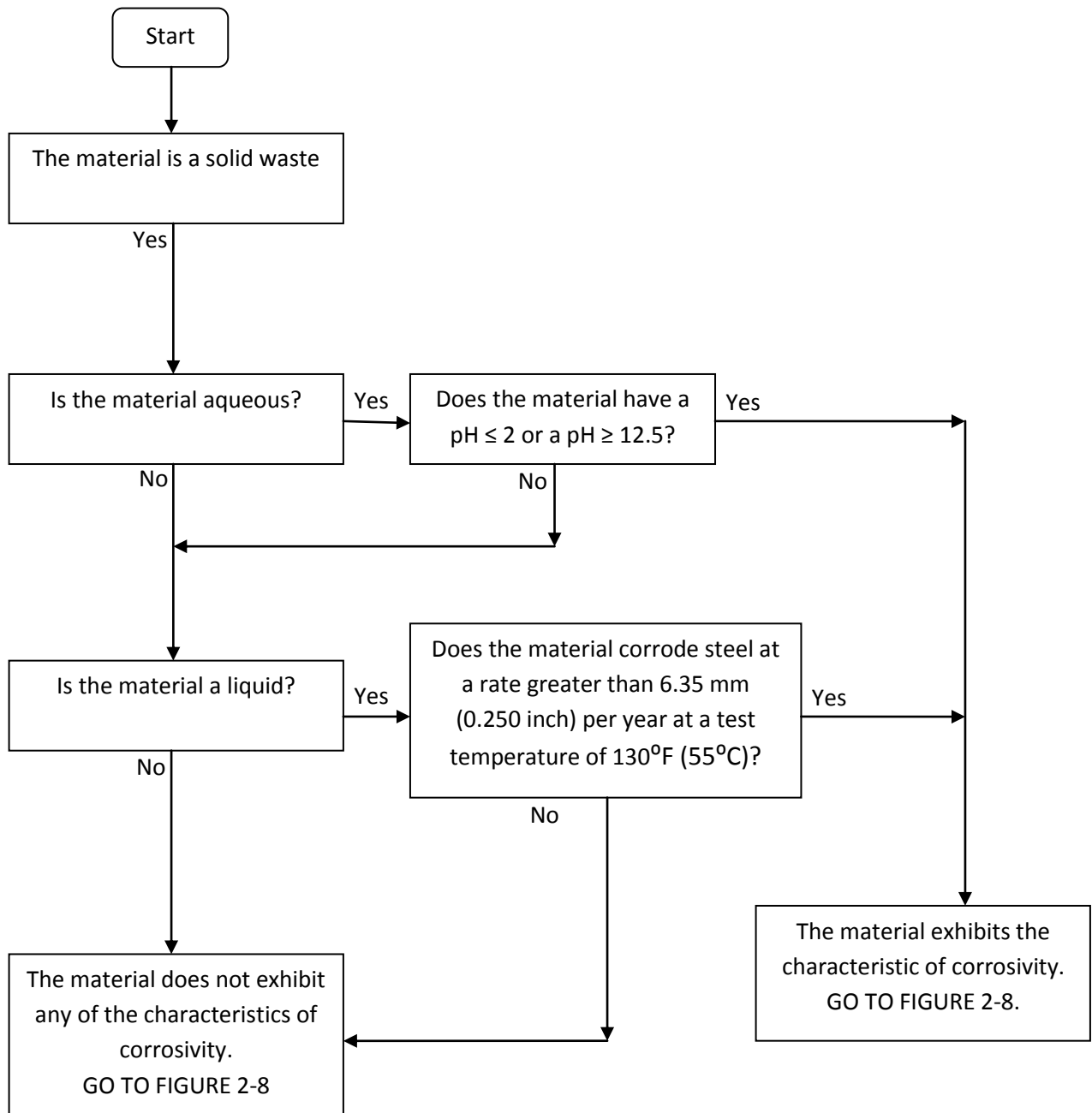


Figure II-6
LOGIC DIAGRAM FOR DETERMINING IF A SOLID WASTE
EXHIBITS THE CHARACTERISTICS OF IGNITABILITY

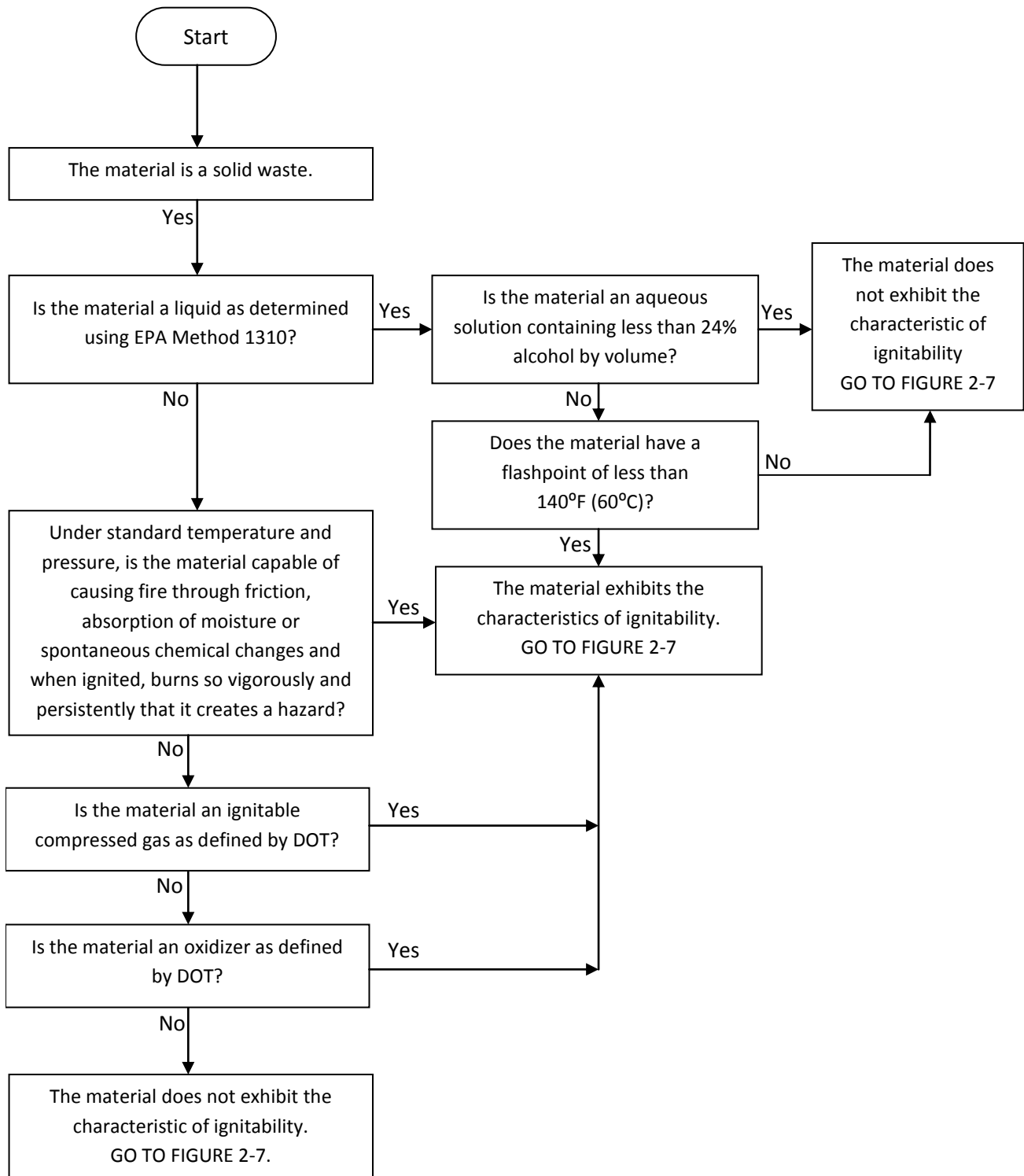
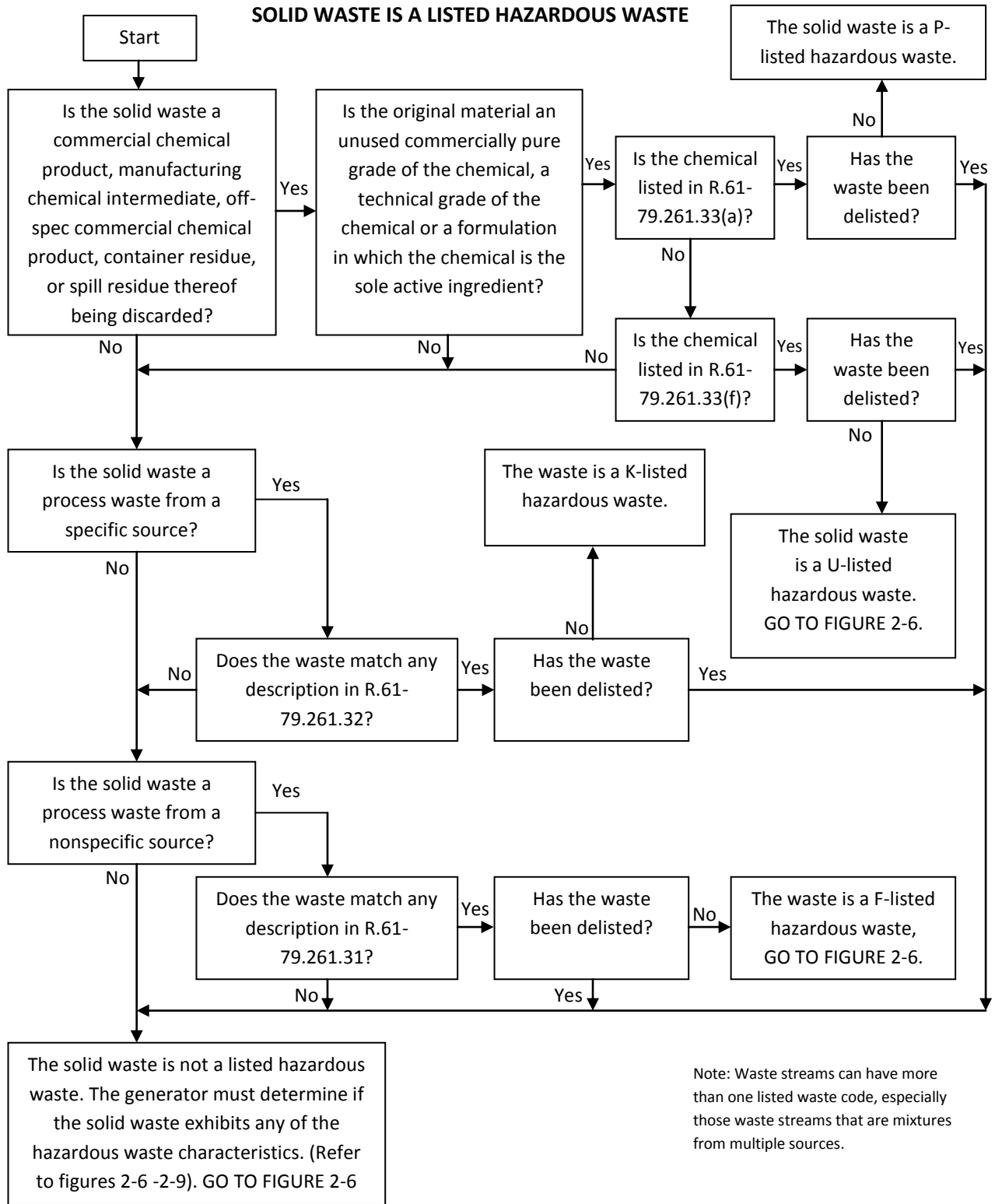


Figure II-5

**LOGIC DIAGRAM FOR DETERMINING IF A
SOLID WASTE IS A LISTED HAZARDOUS WASTE**



Note: Waste streams can have more than one listed waste code, especially those waste streams that are mixtures from multiple sources.

Figure II-7
LOGIC DIAGRAM FOR DETERMINING IF A SOLID WASTE
EXHIBITS THE CHARACTERISTIC OF REACTIVITY

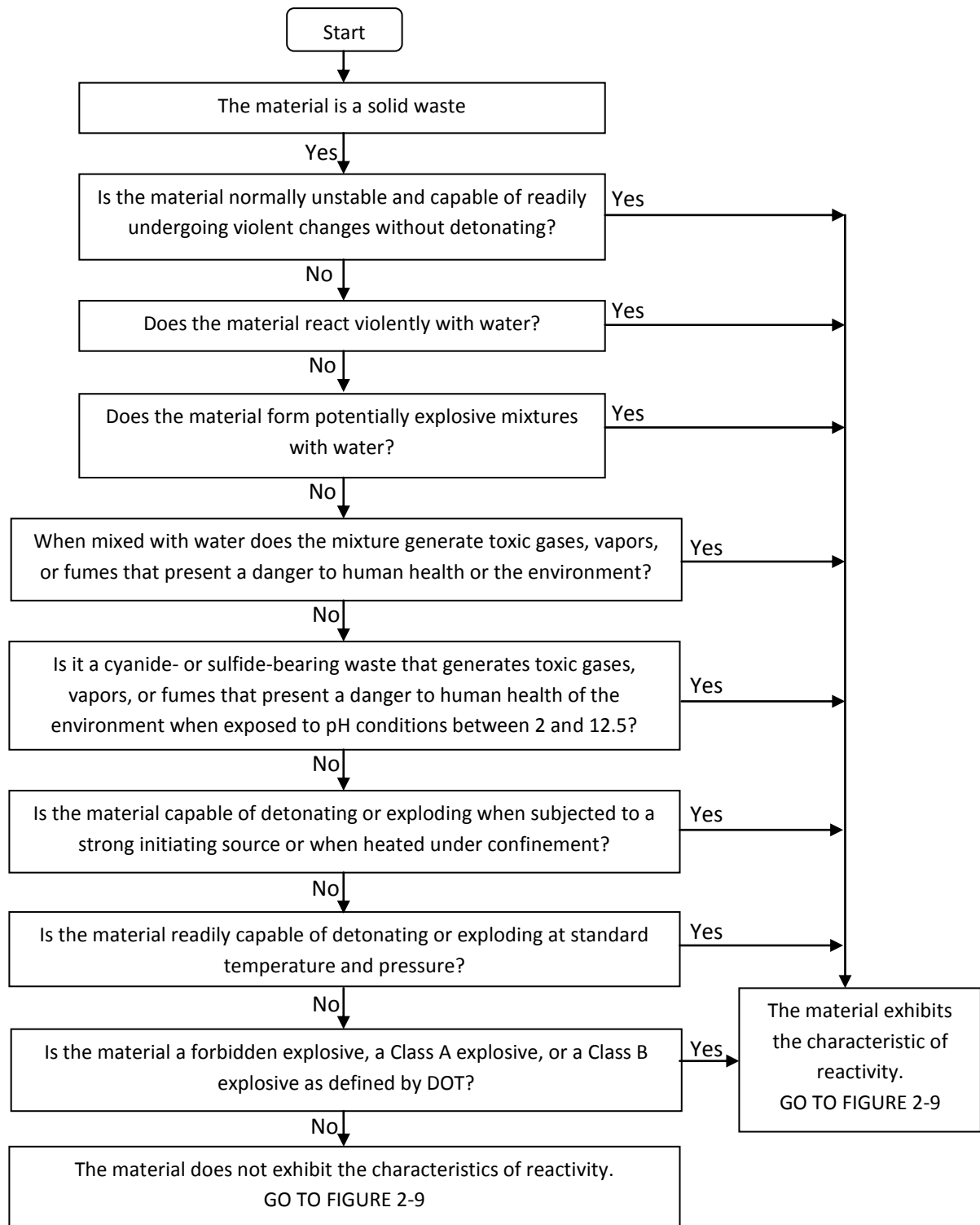


Figure II-9

LOGIC DIAGRAM FOR DETERMINING IF A SOLID WASTE
EXHIBITS THE CHARACTERISTIC OF TOXICITY 1.0²

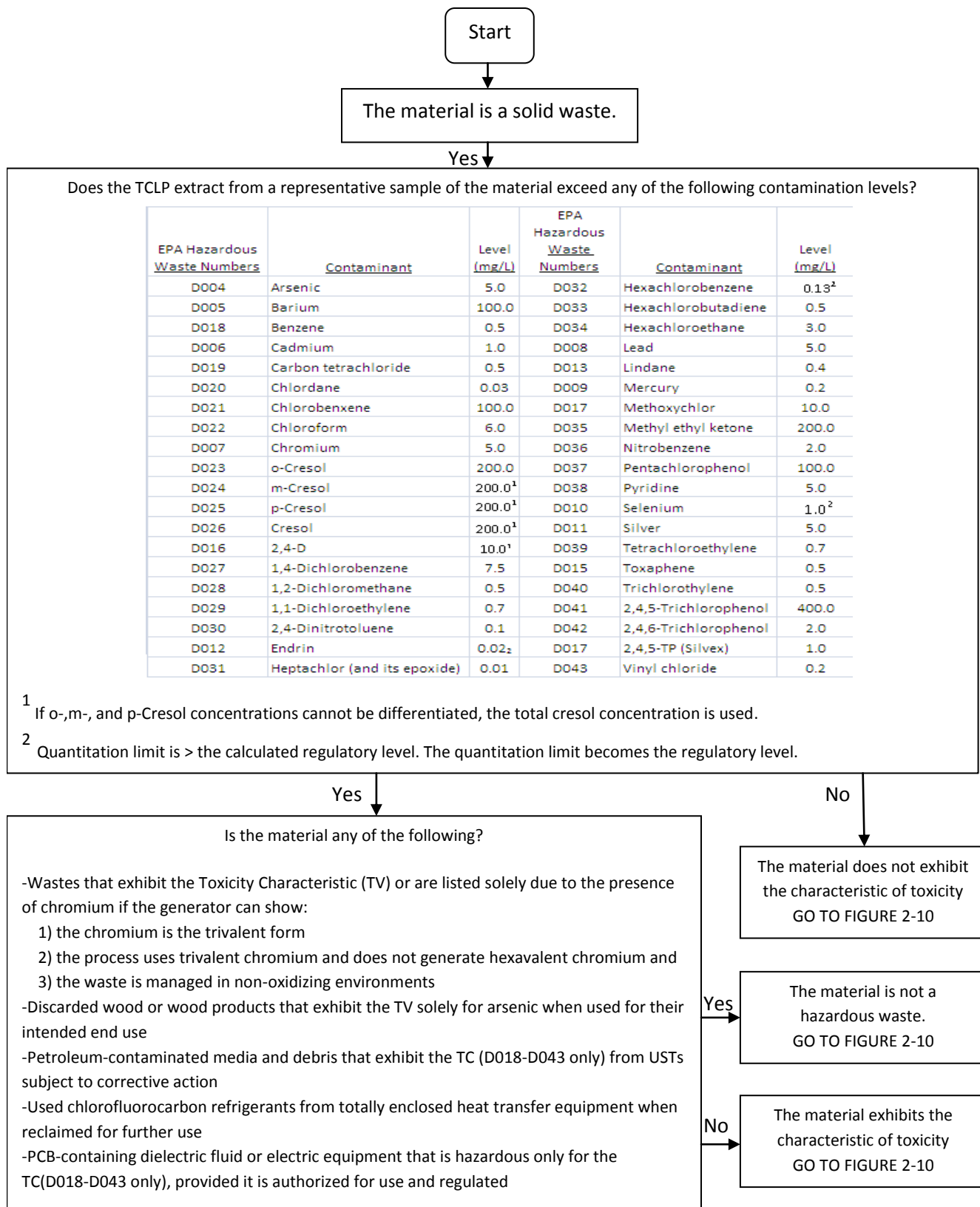


Figure II-2
EXCLUSIONS FROM THE DEFINITION OF
SOLID WASTE AND HAZARDOUS WASTE

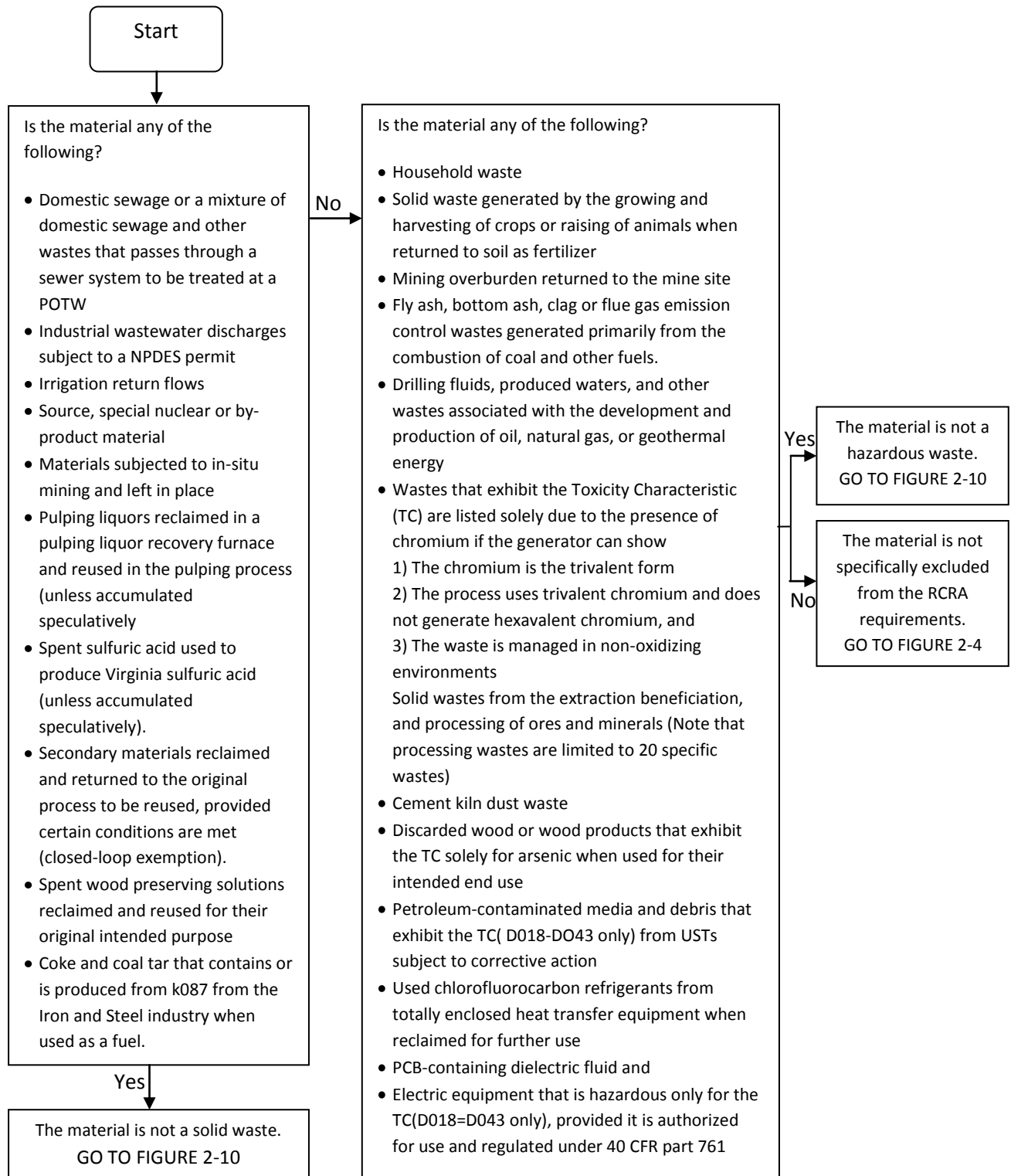


Figure II-10
LOGIC DIAGRAM FOR IDENTIFYING
MISCELLANEOUS REGULATED WASTES

