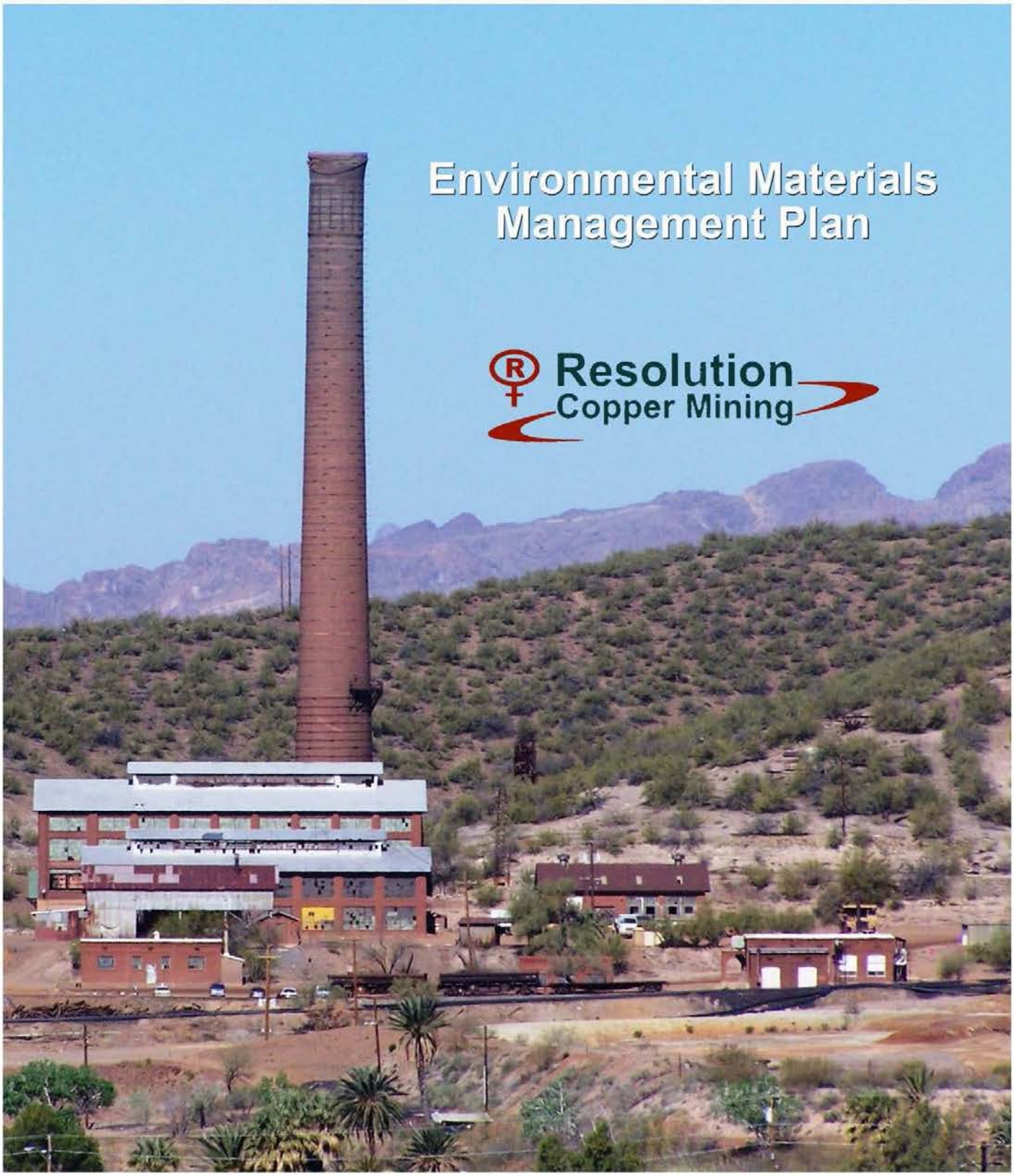
APPENDIX V

Environmental Materials Management Plan

Environmental Materials Management Plan

Resolution Copper Mining



RESOLUTION COPPER MINING

ENVIRONMENTAL MATERIALS MANAGEMENT PLAN

September 2014

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Appendix A – Procedures for Specific Waste Streams
Appendix B – Forms

Acronyms, Definitions and Regulations

1A1 (49 CFR 178.502) – Steel drum with a non-removable head.

1A2 (49 CFR 178.502) – Steel drum with a removable head.

A.A.C. – Arizona Administrative Code

Accumulation End Date – In satellite accumulation areas, the date at which the container is filled (used interchangeably with Accumulation Start Date).

Accumulation Start Date (40 CFR 262.34) – The date at which hazardous waste was first placed in the hazardous waste storage container (**for satellite accumulation containers, the accumulation start date is the date the container is filled**).

ACM – Asbestos containing material

Acutely Hazardous – A hazardous waste where a small amount can cause severe health effects. Wastes designated in 40 CFR 261.33 and A.A.C. R18-8-261.A ("P" listed wastes and "F" listed dioxins).

ADEQ – Arizona Department of Environmental Quality

ADHS – Arizona Department of Health Services

ADOT – Arizona Department of Transportation

AHERA – Asbestos Hazard Emergency Response Act

A.R.S – Arizona Revised Statutes

Asbestos (40 CFR 61.141) – Naturally occurring fibers used in thermal insulation, building materials, equipment, tank liners, and transite materials that may be harmful if inhaled. Asbestos means, the asbestos form varieties of serpentinite (chrysotile) reibecktite (crodidolite) cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

AST – Aboveground storage tank

AZSERC – Arizona Emergency Response Commission

BTEX - Benzene, Toluene, Ethylbenzene, Xylenes

CFR – Code of Federal Regulations

a. 29 CFR contains regulations pertaining to the safety and health of workers;
b. 30 CRF contains regulations pertaining to the safety and health of miners;
c. 40 CFR contains regulations pertaining to the protection of the environment; and
d. 49 CFR contains regulations pertaining to the transportation of hazardous materials.

Caustic – A corrosive material that is alkaline as opposed to acid (pH equal to or great than 12.5 for RCRA regulations).

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Characteristics of Hazardous Waste (40 CFR 261 Subpart C) – Any waste that possesses the following characteristics:

a. *Ignitability (40 CFR 261.21)*
   (1) A liquid having a flash point at or below 140°F (60°C).
   (2) It is not a liquid and is capable 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 173.115(a)
   (4) It is an oxidizer as defined in 49 CFR 173.127(a).
b. *Corrosivity (40 CFR 261.22)*
   (1) It is aqueous and has a pH ≤ 2 or ≥ 12.5.
   (2) It is a liquid and corrodes steel at a rate greater than 0.250" (6.35 mm) per year, at a test temperature of 130°F (54°C).
c. *Reactivity (40 CFR 261.23)*
   (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 reaction at standard temperature and pressure.
   (8) It is a forbidden explosive as defined in 49 CFR 173.54, or a Class A (Division 1.1 or 1.2) explosive or a Class B (Division 1.2 or 1.3) explosive as defined in 49 CFR 173.50 and 173.53.
d. *Toxicity (40 CFR 261.24)*
   (1) A solid waste exhibits the characteristic of toxicity if a representative sample contains any contaminants equal to or greater than the respective values listed in Table 1*. The following table lists maximum concentrations of contaminants of concern for the toxicity characteristic for RCM Operations.

EPA Waste Code	Contaminant	Regulatory Level (mg/L)
D004	Arsenic	5.0
D005	Barium	100.0
D018	Benzene	0.5
D006	Cadmium	1.0
D007	Chromium	5.0
D008	Lead	5.0
D009	Mercury	0.2
D035	Methyl Ethyl Ketone	200.00
D010	Selenium	1.0
D040	Trichloroethylene	0.5

* This is not a complete list. There are many other contaminants with listed regulatory levels.

Combustible Liquid (40 CFR 173.120(b)) – Any liquid with a flash point above 140°F (60°C) and below 200°F (93°C).

Conditionally Exempt Small Quantity Generator (CESQG) (40 CFR 261.5(g)(2)) – A generator that generates less than 100 kg (220 lbs) of a hazardous waste or less than one kg (220 lbs)of acutely hazardous wastes in a calendar month. CESQG's must not accumulate more than 1,000 kg (2,200 lbs.) of hazardous waste onsite at any time.

CWA - Clean Water Act

Declaration of Environmental Use Restriction (DEUR) (A.A.C. R18-7-208) – An environmental document that has been completed in which the property owner elects to leave contamination on a property that exceeds the applicable residential standard for the property or elects to use an institutional control or an engineering control to meet requirements.

Disposal Facility (40 CFR 260.10) – A permitted facility for final disposal of hazardous wastes.

DOT – Department of Transportation.

DOT Approved – Drums and containers available for shipment must be in good condition to comply with DOT regulations. Drums/Containers not approved for transport may contain any one of the following conditions:

a. Interior of the drum is badly rusted.
b. Badly bulged head of bottom.
c. Stripped bung threads.
d. Broken or missing flange.
e. Pipe flange or gate valve welded or rusted in bung.
f. Any hole in the drum.
g. Top or bottom chimes with sharp dents.
h. Any significant dents on drum especially on the rolling hoops.

Empty Container (40 CFR 261.7) – A container, the contents of which have the following characteristics:

a. No more than 2.5 cm (one inch) of residue remain on the bottom of the container or inner liner, or
b. No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 119 gallons in size, or
c. No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 119 gallons in size.
d. A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric pressure.

EPA – Environmental Protection Agency.

EPA Identification Number (40 CFR 260.10; 40 CFR 262.12) – Number assigned by the EPA to a generator, transporter, or a treatment, storage, or disposal facility (TSDF). As of 1996, EPA identifications numbers were changed to be RCRA Identification Numbers.

EPCRA – Emergency Planning and Community Right-to-Know Act

Flammable Liquid (49 CFR 173.120(a)) – A liquid having a flash point below 140°F (60.5°C), or any material in a liquid phase with a flash point at or above 100°F (37.8°C)that is intentionally heated and offered for transportation or transported at or below its flash point in a bulk packaging.

Flash Point (49CFR 173.120(c)) – The minimum temperature at which a liquid gives off vapor in a sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

FAR – Facility Annual Report

Generator (40 CFR 260.10) – Any person whose act or process produces hazardous waste identified or listed in Part 261 or whose act first causes a hazardous waste to become subject to regulation.

Generator Knowledge (40 CFR 262.11(c)(2)) – A Generator may apply knowledge of the hazard characteristic(s) of the waste in light of testing the materials and processes used.

Hazardous Material (40 CFR 171.8) – A substance or material capable of posing an unreasonable risk to health, safety, and property.

HMTA - Hazardous Materials Transportation Act

Hazmat Employee (40 CFR 171.8) – A person who in the course of employment directly affects hazardous materials transportation safety. This term includes an individual who:

a. Loads, unloads, or handles hazardous materials;
b. Tests, reconditions, repairs, modified, marks or otherwise represents containers, drums, or packaging as qualified for use in the transportation of hazardous materials;
c. Prepares hazardous materials for transportation;
d. Is responsible for safety of transporting hazardous materials; or
e. Operates a vehicle used to transport hazardous materials.

Hazardous Waste (40 CFR 261.3) – A solid waste is a hazardous waste when it meets any of the following criteria:

a. The waste is a listed hazardous waste.
b. The waste is a mixture of a solid waste and one or more listed hazardous wastes.
c. When the waste exhibits any of the characteristics of a hazardous waste.

HazWoper – Hazardous Waste Operations and Emergency Response

HSE – Health Safety and Environmental

kg – Kilogram – A kilogram is roughly equivalent to 2.2 lbs.

Large Quantity Generator (LQG) (40 CFR 262.34(b)) – A generator that generates greater than 1,000 kg (2,200 lbs.) of hazardous waste or 2.2 lbs. of acute hazardous waste in a calendar month. A LQG may accumulate hazardous waste onsite for 90 days or less (once the waste is in a central accumulation area – timing requirements do not apply to satellite accumulation areas) without a permit.

LDR - Land Disposal Restriction

LEPC – Local Emergency Planning Committee

LQHUW – Large Quantity Handler of Universal Wastes

Manifest (40 CFR 260.10)) – The shipping document EPA form 8700-22 for hazardous and PCB wastes, and if necessary form 8700-22A, originated and signed by the generator in accordance with the instruction included in the appendix to Part 262.

MSHA – Mine Safety and Health Administration.

NESHAP – National Emission Standards for Hazardous Air Pollutants

Non-fuel, non-solvent petroleum product (A.A.C. R18-8-1601(6)) – Petroleum-based substance refined from virgin crude oil that is not used as a solvent or fuel including minerals oils and hydraulic oils.

OSHA (29 CFR) – Occupational Safety and Health Administration.

PAH - Polynuclear aromatic hydrocarbons

PCB (40 CFR 761) – Polychlorinated biphenyl

PCS – Petroleum Contaminated Soil

PPE – Personal Protective Equipment

ppm – parts per million

RCM – Resolution Copper Mining, LLC

RCRA (40 CFR 260-299) – Resource Conservation and Recovery Act; also known as the "cradle to grave" regulation which tracks hazardous waste to final disposal.

RCRA Identification Number – Formerly known as EPA Identification Numbers. Number assigned by the EPA to a generator, transporter, or a treatment, storage, or disposal facility (TSDF). As of 1996, EPA identifications numbers were changed to be RCRA Identification Numbers.

Rebuttable Presumption (40 CFR 261.3; 40 CFR 279.10(b)(1)(ii)) – For used oil with halogen content greater than 1,000 ppm, a generator may rebut the presumption that hazardous waste was mixed with used oil.

Reportable Quantity (RQ) – Identifies this material has a hazardous substance which is reportable to EPA and DOT in the event of a spill exceeding the reportable quantity identified in Appendix A to 49 CFR §172.101. Also, CERCLA lists additional RQs.

Satellite Accumulation Area (40 CFR 262.34(c)) – Designated area to accumulate up to 55 gallons of hazardous waste or one quart of acutely hazardous waste in containers at or near the point of generation and under the control of the operator. Arizona regulations allow a site to accumulate up to 55 gallons per waste stream or one quart of acutely hazardous waste in a satellite accumulation area.

SDS –Safety Data Sheet

SDWA – Safe Drinking Water Act

Small Quantity Generator (SQG) (40 CFR 262.34(d)) – A generator who generates greater than 100 kg (220 lbs.) but less than 1000 kg (2,200 lbs.) of hazardous waste in a calendar month (and the quantity of waste accumulated onsite never exceeds 6,000 kg [13,200 lbs.]). A SQG may accumulate hazardous waste onsite for 180 days or less without a permit.

SQHUW - Small Quantity Handler of Universal Wastes

Solid Waste (40 CFR 261.2) – Any discarded material that is abandoned, recycled, or inherently waste-like that is not listed in the exclusions. A solid waste may be solid, liquid, or semi-solid or may be a material which contained gaseous materials that can no longer be used for its intended purpose.

SPCC - Spill Prevention, Control and Countermeasures (40 CFR 112) – A plan to avoid oil spills and minimize impacts of spills to public health and the environment

SWPPP - Storm Water Pollution Prevention Plan - a plan required for an industrial facility that discharges stormwater

TCLP – Toxicity Characteristics Leaching Procedure

TOC – Total Organic Content

TPH – Total Petroleum Hydrocarbons

TRI - Toxic Chemical Release Inventory

TSCA – Toxic Substance Control Act

TSD – Transfer, Storage and Disposal

TSDF – Transfer, Storage and Disposal Facility

VOC – Volatile Organic Compounds

List of Applicable Federal and State Regulations

Section	Citation	Description
Training	29 CFR 1910-120	OSHA HazWoper regulations
Chemical contaminated soils and spills information	40 CFR 110	Discharge of oil
Waste Identification	40 CFR 261.2 through 261.6	Hazardous wastes and solid waste definitions and exemptions
Waste Management	40 CFR 261.7	Residuals of hazardous wastes in empty containers
Waste Identification	40 CFR 261 Subpart C	Hazardous waste characterization definitions (ignitability, corrosivity, reactivity, toxicity [TCLP])
Waste Identification	40 CFR 261 Subpart D	Lists of hazardous wastes
Waste Identification	40 CFR 261 Appendices	Hazardous waste test methods and basis for listing hazardous wastes
Waste Identification	40 CFR 262 Subpart A	Hazardous waste determination

Section	Citation	Description
Waste Management	40 CFR 262 Subpart C	Pre-transportation requirements for hazardous wastes including labeling, packaging, marking, and accumulation
Recordkeeping and Reporting	40 CFR 262 Subpart D	Hazardous waste generator recordkeeping and reporting requirements
Training	40 CFR 265 Subpart B	General facility standards for hazardous waste treatment, storage and disposal facilities.
Waste Management	40 CFR 265 Subpart I	Use and management of containers
Training	40 CFR 265.19	RCRA regulations
Specific Waste Stream Management	40 CFR 266 Subpart G	Spent acid batteries requirements
Specific Waste Stream Management	40 CFR 268	Land disposal restrictions
Waste Management	40 CFR 273	Universal waste management standards
Specific Waste Stream Management	40 CFR 279	Used oil management standards
Recordkeeping and Reporting	40 CFR 761	PCB information
Chemical contaminated soils and spills information	40 CFR 302	Superfund, emergency planning and community right to know programs: designation, RQ, and notification
Chemical contaminated soils and spills information	40 CFR 355	Emergency planning and notification
Training	49 CFR 172	DOT HazMat regulations
Waste Management	49 CFR 172 Subpart C	DOT HazMat regulations – shipping papers
Waste Management	49 CFR 172 Subpart D	DOT HazMat regulations - marking
Waste Management	49 CFR 173 Subpart D	Definitions, classification , and packing group assignments for hazardous wastes (except for Class I and Class 7, explosives and radioactive material)
Specific Waste Stream Management	A.R.S. Title 44 Chapter 9, Article 8	Arizona’s waste tire disposal requirements
Waste Management	A.R.S. Title 49 Chapter 1, Article 3	Arizona’s environmental nuisances
Landfills	A.R.S. Title 49 Chapter 4, Article 4	Arizona’s regulations of solid wastes
Waste Management	A.R.S. Title 49 Chapter 4, Article 7	Arizona used oil management standards
Specific Waste Stream Management	A.R.S. Title 44 Chapter 9, Article 9	Arizona’s sale and disposal of batteries requirements
Pollution Prevention and Waste Minimization	A.R.S. Title 49 Chapter 5, Article 4	Arizona’s pollution prevention requirements

Section	Citation	Description
Waste Management	A.R.S. Title 49 Chapter 5, Article 2	Arizona's hazardous waste management
Specific Waste Stream Management	A.A.C. R11-1-1501 though 1521	Arizona's mine acid plant and leaching requirements
Waste Identification	A.A.C. R18-7 -203	Arizona's soil remediation standards
Waste Management	A.A.C. R18-8-262	Arizona's standards applicable to generators of hazardous waste
Waste Management	A.A.C. R18-8-273	Arizona's universal waste standards
Waste Management	A.A.C. R18-8-280	Arizona's hazardous waste program compliance requirements
Specific Waste Stream Management	A.A.C. R18-13-1201 through 1210	Arizona's waste tire standards

Quick Reference Guide

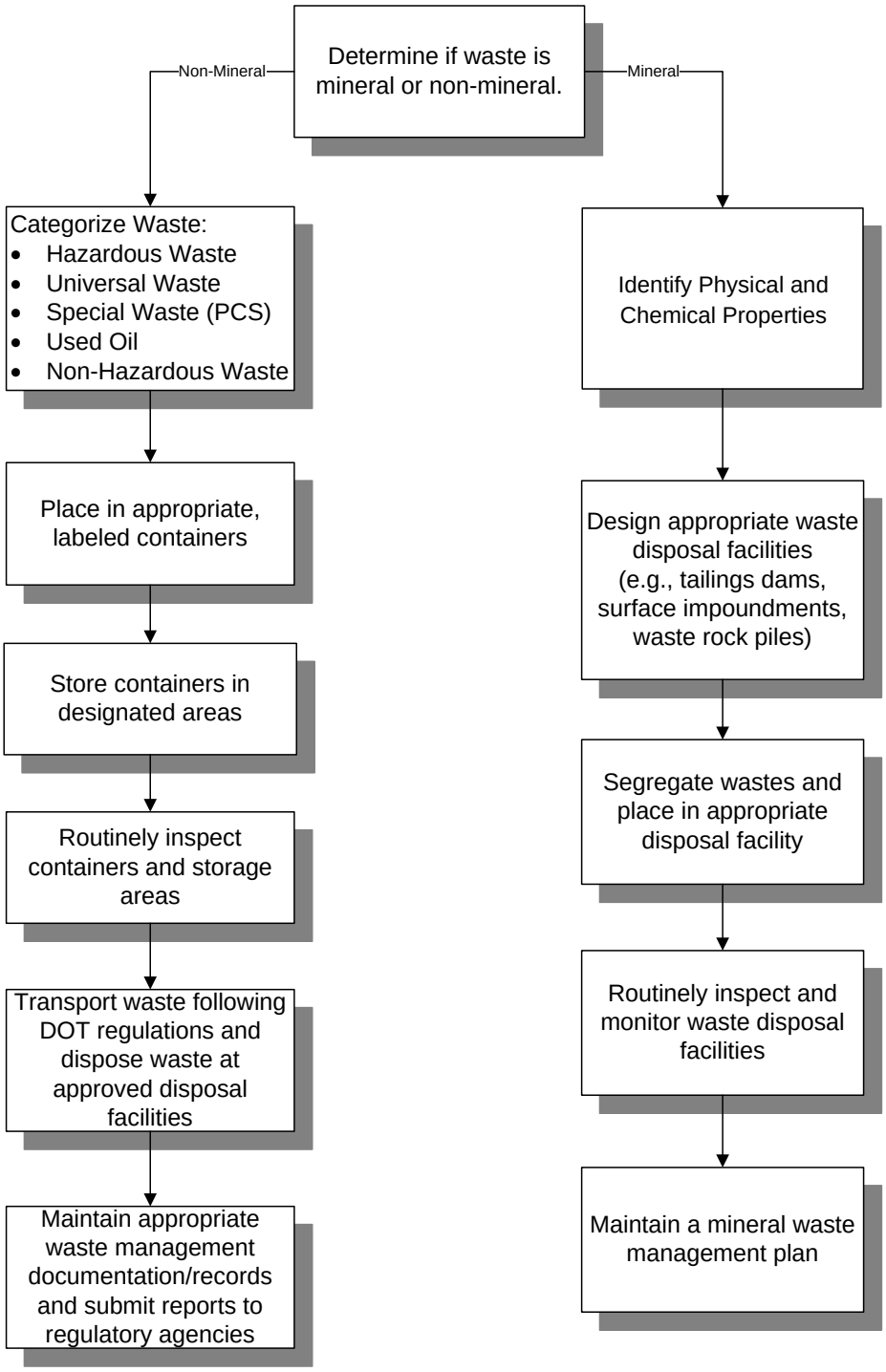
Roles & Responsibilities

The following table provides a general summary of roles and responsibilities for Resolution Copper Mining, LLC (RCM) employees and contractors with regards to environmental materials management at RCM managed facilities.

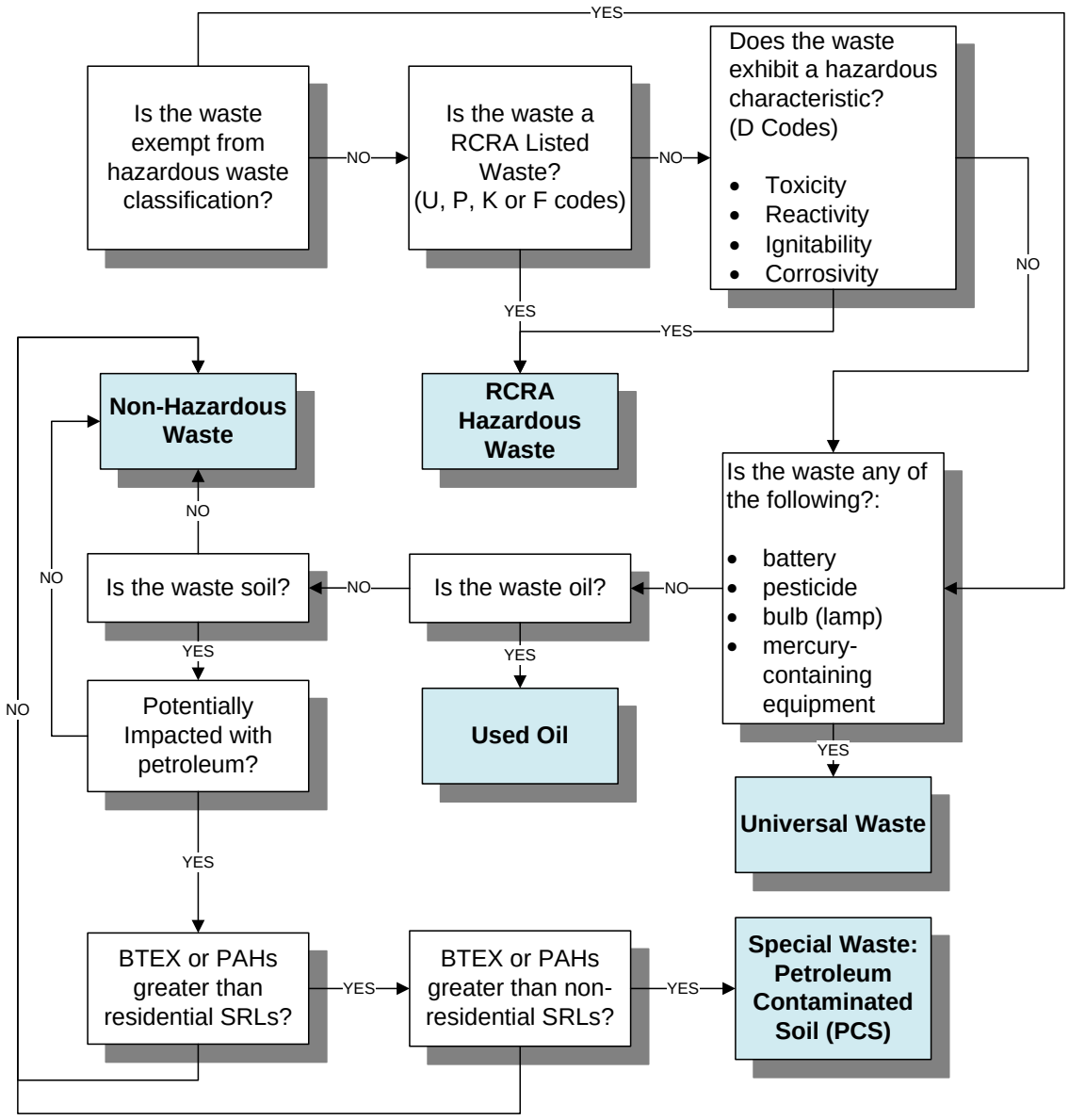
Role	Responsibilities
RCM Environmental Manager	Program approval, guidance, and oversight
RCM HSE	Chemical review and approval through MaxCom
RCM Environmental Staff	Plan implementation and enforcement and employee and contractor support
RCM Employees and Contractors	Compliance with MaxCom and Plan guidelines

Flow Chart Operational Procedures

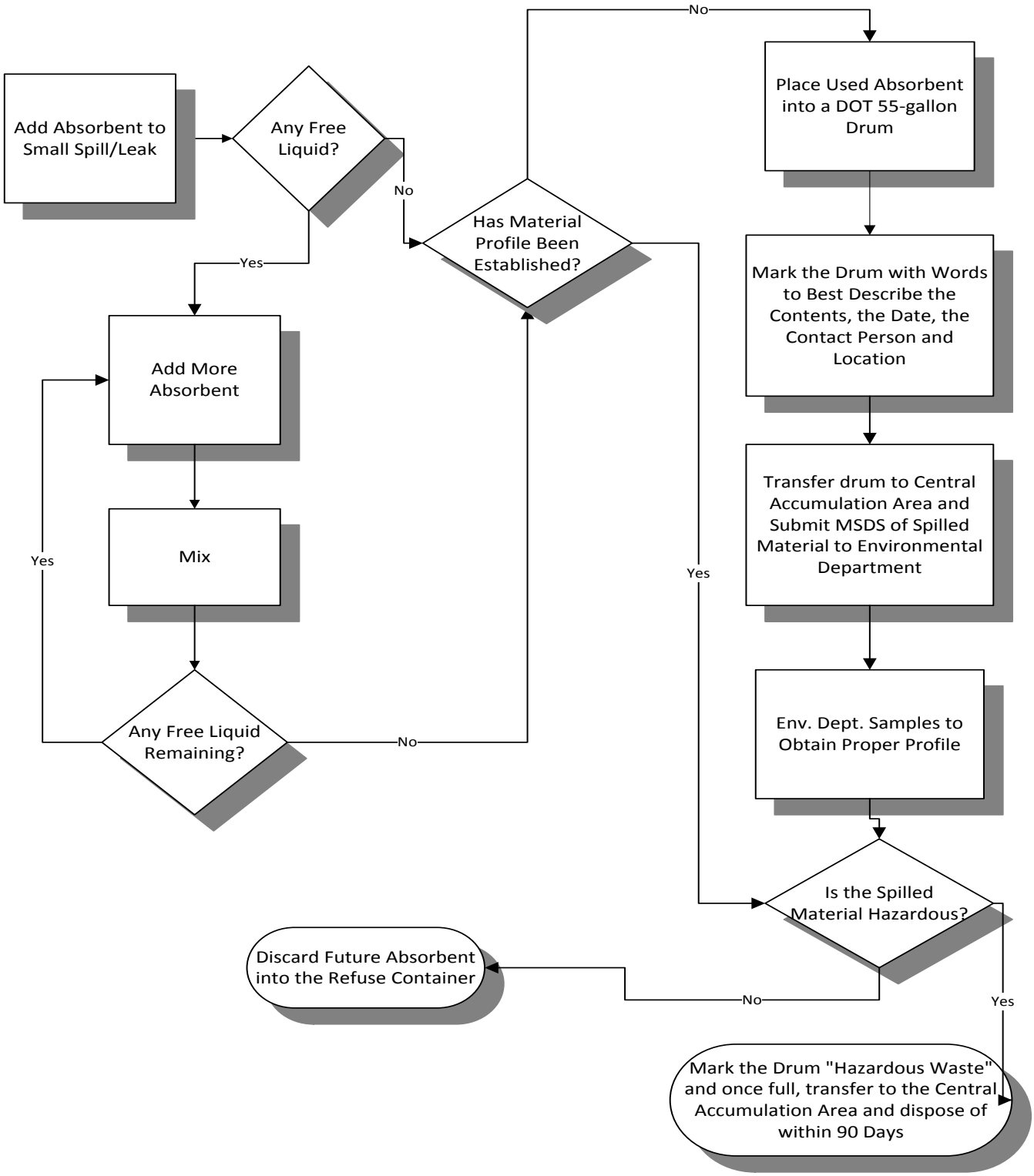
- Waste Management Overview
- Non-mineral Waste Identification Overview
- Specific Waste Stream Procedures
  - Used Absorbent Handling Procedures for Operators
  - Waste Aerosol Can Handling Procedures for Operators
  - Used / Waste Antifreeze Handling Procedures for Operators
  - Asbestos Handling Procedures for Operators
  - Spent Batteries Handling Procedures for Operators
  - CFC - Freon™ Handling Procedures for Operators
  - Chemical Contaminated Soils and Spill handling Procedures for Operators
  - New Cleaning and Solvent Product Approval Handling Procedures for Operators
  - Compressed Gas Cylinder Handling Procedures for Operators
  - Used/Waste Diesel Handling Procedures for Operators
  - Empty Determination and Disposal Procedures for Non-Aerosol Containers for Operators
  - Used Grease Handling Procedures for Operators
  - Used Gasoline Handling Procedures for Operators
  - Landfill Procedures for Operators
  - Oil-Filled Electrical Devices / PCB Ballasts / Capacitors (not Transformers)Handling Procedures for Operators
  - Oil-Filled Electrical Devices Transformers Handling Procedures for Operators
  - Used Oil Filter Handling Procedures for Operators
  - Intact Used Mercury Lamp (Universal Waste) Handling Procedures for Operators
  - Broken Mercury Lamp (Hazardous Waste) Handling Procedures for Operators
  - Spent Mercury Thermostat Handling Procedures for Operators
  - Used Paint (Latex/Non-Hazardous) Handling Procedures for Operators
  - Waste Paint Materials Handling Procedures for Operators
  - Shop Rags Handling Procedures for Operators
  - Scrap Metal Handling Procedures for Operators



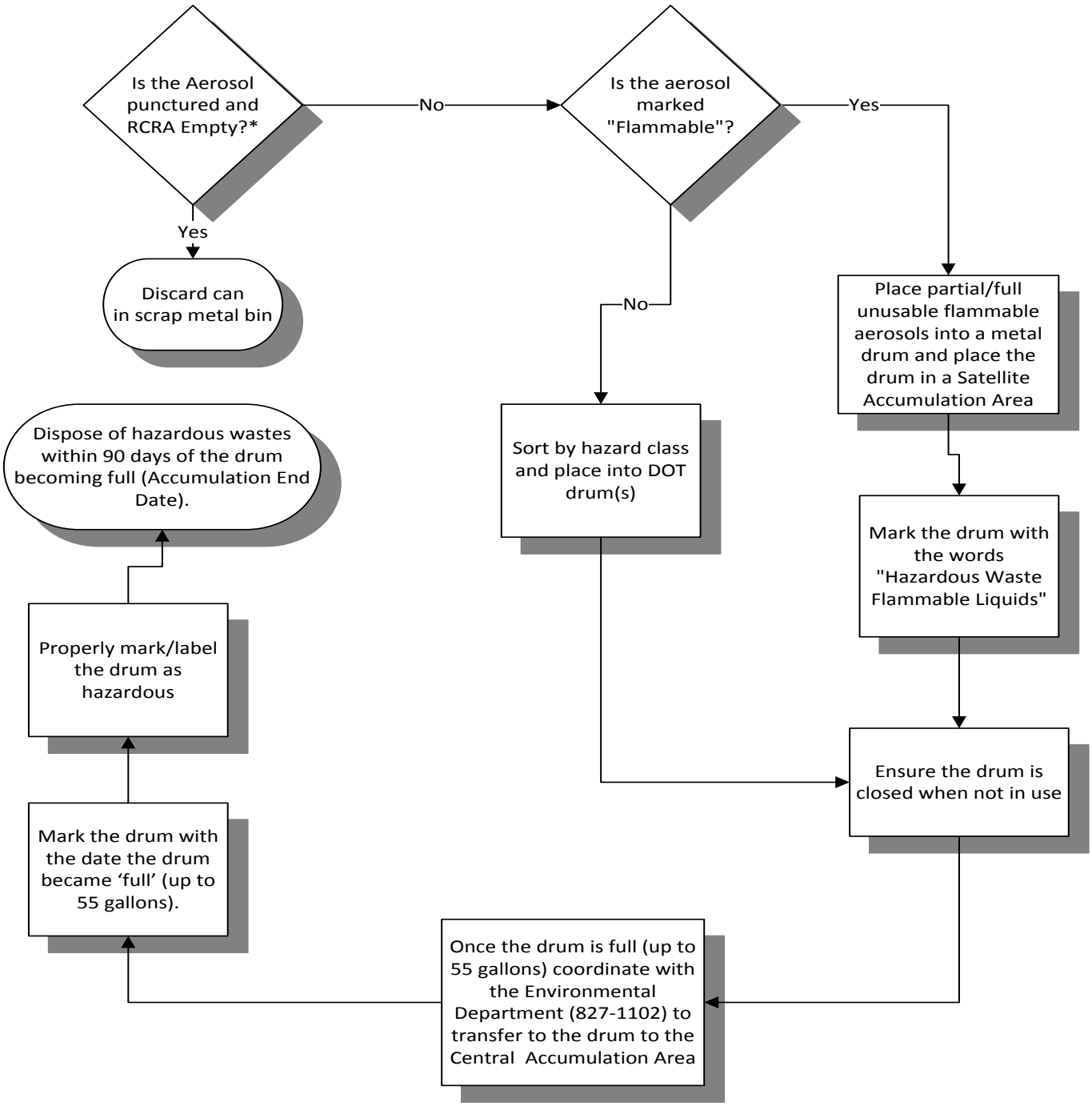
WASTE MANAGEMENT OVERVIEW



NON-MINERAL WASTE IDENTIFICATION OVERVIEW

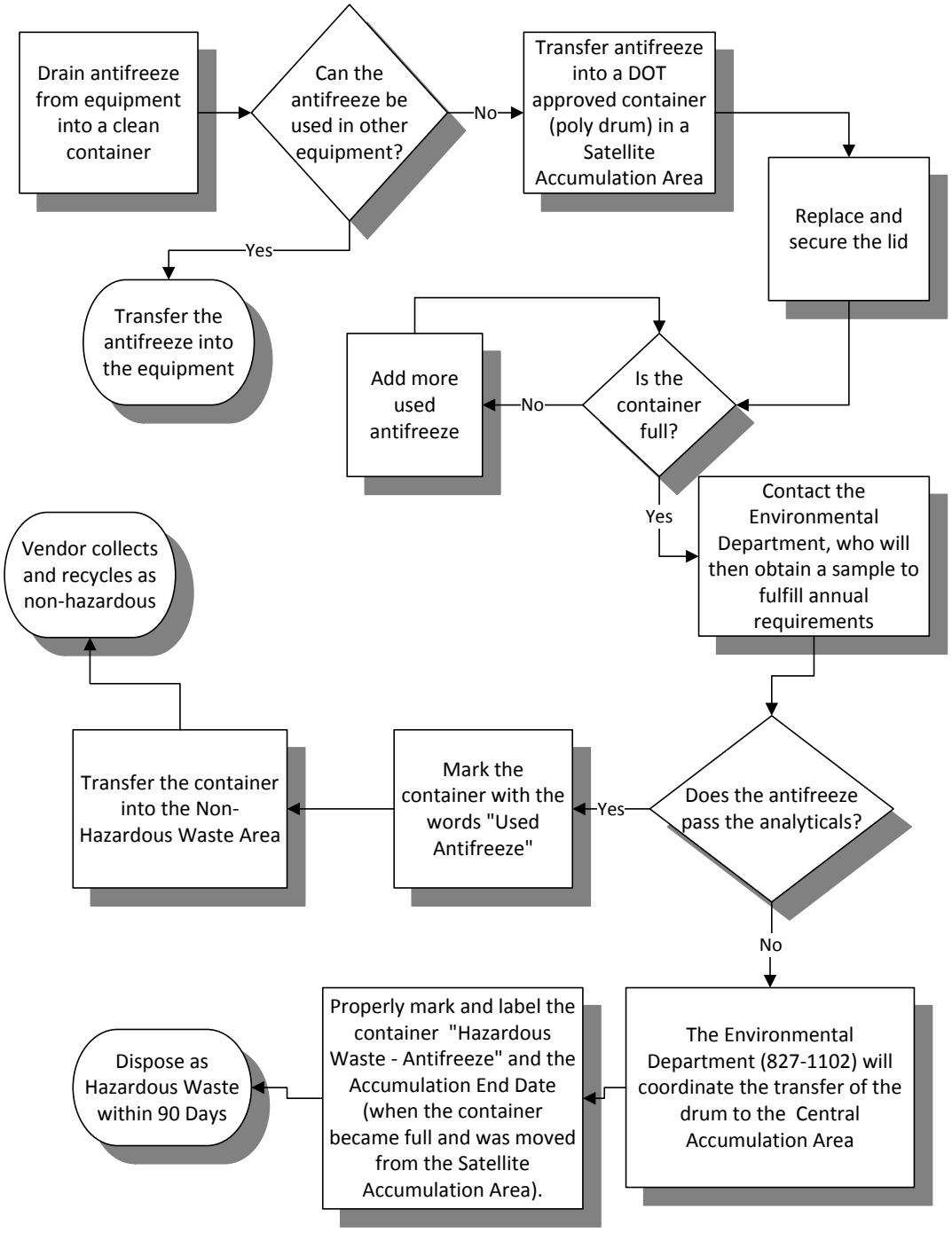


USED ABSORBENT HANDLING PROCEDURES FOR OPERATORS

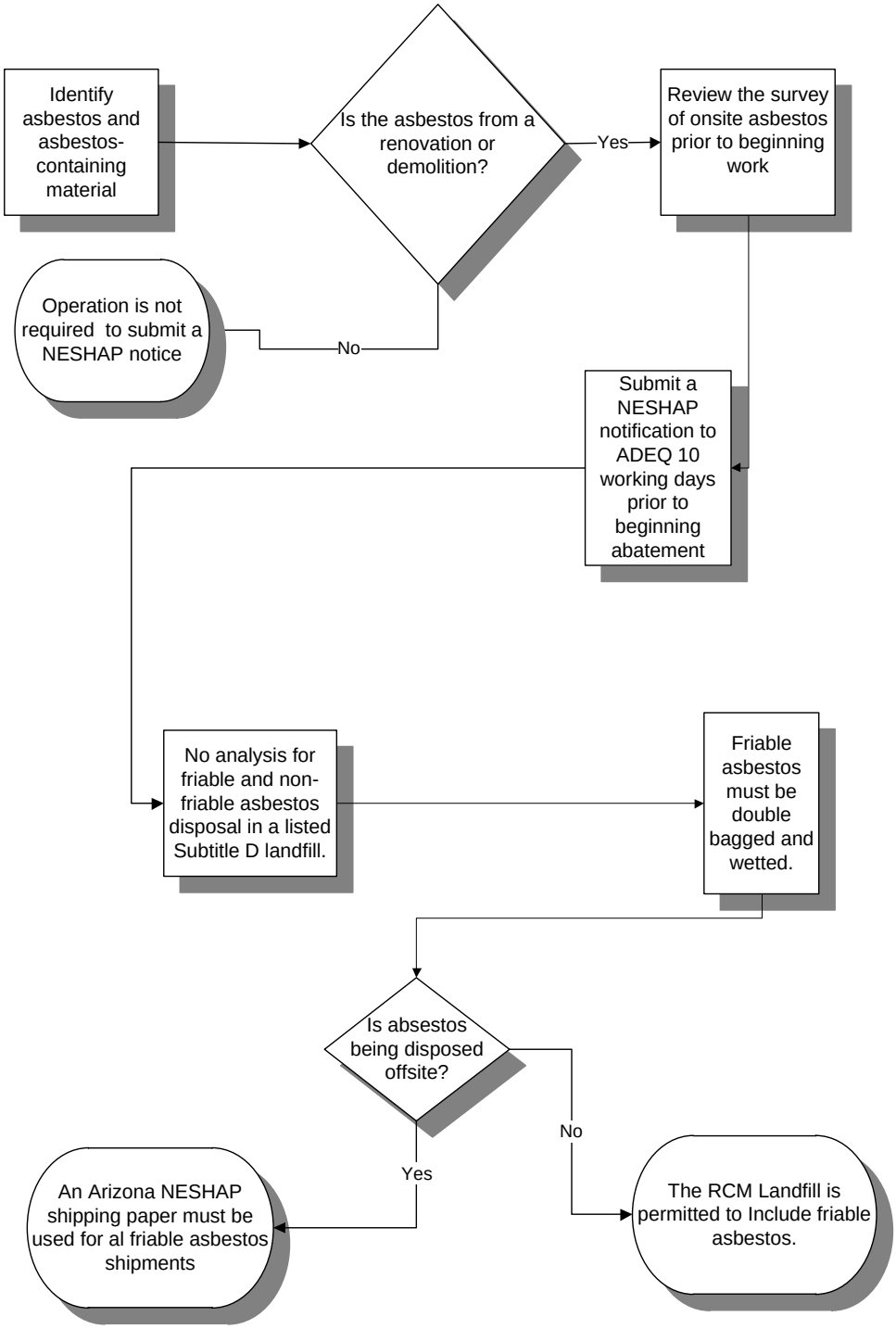


WASTE AEROSOL CAN HANDLING PROCEDURES FOR OPERATORS

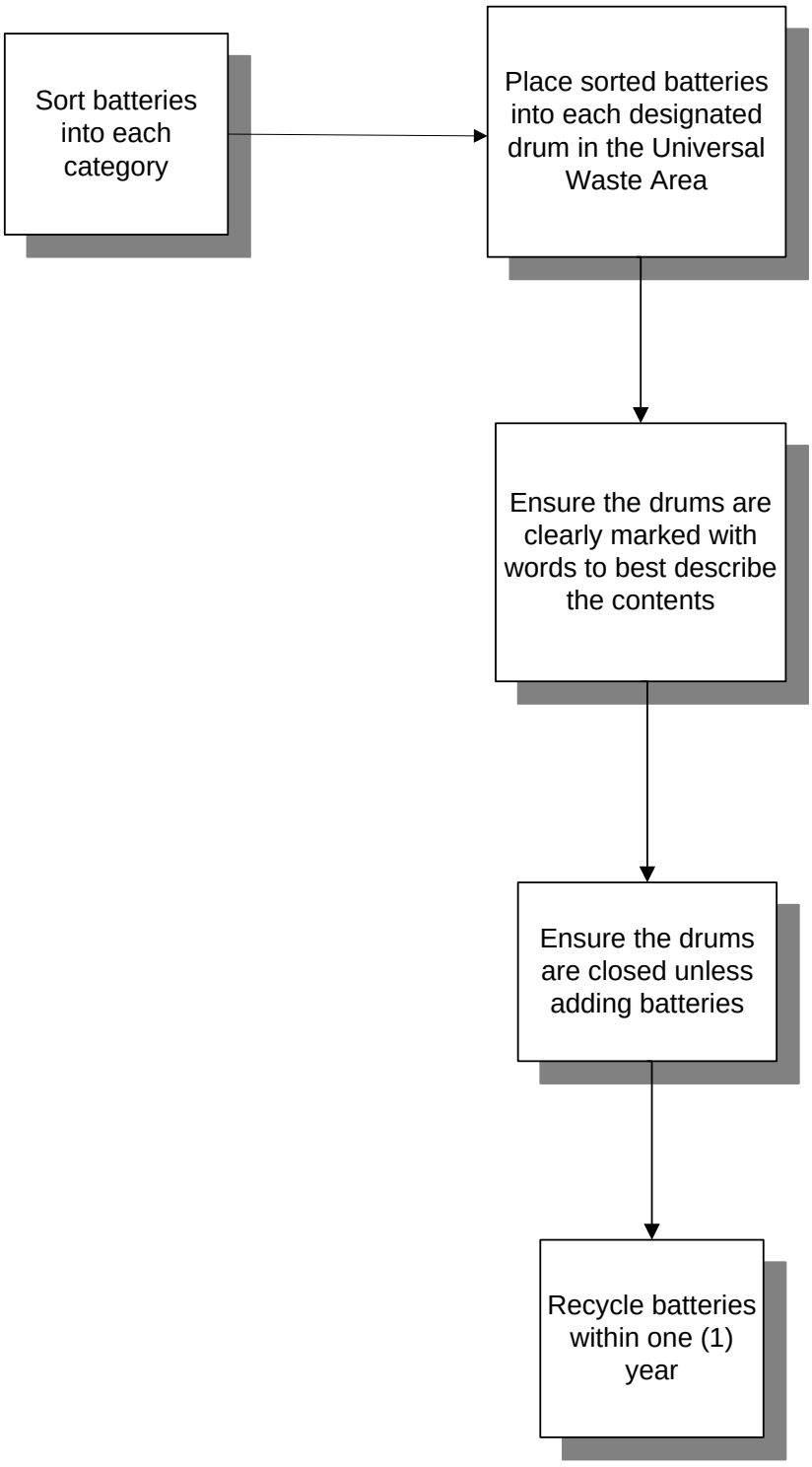
* Refer to Sections 1.13 and 2.14



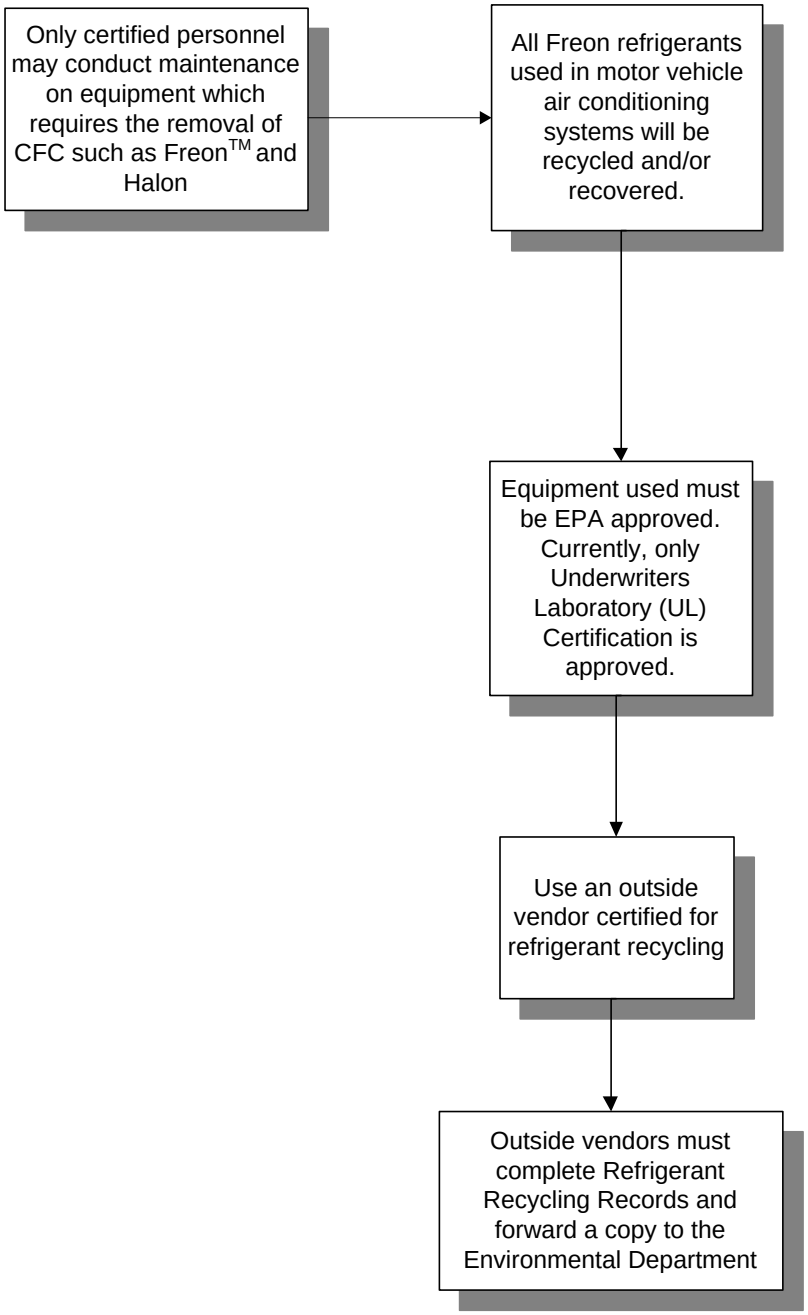
USED / WASTE ANTIFREEZE HANDLING PROCEDURES FOR OPERATORS



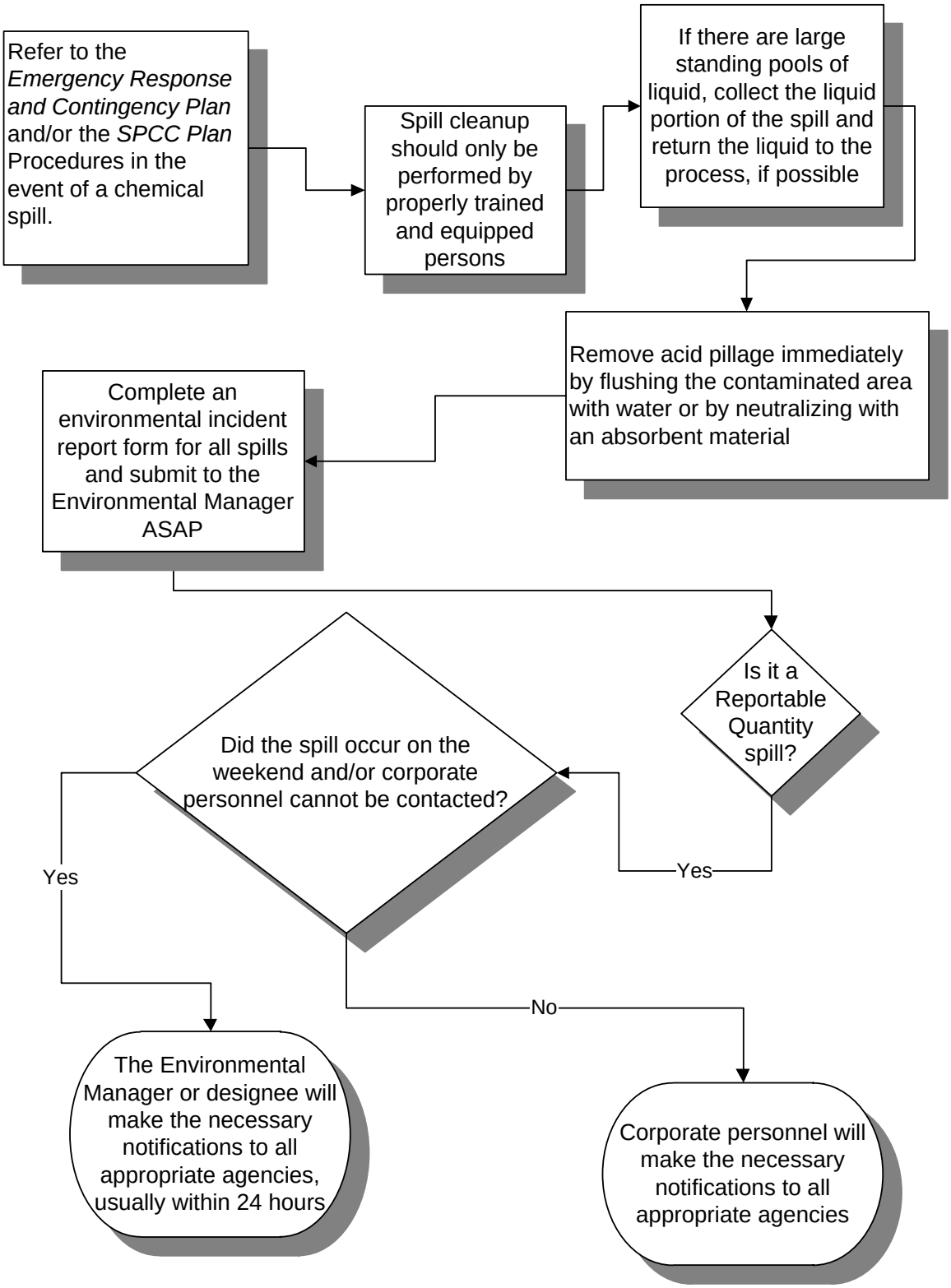
ABESTOS HANDLING PROCEDURES FOR TRAINED OPERATORS



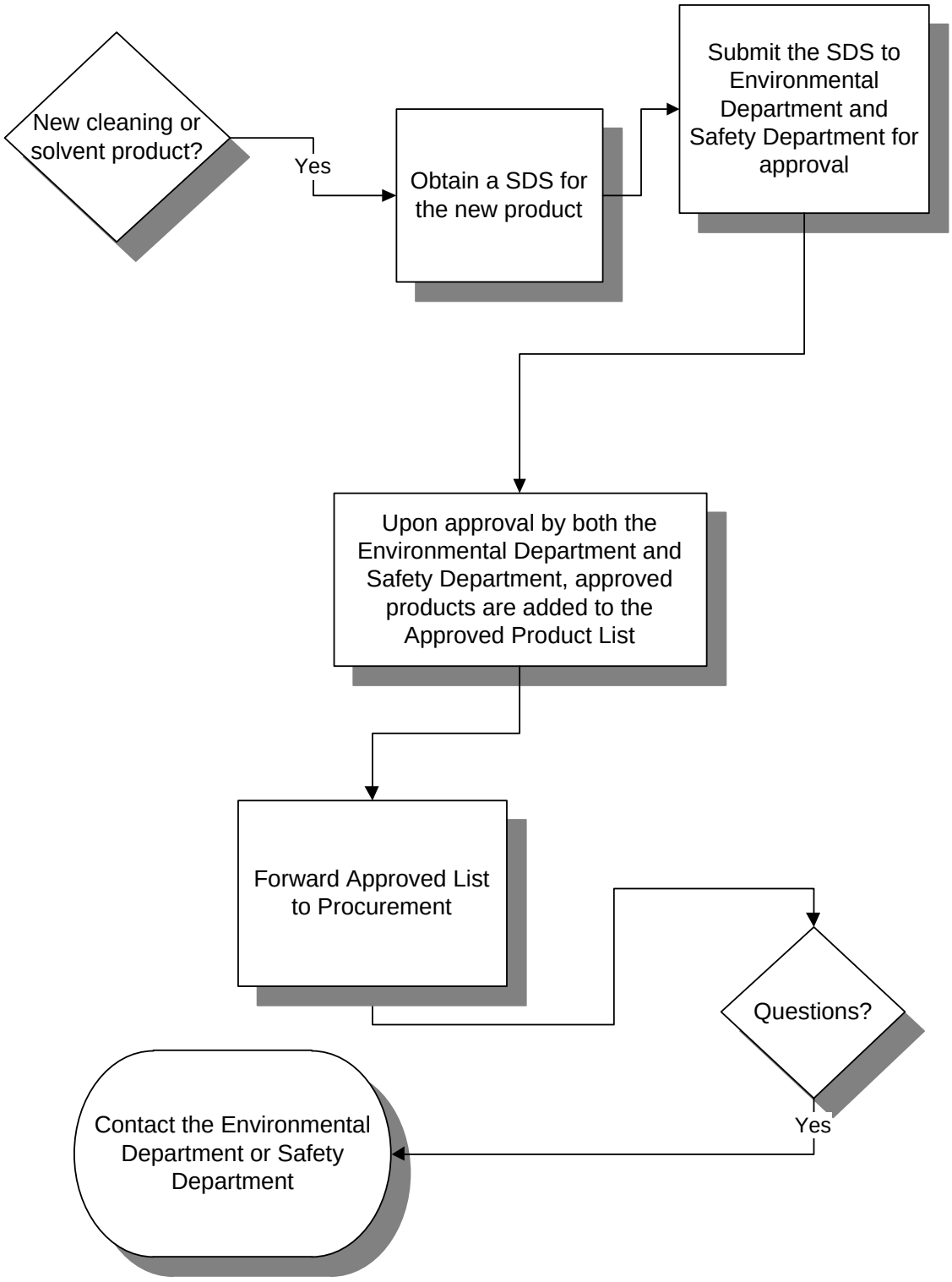
SPENT BATTERIES HANDLING PROCEDURES FOR OPERATORS



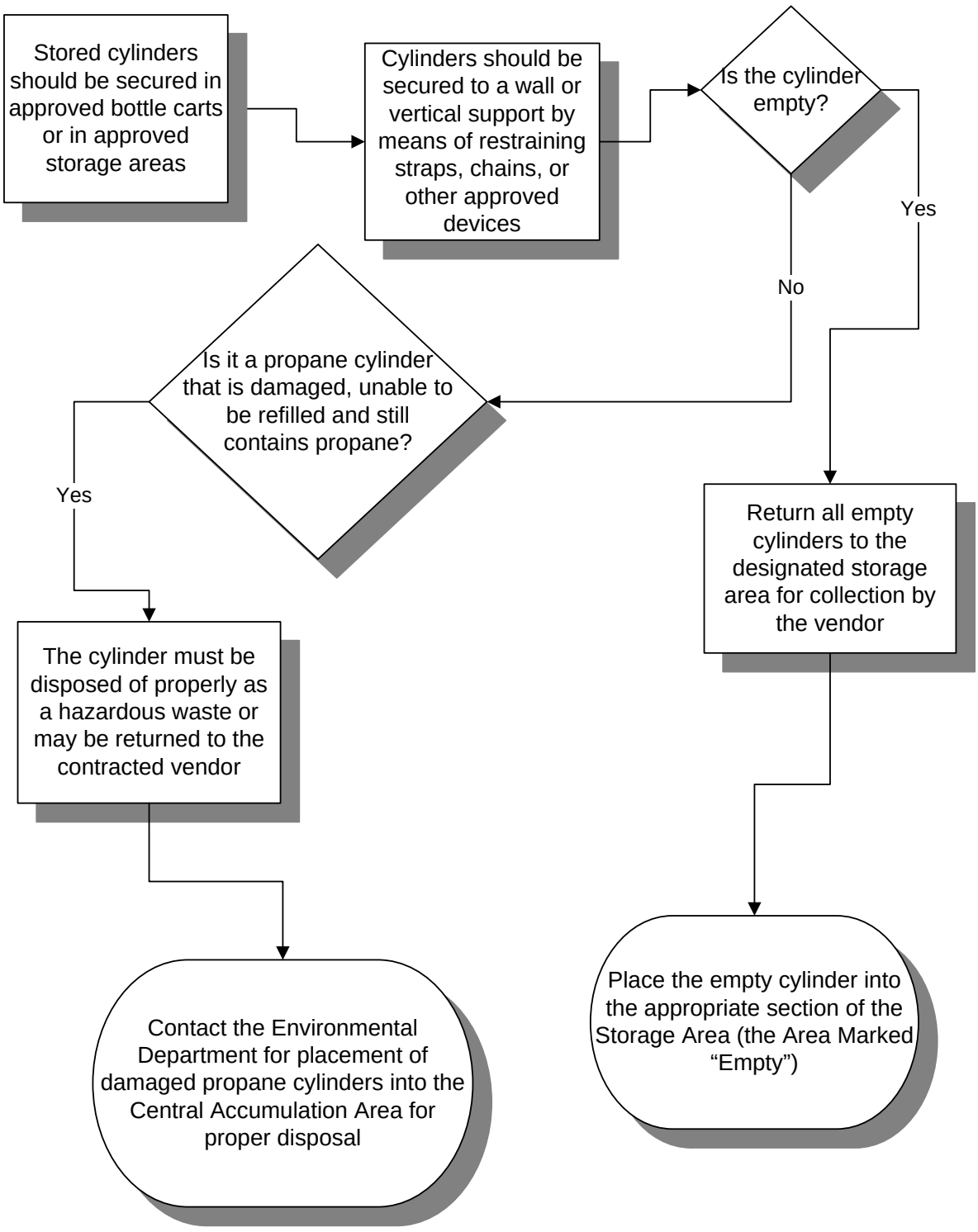
CFC – Freon™ HANDLING PROCEDURES FOR OPERATORS



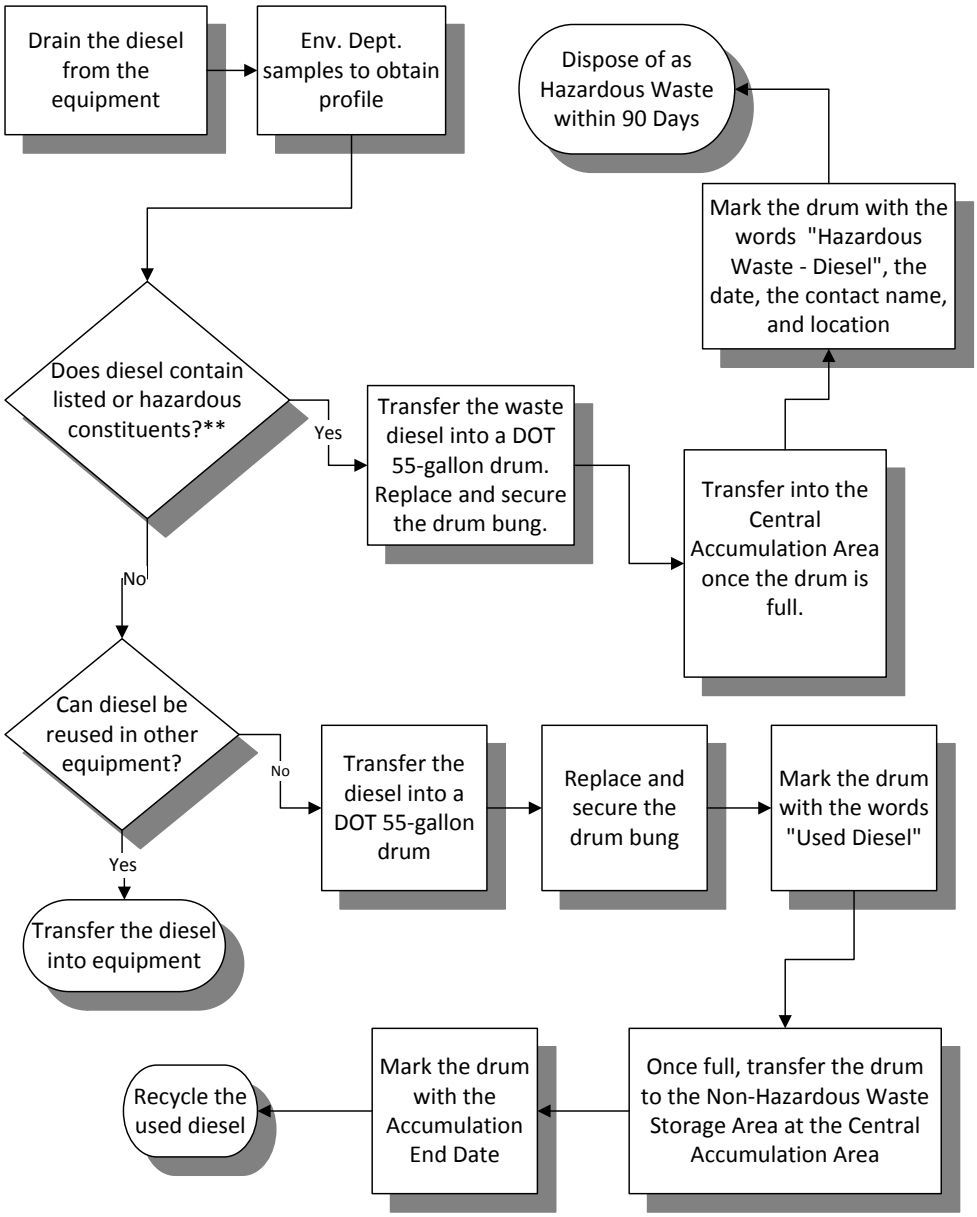
CHEMICAL CONTAMINATED SOILS AND SPILL HANDLING PROCEDURES FOR OPERATORS



NEW CLEANING AND SOLVENT PRODUCT APPROVAL HANDLING PROCEDURES FOR OPERATORS

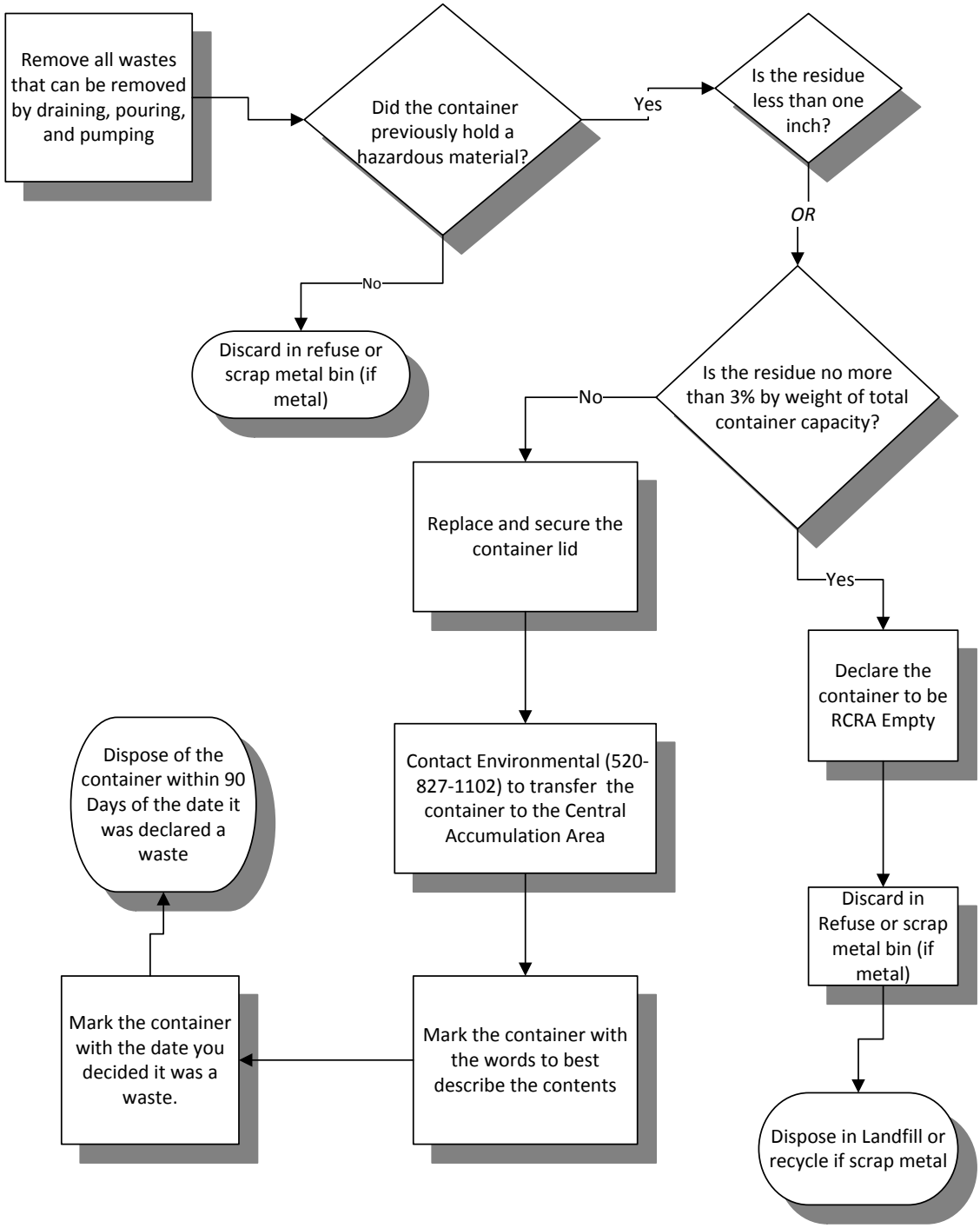


COMPRESSED GAS CYCLINDER HANDLING PROCEDURES FOR OPERATORS

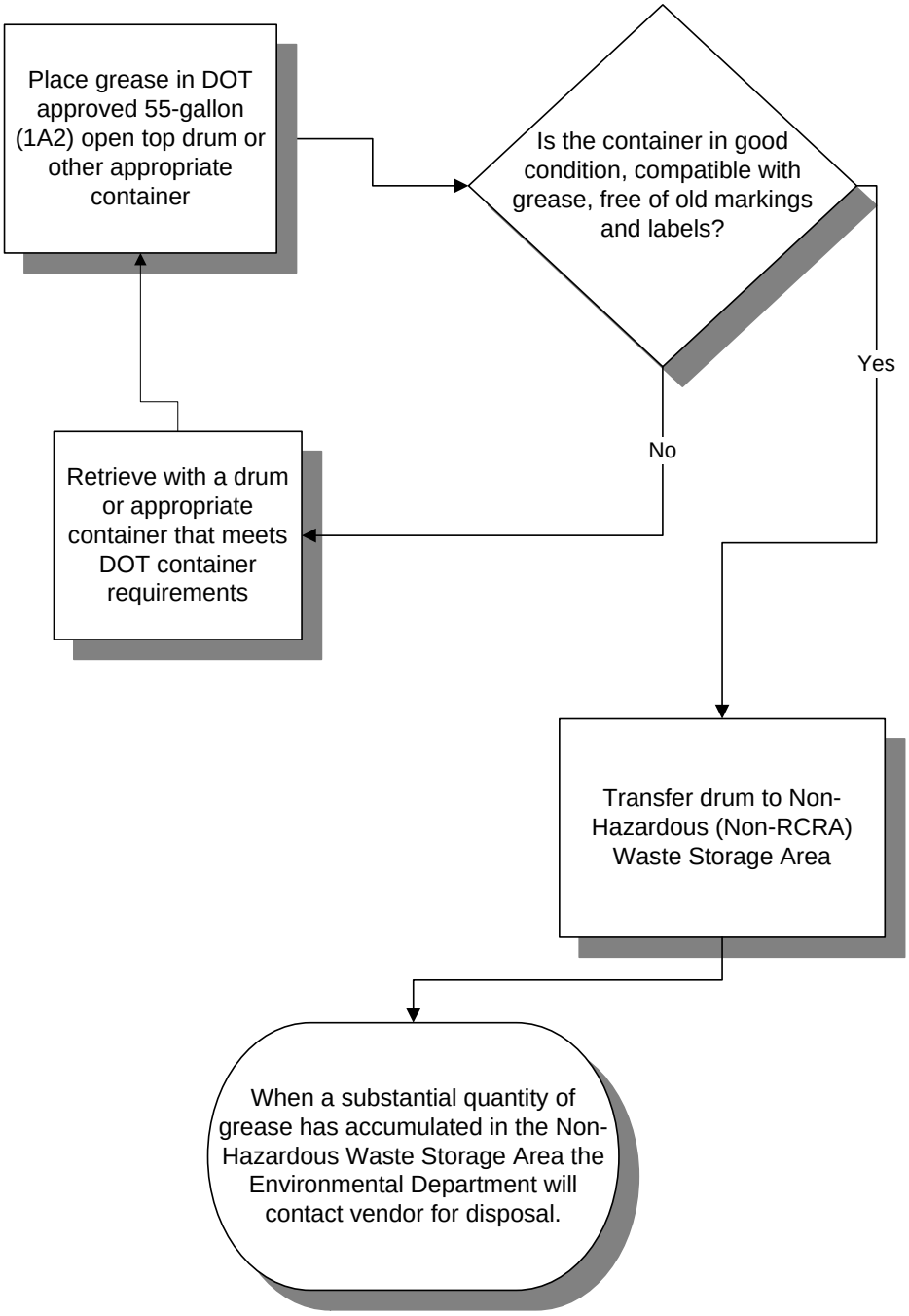


USED / WASTE DIESEL HANDLING PROCEDURES FOR OPERATORS

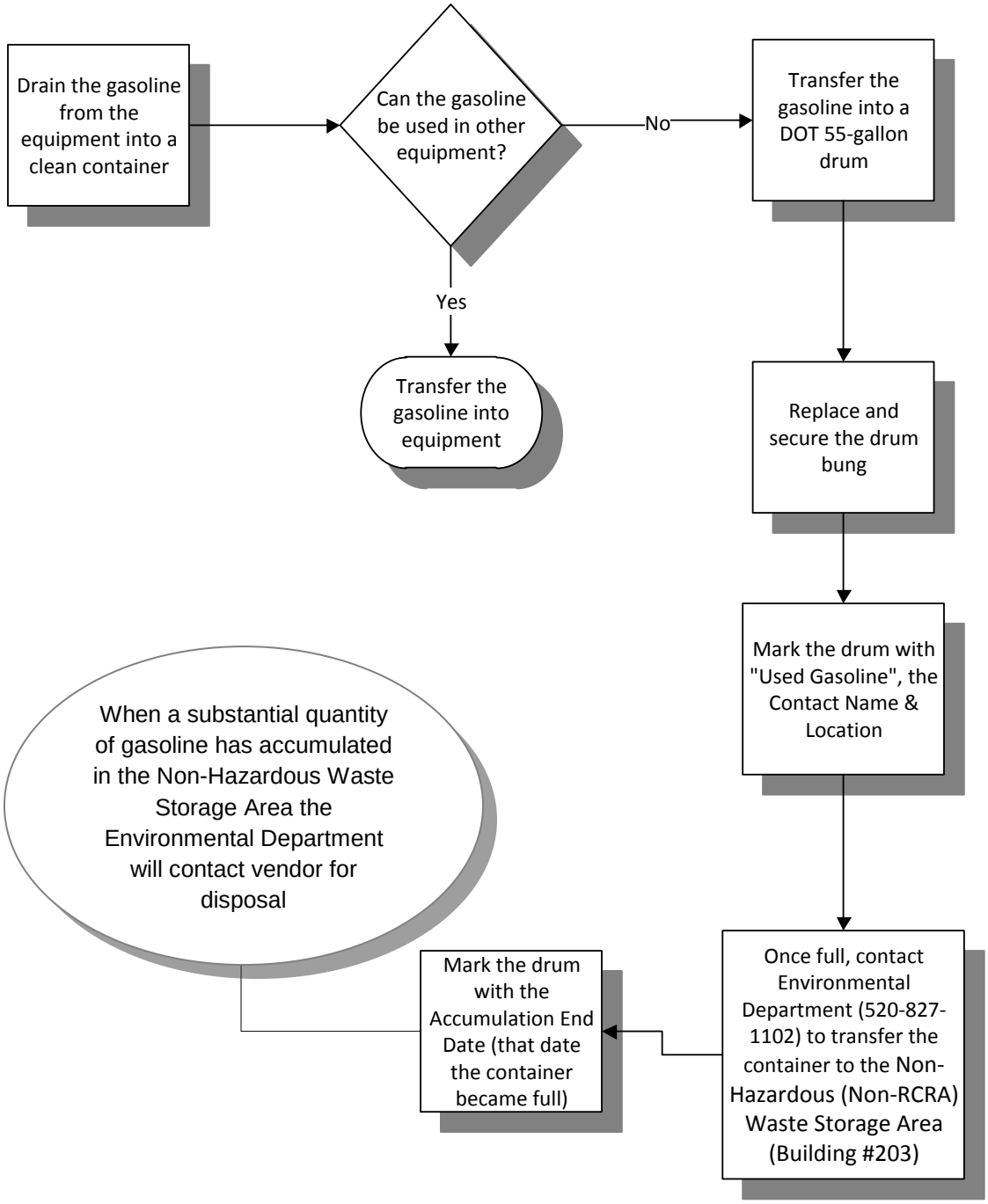
** Contact Environmental Department for guidance



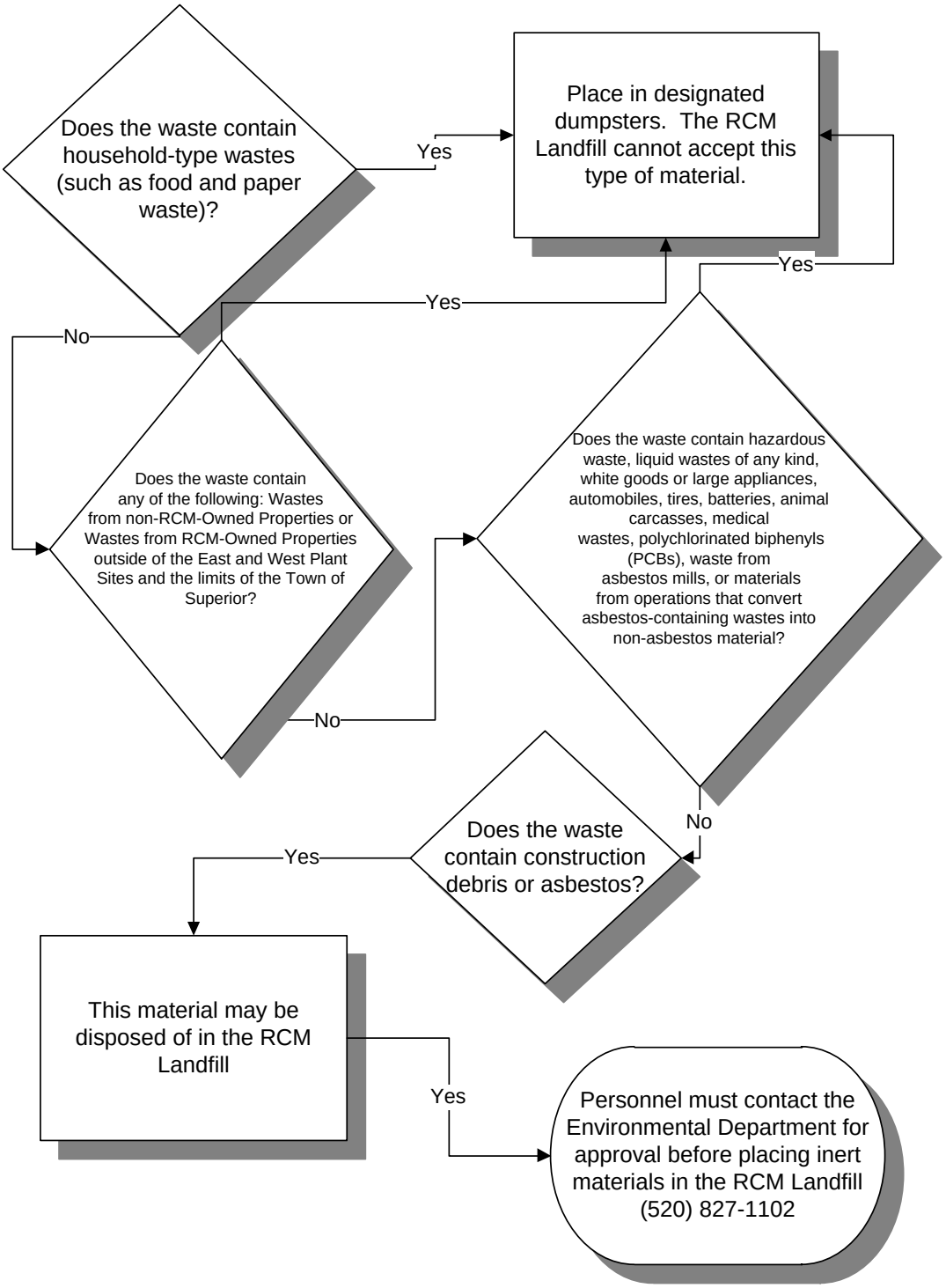
EMPTY DETERMINATION AND DISPOSAL PROCEDURES FOR NON-AEROSOL CONTAINERS FOR OPERATORS



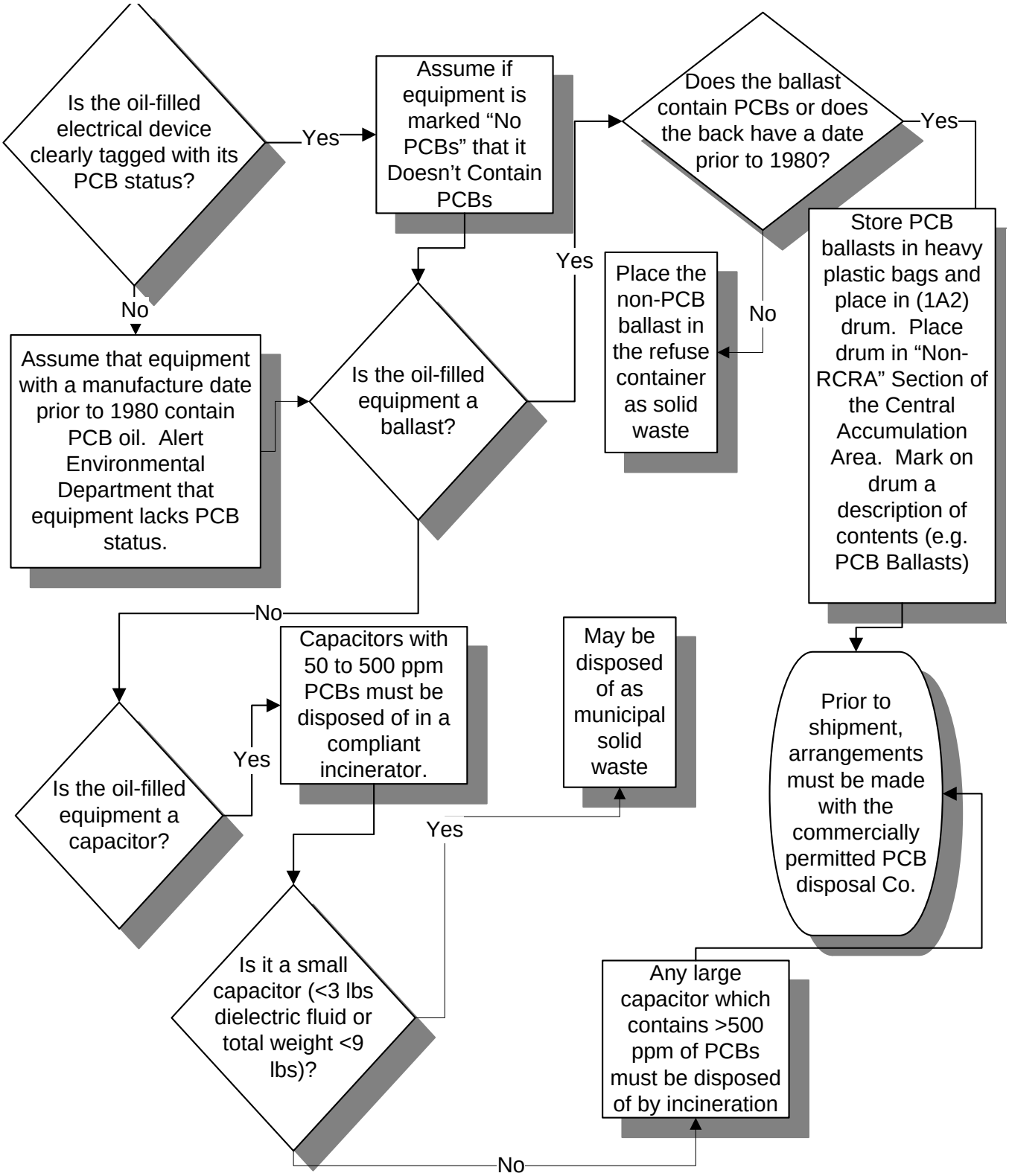
USED GREASE HANDLING PROCEDURES FOR OPERATORS



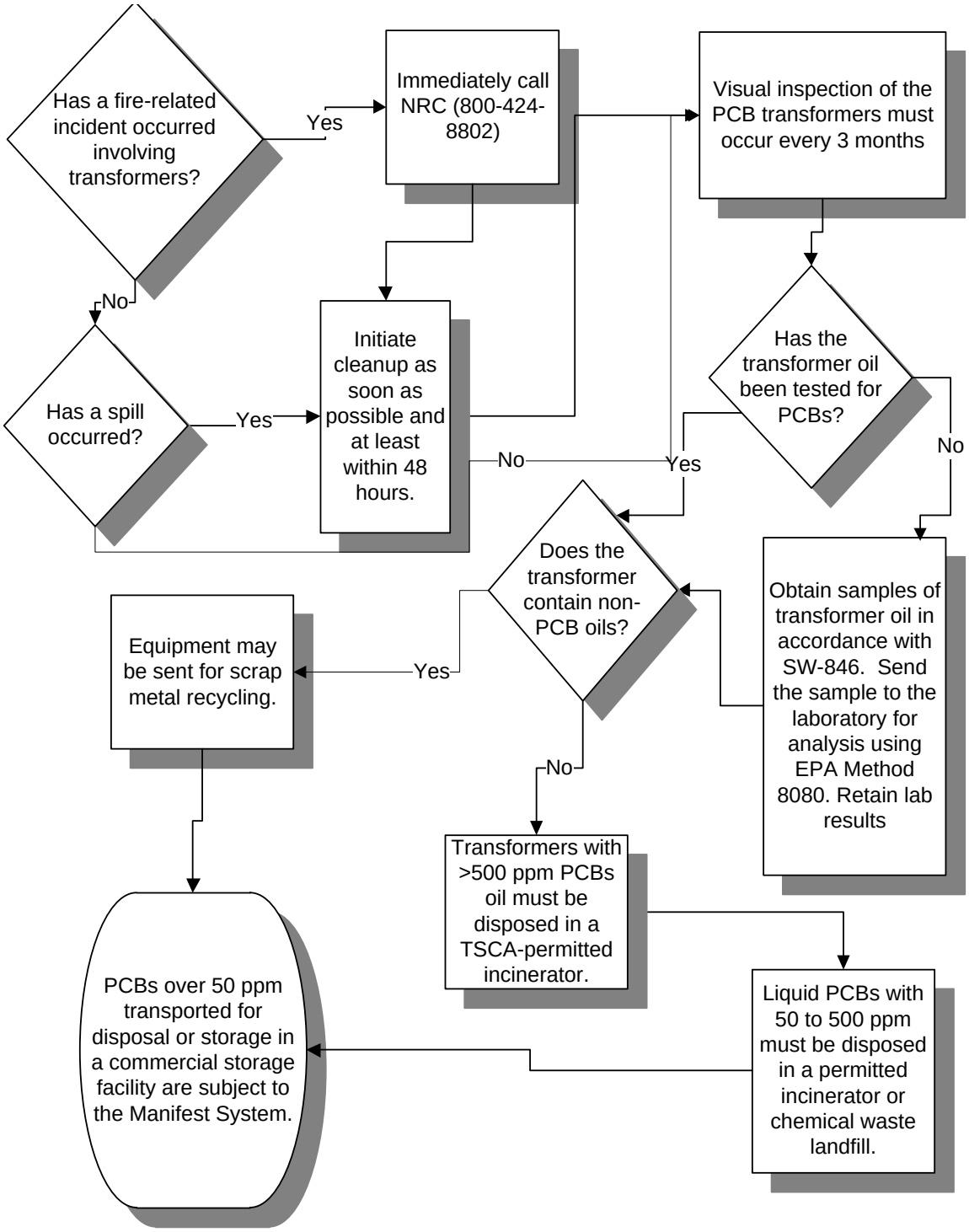
USED GASOLINE HANDLING PROCEDURES FOR OPERATORS



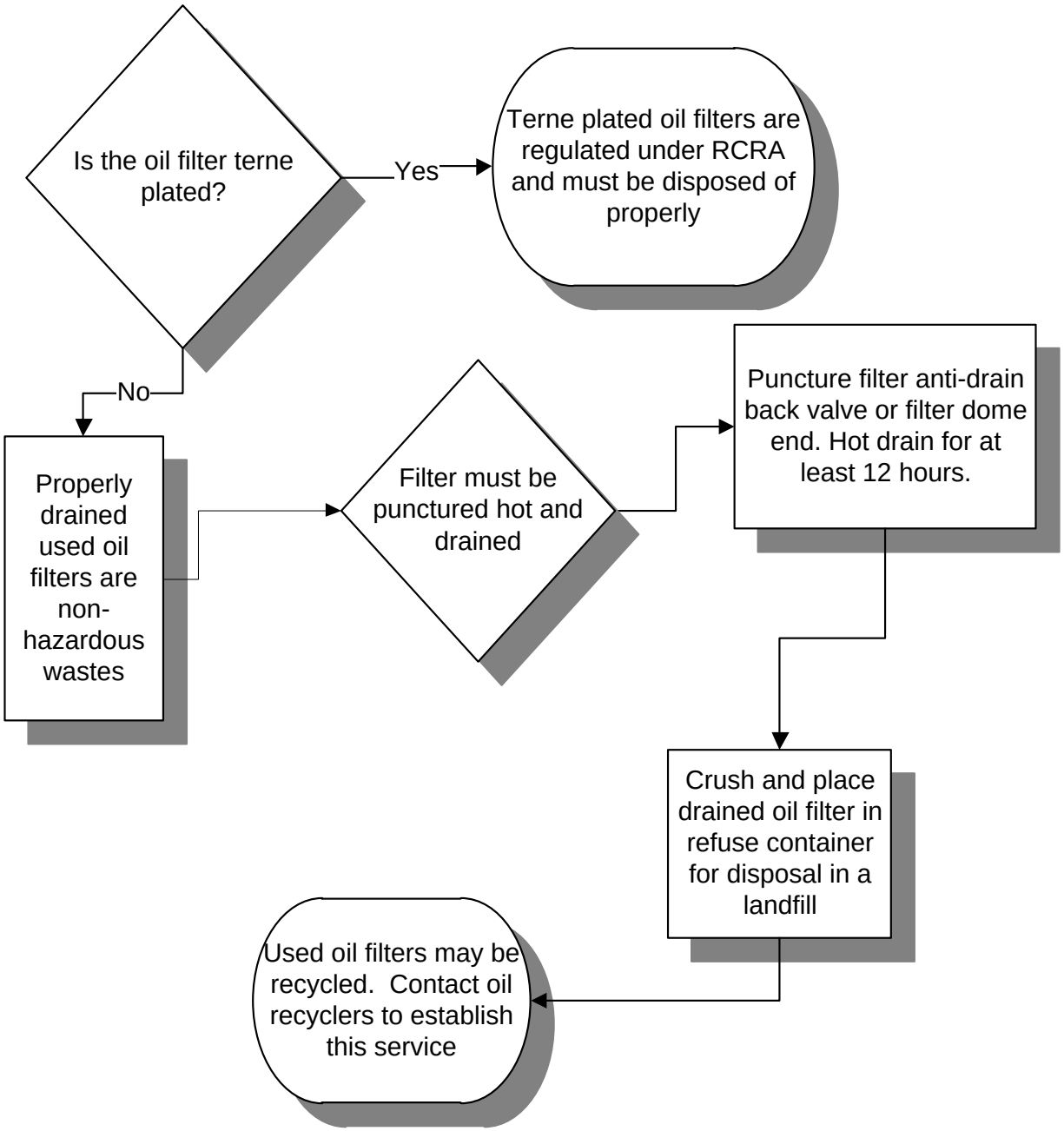
LANDFILL PROCEDURES FOR OPERATORS



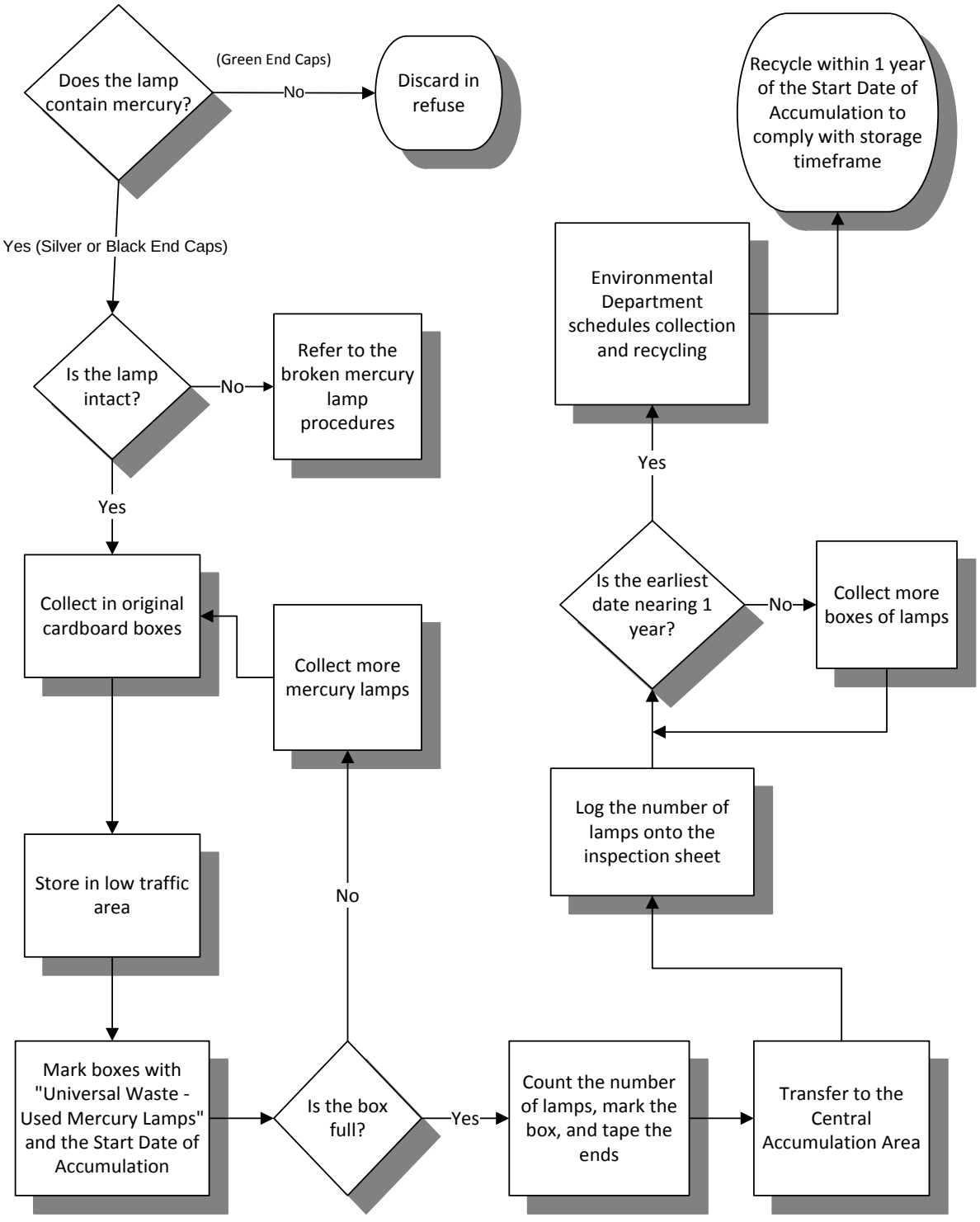
OIL-FILLED ELECTRICAL DEVICE/PCB BALLAST/CAPACITOR (NOT TRANSFORMERS) HANDLING PROCEDURES FOR OPERATORS



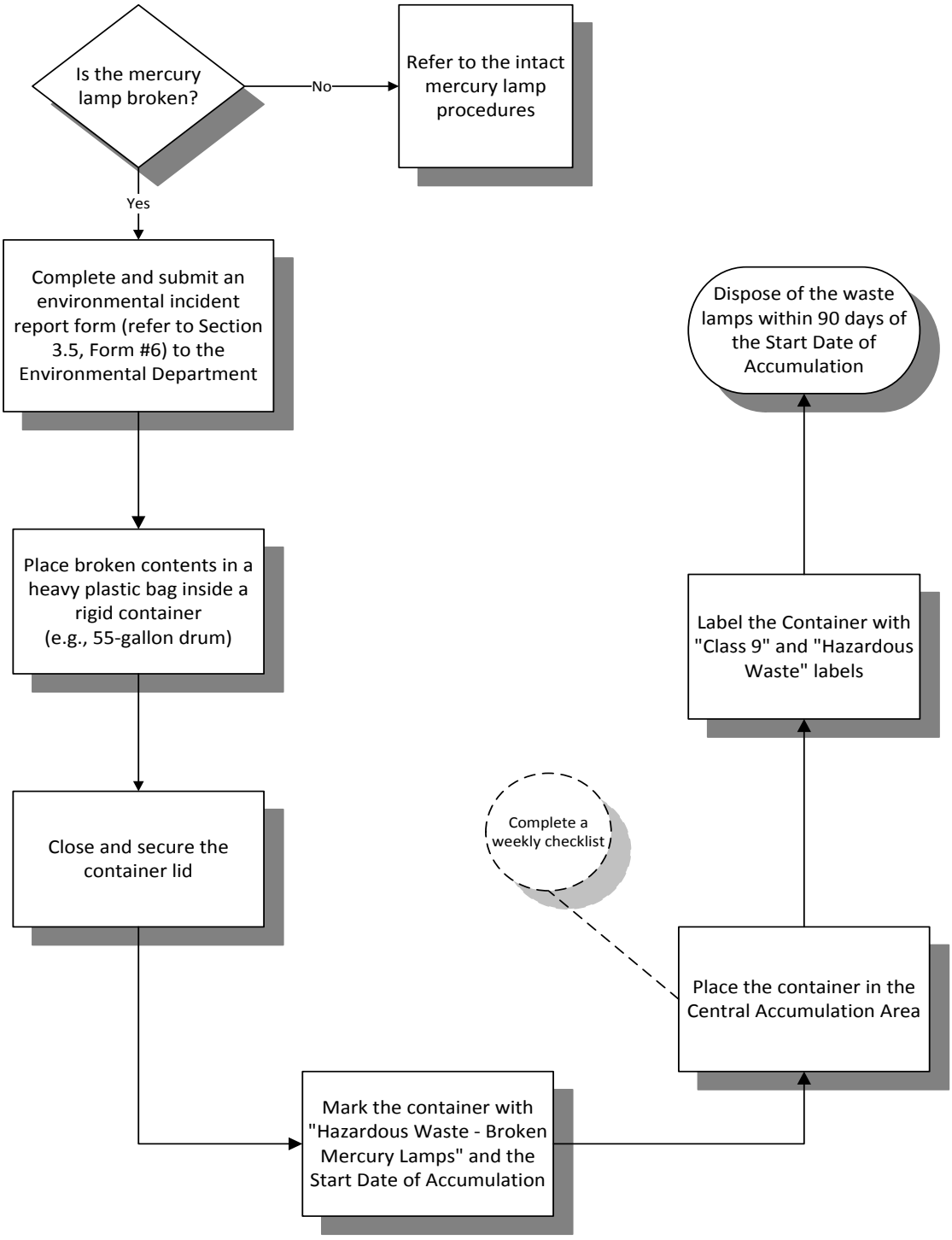
OIL-FILLED ELECTRICAL DEVICES
TRANSFORMERS HANDLING PROCEDURES
FOR OPERATORS



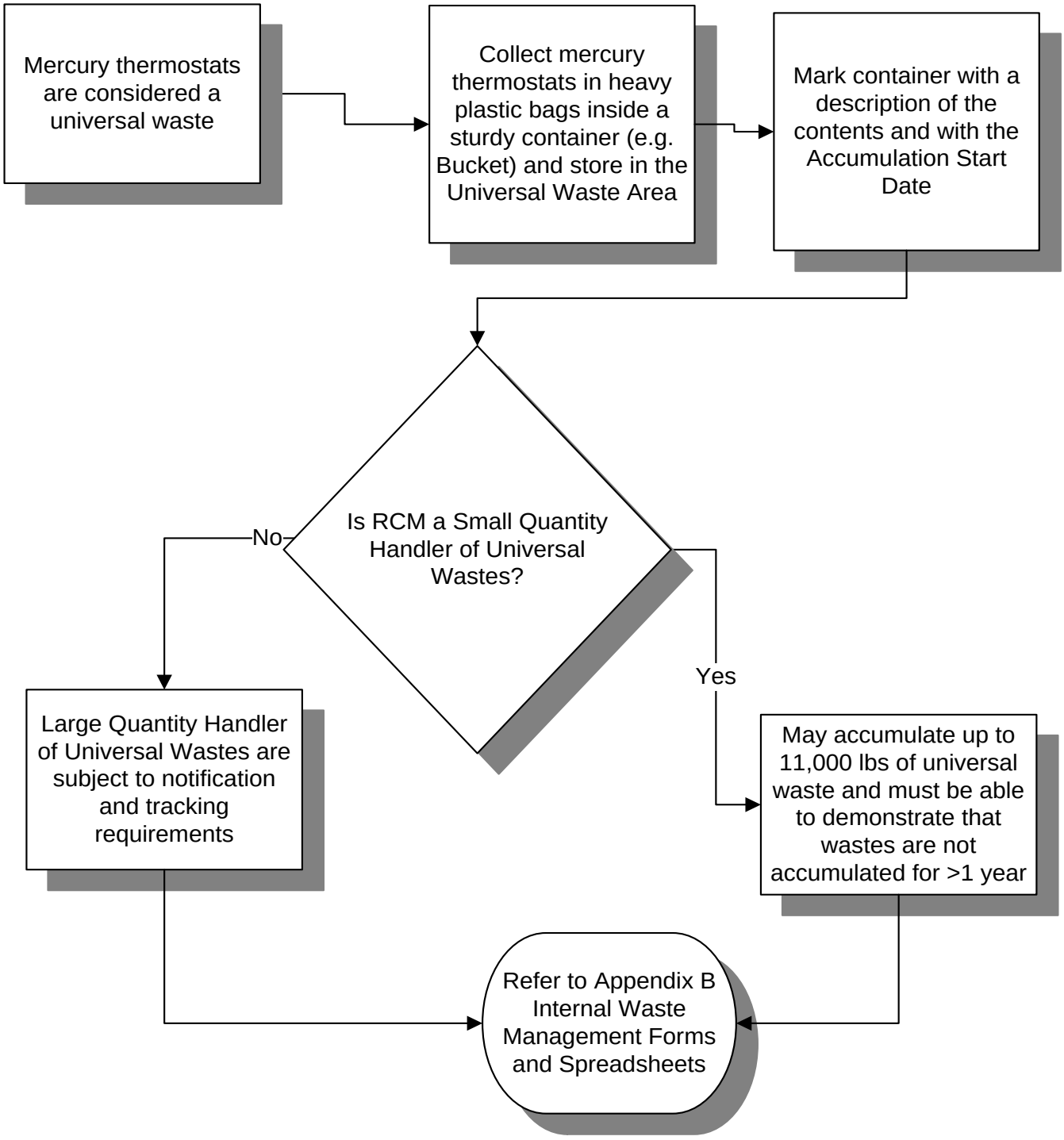
USED OIL FILTER HANDLING PROCEDURES FOR OPERATORS



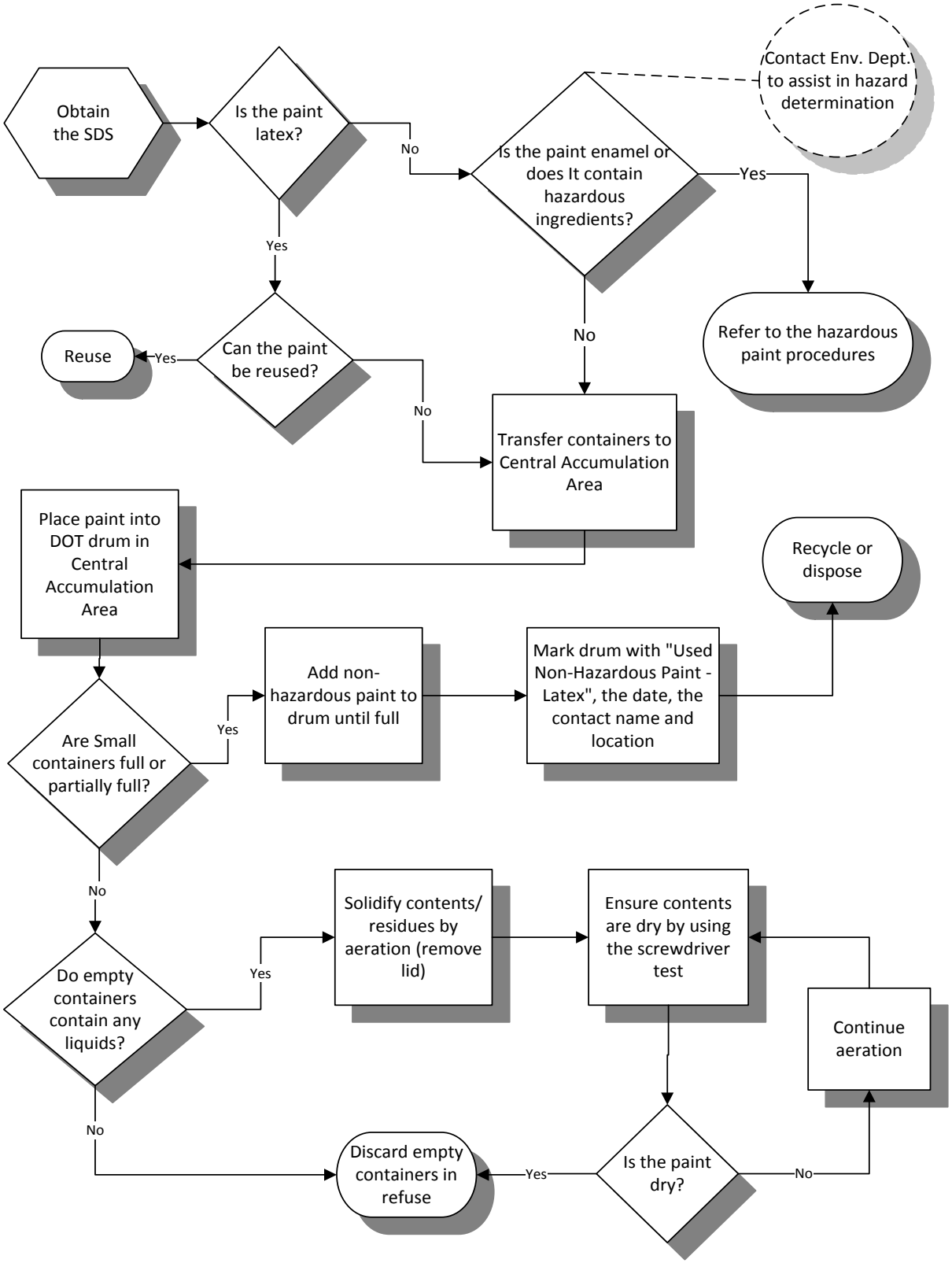
INTACT USED MERCURY LAMP (UNIVERSAL WASTE) HANDLING PROCEDURES FOR OPERATORS



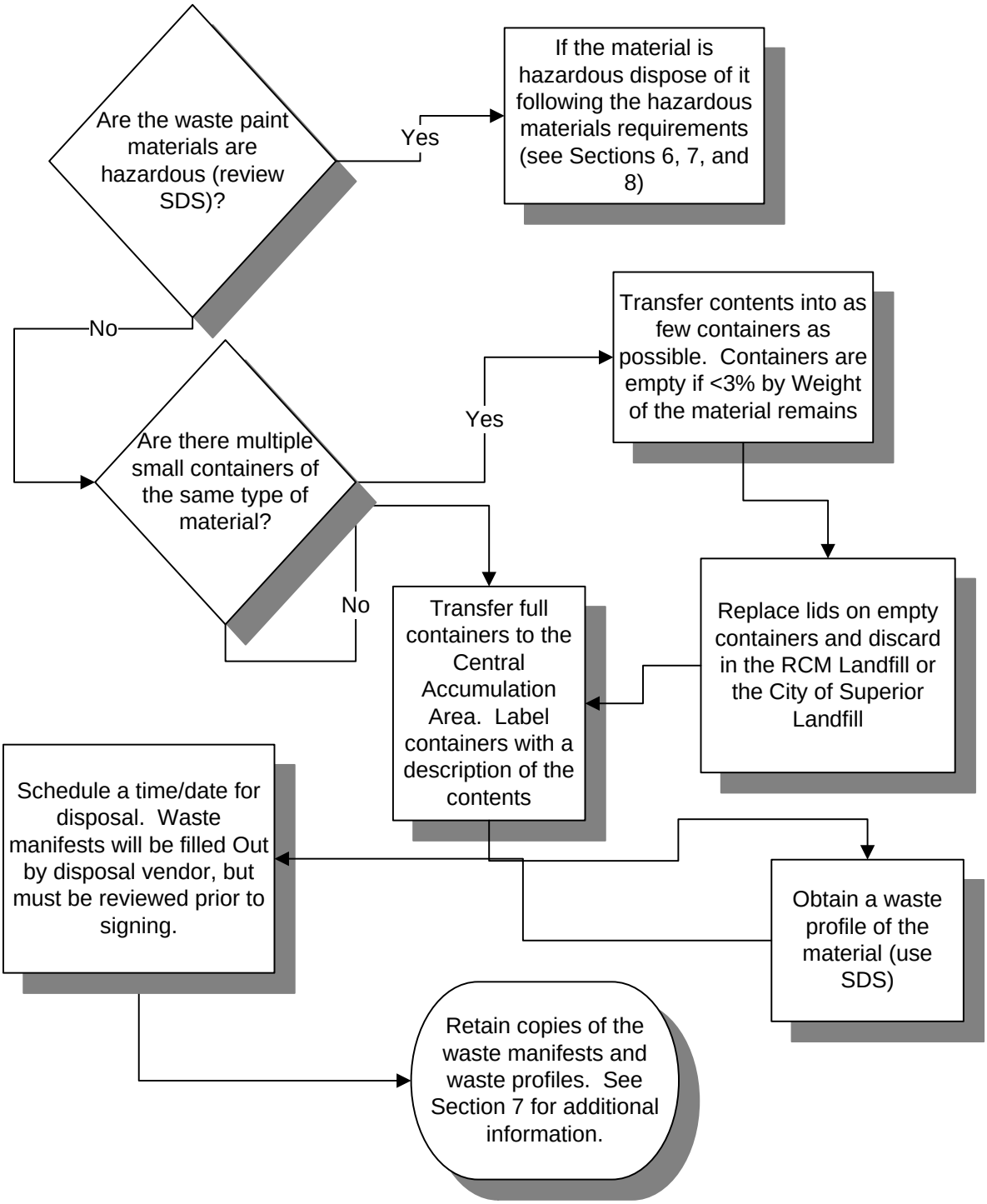
BROKEN MERCURY LAMP (HAZARDOUS WASTE)
HANDLING PROCEDURES FOR OPERATORS



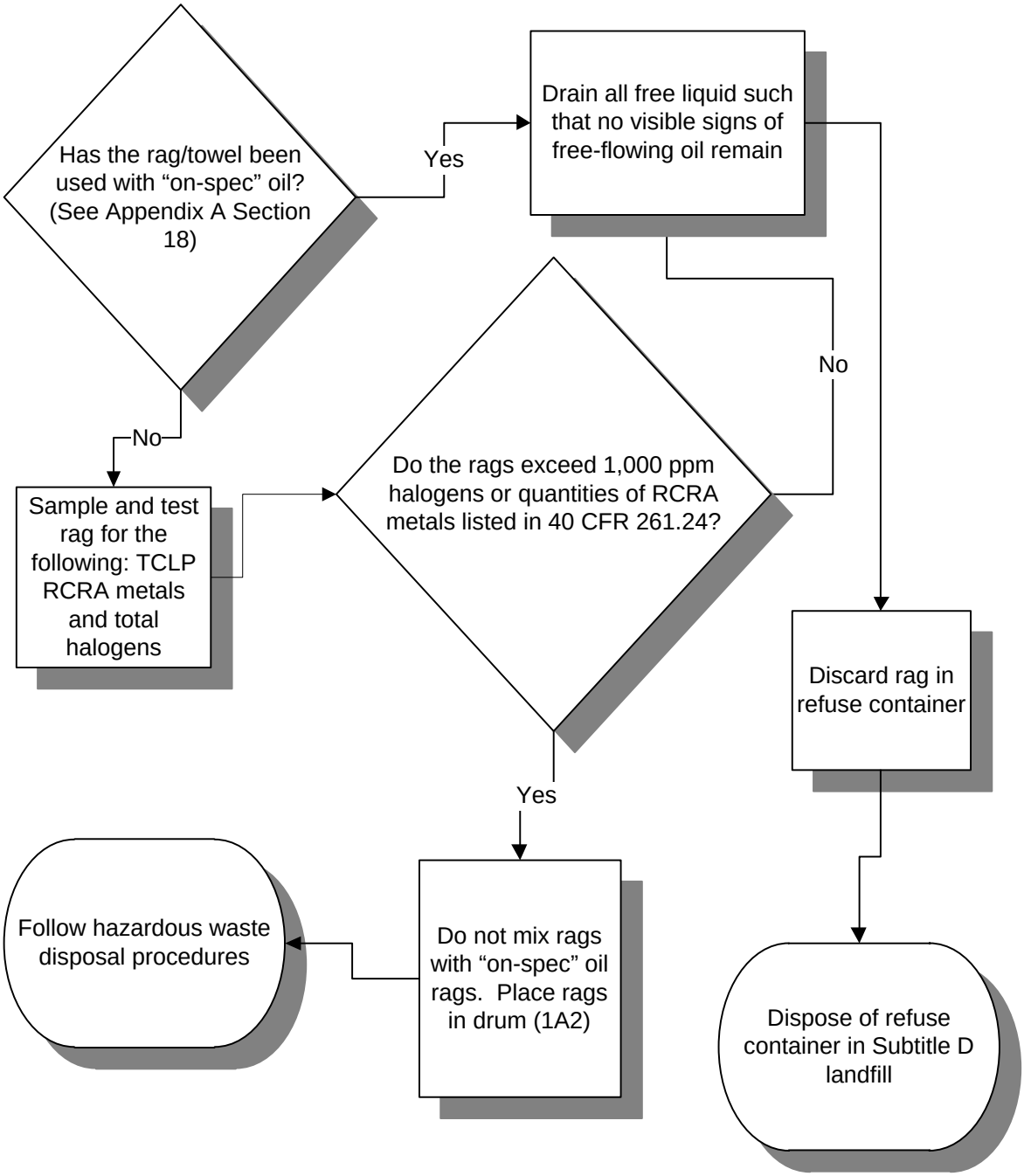
SPENT MERCURY THERMOSTAT HANDLING PROCEDURES FOR OPERATORS



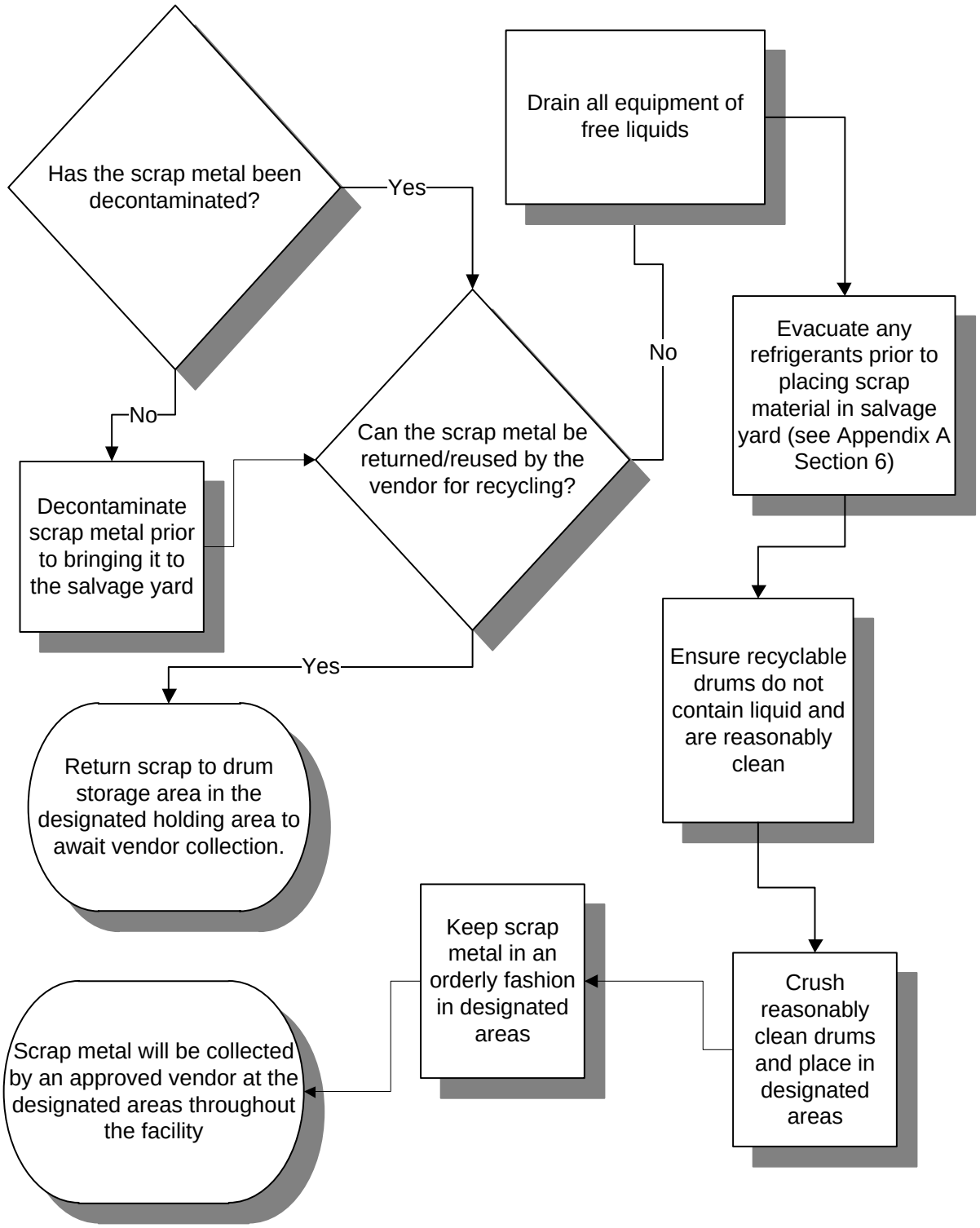
USED PAINT (LATEX/NON-HAZARDOUS) HANDLING PROCEDURES FOR OPERATORS



WASTE PAINT MATERIALS HANDLING PROCEDURES FOR OPERATORS



SHOP RAGS HANDLING PROCEDURES FOR OPERATORS



SCRAP METAL HANDLING PROCEDURES FOR OPERATORS

1 Introduction

1.1 *Purpose and Use of the Document*

The purpose of this document is to provide personnel in all areas of the Resolution Copper Mining LLC (RCM) operation access to procedures for the proper handling and disposal of hazardous materials and hazardous waste so as to protect the environment and to comply with laws and regulations.

1.1.1 Disclaimer

1. The procedures in this handbook are provided to aid in the proper handling and disposal of materials in order to prevent releases to the environment and in compliance with environmental regulations and the Rio Tinto Health Safety and Environment (HSE) Performance Standards. Although procedures may recommend the use of personal protective equipment, this document does not address the procedures needed for protecting the health and safety of workers.
2. Workers should consult with their supervisor and the Safety Department regarding any concerns related to personal safety and job training.
3. Some procedures described in this document may require specialized training of personnel prior to commencing work activities.
4. Adherence to the procedures in this document does not guarantee full compliance with all hazardous waste statutes and rules. Resource Conservation and Recovery Act (RCRA) is a complex law with correspondingly complex regulations that have been the subject of ongoing clarification in the courts. How the rules are implemented is under constant adjustment and interpretation.
5. When a question arises regarding a handling of disposal procedure, the appropriate statutes and rules should be consulted as the authority. The rule citations provided in this document may not include all of the pertinent rules, regulations, laws or sections of same that would apply to the subject topic.
6. This document does not purport to have identified every waste stream for the proposed RCM operation. The absence of a waste stream from this document does not mean that there are no corresponding procedures that should be followed or regulations that would apply. Additional identified waste streams may be added to the document throughout operations if identified.

2 Hazardous Material Management

Rio Tinto has developed a HSE performance standard for hazardous materials and contamination control (HSE Environment Standard E5). The purpose of the standard is to prevent spillage and environmental contamination as a result of the handling, storage and processing of materials. The following sections outline how RCM complies with Rio Tinto Corporate HSE Environment Standard E5 and hazardous materials management is regulated and managed under RCRA. Compliance is also demonstrated via the operational procedure flow charts.

2.1 *Planning*

HSE Environment Standard E5 requires that each facility identify potential contamination risks at each site so that appropriate transport, storage, use, transfer and disposal can be implemented. This includes identifying hazardous materials at the site (i.e., virgin materials such as fuel or acid) as well as contamination areas that have not been remediated.

An inventory of oil products to be managed at the facility can be found in the facility's Spill Prevention, Control and Countermeasure (SPCC) Plan. Other hazardous materials to be managed at the site are identified in the facility's storm water pollution prevention plan (SWPPP). A Contaminated Sites / Hazardous Materials Sites Register is also maintained on site through the Environmental Department.

2.2 *Storage and Handling*

Hazardous materials at RCM are to be stored in aboveground containers constructed to be compatible with the material being stored. The materials will be stored in a manner that will prevent contact by unauthorized personnel, birds and other animals, and will not pose a risk for discharge to streams, drainages, or the environment.

2.3 *Secondary Containment*

Hazardous materials containers (including flow through process tanks) will be placed in areas with adequate secondary containment that meet the following criteria:

- Containment drainage valves remain closed and locked except for draining rainwater. Signage must be provided that indicates proper valve position and requirement for locks.
- Containment systems must be free from product spillage. Rainwater or snow must be removed to maintain adequate capacity.
- Measures must be in place to prevent a release from secondary containment from reaching sewer systems, bodies of water or soil.
- Must be able to contain 110% of the volume of the container.

RCM's East Plant and West Plant SPCC Plans and site specific SWPPPs for current activities outline the secondary containment and control measures implemented at the hazardous materials storage areas. SPPC and SWPPPs for the proposed mine plan are contained as appendices to the general plan of operations.

2.4 *Inspections*

Hazardous materials storage areas are inspected on a routine basis to monitor for leaks and the structural integrity of the storage containers. The inspection procedures are outlined in RCM's SPCC Plans and site specific SWPPPs for the current activities and proposed operation.

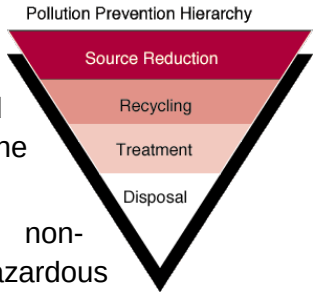
2.5 *Leak Detection*

Leak detection equipment and/or routine inspections are utilized to determine if a hazardous material leaks from its container. The leak detection equipment, inspection procedures, and or emergency response procedures are outlined in RCM's SPCC Plans and site specific SWPPPs for the current activities and proposed operation.

3 Pollution Prevention and Waste Minimization

3.1 *Pollution Prevention Hierarchy*

Pollution Prevention activities may include any of the following, (order of preference, if applicable):



1. **Source reduction / Conservation** (e.g. print double-sided documents, using email, purchase products only in the volumes needed, etc.).
2. **Substitution** (e.g. replacing chlorinated products with non-chlorinated products, replacing products containing other hazardous constituents with non-hazardous products).
3. **Recycling** of wastes or secondary materials – send off-site (e.g. diesel, gasoline, used oil, scrap metal, batteries, toner cartridges, etc.).
4. **Reuse** – onsite reuse (e.g. diesel, gasoline, process water, etc.).
5. **Reclamation** (e.g. lead from vehicle batteries).
6. **Volume reduction** (e.g. transferring contents of several small containers of the same substance into one container for disposal).

3.2 *Arizona Pollution Prevention Regulation*

The Arizona Revised Statues (A.R.S.) require the development and implementation of a pollution prevention plan for facilities that exceed thresholds related to hazardous waste generation or shipment, and/or toxic substance use. These thresholds are based on the amount of hazardous waste generated, hazardous waste shipped, and/or toxic substances used at a facility. Toxic substances are defined by the toxic chemicals on the EPA's Toxic Chemical Release Inventory (TRI) list. The threshold values established include the following:

- 12,000 kg of hazardous wastes shipped off-site annually
- 1 kg of acutely hazardous wastes shipped off-site annually
- 1 kg (average) of acutely hazardous wastes or 1,000 kg (average) of hazardous waste generated monthly
- 25,000 pounds of a toxic substance manufactured/processed annually
- 10,000 pounds of a toxic substance used annually

Additionally, if a facility meets all three of the following conditions, it is also subject to the Arizona state pollution prevention regulatory requirements:

- The facility filed an EPA TRI form.
- The total number of hours worked by all employees in a calendar year is 20,000 hours or more.
- The facility falls under one of the following SIC codes: 2000-3900, 1021, 1031, 1041, 1044, 1061, 1099, 1221, 1231, 4911, 4931, 4939, 4953, 5169, 5171, and 7389.

3.3 *Pollution Prevention Targets*

RCM meets the requirements for the preparation and implementation of a pollution prevention plan, has an active plan with ADEQ, and reports on an annual basis. This plan will be updated through operations as facilities and environmental protections and mitigations change. The following sections outline pollution prevention targets established for the facility.

3.3.1 Purchasing of Products

Prior to bringing any product on site, the product must first be approved through the MaxCom system. To initiate the approval process, a product Request/Approval form must be submitted along with an SDS that is less than five years old. Considerations for product purchase include the following:

1. Amounts: For standard materials, limit inventories and individual stockpiling.

   For special projects, purchase only the amount needed for a particular project. Require contractors to remove all of their material from the site when a job is complete.

2. Type: Ensure use of only approved chemical products.

   Refer to **Appendix A, Section 8 Cleaning and Solvent Products** for product evaluation procedures.

3.3.2 Proper Chemical Use and Storage

1. Close chemical product containers tightly between uses.
2. Ensure containers are correctly labeled.
3. Ensure that incompatible products are segregated from each other.
4. Implement inventory control:
   a. Use the entire volume of the product.
   b. Open as few containers of the same product as needed.
   c. Rotate stock by placing the new purchase to the back of the inventory. Use the oldest container first to reduce the need for disposal.
   d. If one department cannot use the entire amount of the product, call or contact other departments that may be able to use the remainder of the product.

3.3.3 Management Practices

1. Employees must contact the Environmental Department if a container has residual product that is no longer useable for waste disposal. Containers must be properly marked stored in the Central Accumulation Area for collection until disposal arrangements are made.
2. Employees must contact the Safety Department (refer to existing information on MAXCOM or the product manufacturer for obtaining the proper Safety Data Sheet [SDS]), if their department does not possess the SDS.

3. Employees must provide a SDS to the Environmental Department to assist in determining any regulatory requirements prior to disposal.

3.4 *Performance Monitoring*

Performance monitoring is tracked through our Yearly Goals Update that is submitted to ADEQ on an annual basis.

4 Waste Management

4.1 *Overview*

There are two main types of wastes generated at RCM: mineral wastes and non-mineral wastes. The following sections outline how waste materials generated at RCM should be managed.

4.2 *Mineral Waste Identification*

Mineral Wastes include the following:

That portion of the mined geological deposit that is not conveyed or transported from the operation as product and is not generated by processing activities:

- Includes development rock and overburden brought to the surface from underground development or mining activities.
- Typically by-products / outputs which do not meet grade requirements due to size, texture etc.

That portion of the mined geological deposit that is not transported from the operation as product and is generated by processing activities such as:

Tailings from mineral processing

Mineral Wastes are divided into two categories: reactive and non-reactive.

Reactive mineral wastes are defined as mineral waste whose innate physical, chemical or biological properties could now or in the future create an environmental exposure hazard above and beyond risks posed by geotechnical issues, inert dust in air or inert total suspended solids in water.

If the mineral waste does not meet the above criteria it is considered a non-reactive mineral waste.

4.3 *Non-Mineral Waste Identification*

RCM will determine, based on applicable regulations and laws, if non-mineral wastes (solid wastes) generated by its operations and activities are hazardous or non-hazardous.

4.3.1 Identification of Hazardous Wastes

1. A solid waste is a hazardous waste if it is not excluded from hazardous waste regulation, and it:
    a. Is listed as a hazardous waste in subpart D of 40 Code of Federal Regulations (CFR) part 261;
    b. Is mixed with a waste listed in subpart D of 40 CFR part 261; or
    c. Exhibits a characteristic of hazardous waste as described in subpart C of 40 CFR part 261:

(1) ignitability
(2) corrosivity
(3) reactivity
(4) toxicity

2. Determine if a solid waste is hazardous waste by:
   a. Evaluating the exemptions
   b. Reviewing the listed hazardous wastes in subpart D of 40 CFR 261.
   c. Either testing the waste according to the methods set forth in subpart C of 40 CFR part 261 or applying knowledge of the hazard characteristic(s) of the waste in light of the materials and processes used.
   d. Initial and periodic sampling and analysis may be used as the basis for subsequent use of knowledge that the materials are not hazardous. Regulators and vendors may request the analysis for the hazardous/non-hazardous determination of materials being disposed.

4.3.1.1 Assignment of Hazardous Waste Codes

1. Consider the regulations in the following order to assign the proper hazardous waste code to a waste (lists are in 40 CFR 261 Subparts C and D)
   a. U-list: Non-acutely Hazardous Commercial Chemical Products;
   b. P-list: Acutely Hazardous Commercial Chemical Products;
   c. K-list: Hazardous Waste from Specific Sources;
   d. F-list: Hazardous Waste from Non-specific Sources; and
   e. D-numbers: Characteristically Hazardous Waste.

- *An example of a U-listed waste is a container of pure, unused acetone (U002)*
- *If the acetone container has been used as a solvent, and contains the ignitable characteristic, the F003 (over 10%) code would apply.*
- *Wastes containing less than 10% acetone (with no other F-listed solvents) and possess a flash point of less than 140 degrees F would be a D001 (ignitability).*

2. No analytical testing is required to identify a waste as a listed waste (U, P, K, and F-lists). A listed waste is hazardous by definition, and a single waste stream should carry only a single listed waste number. The only time you would have a waste with more than one listed code is when you mix two or more different listed wastes.
3. If a waste is identified as a P or U-listed waste, do not consider the hazardous characteristics. The P and U listings account for any hazard that the chemical may present. This is also true for the K-listed wastes; however, assign a D code to a mixture of K-listed waste and characteristically hazardous waste.

4. P and U-listed wastes are commercially **pure, unused**, grades of the chemical. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in the P and U waste codes.
5. F-listed wasted should carry only one F code, unless the waste was mixed with more than one waste. Pay careful attention to the listing descriptions, especially the percentage limitations.
6. The characteristically hazardous waste numbers (D codes) are based upon analytical results. A waste can exhibit more than one characteristic.

4.3.2 Identification of Petroleum Contaminated Soils (PCS)

All spills, regardless of size, are required to be reported to the Environmental Department.

1. When a spill occurs, the Environmental Department will provide assistance in assessing the situation to determine how to manage the soil.
2. If it is determined that excavation is necessary, excavate soils contaminated with petroleum products with the necessary equipment, such as a shovel for small spills or a backhoe for larger spills.
3. Place the petroleum-contaminated soils (PCS) in an appropriate container for disposal (55-gallon drum for smaller spills, a roll-off bin for larger spills).
4. Mark the drum with the words that best describe the waste, such as “Diesel Contaminated Soil”, Gear Oil Contaminated Soil”, or “Gasoline Contaminated Soil), etc.
5. The Environmental Department will determine if the excavated soil meets the definition of PCS, solid waste PCS, or non-regulated soil by sampling and performing analysis in accordance with EPA SW-845.
6. Excavated soil contaminated with petroleum products in excess of any of the following concentrations listed in **Table 5-1** shall be designated as Petroleum Contaminated Soil (PCS).

Table 5.1

Soil Remediation Levels (SRLs)

	Regulated Contaminant	Soil Remediation Standards	
		Residential, Solid Waste (in ppm, mg/kg)	Non-Residential Special Waste (in ppm, mg/kg)
BTEX Commonly found in gasoline EPA Method 8031	Benzene	0.65	1.4
	Toluene	650	650
	Ethylbenzene	400	400
	Total Xylenes	270	420

	Regulated Contaminant	Soil Remediation Standards	
		Residential, Solid Waste (in ppm, mg/kg)	Non-Residential Special Waste (in ppm, mg/kg)
PAHs Polynuclear aromatic hydrocarbons Commonly found in diesel EPA Method 8310	Acenaphthene	3,700	29,000
	Anthracene	22,000	240,000
	Benz[a]anthracene	0.69	21
	Benzo[a]pyrene	0.069	2.1
	Benzo[b]fluoranthene	0.69	21
	Benzo[k]fluoranthene	6.9	210
	Chrysene	68	2,000
	Dibenz[a,h]anthracene	0.069	2.1
	Fluoranthene	2,700	26,000
	Indeno[1,2,3-cd]pyrene	0.69	21
	Naphthalene	56	190
	Pyrene	2,300	29,000

7. Sample in accordance with the methodologies specified in A.A.C. R18-8-1604.b.
8. Analysis shall be for total recoverable concentrations of contaminants and shall be conducted by a laboratory licensed by the Arizona Department of Health Service (ADHS).

4.3.3 Identification of Universal Wastes

The Standards for Universal Waste Management and the Arizona Administrative Codes establish the requirements for managing the following wastes:

1. Used Batteries
2. Mercury Thermostats
3. Pesticides
4. Used Mercury Lamps

Universal Wastes are less stringently regulated than Hazardous Wastes, as long as the following protocols are followed:

1. The above listed wastes are intact and not broken.
2. The wastes are recycled and not disposed of.
3. The wastes are recycled within one (1) year of the start date of accumulation.
4. The containers are properly marked and stored until recycled.
5. Employees are properly trained on handling and emergency response procedures.
6. Releases are immediately contained.

4.3.4 Identification of Used Oil

Used oil has been defined by the federal regulatory programs as any oil that has been refined from crude oil, or any synthetic oil that has been used, handled, transported, or stored, and as a result of such use, handling, transportation, or storage, is contaminated by physical or chemical impurities, and is no longer suitable for its originally intended purpose. In addition to the federal definition of used oil, Arizona's legislator adopted additional provisions which include the following definitions:

- Used oil includes oil that has become contaminated as a result of its handling, transportation, or storage.
- Off-specification used oil means used oil which exceeds any of the allowable levels in 40 CFR 279.11.
- On-specification used oil means used oil that is not off-specification used oil.

In general used oil has the following characteristics:

- Used oil includes motor oils, metalworking fluids, emulsions, transmission fluids, brake fluids, coolants, heating media, refrigeration oils, electrical oils, buoyants, and hydraulic fluids.
- Used oil does not include antifreeze, cleaning agents, and animal and vegetable oils.
- Gasoline, jet, and diesel fuels are not used oil; however, if mixed with used oil, these fuels must be regulated as used oil.
- Used oil is presumed to be recyclable. If it is not recyclable, it is waste oil.
    - The U.S. EPA and Arizona considers burning of used oil for energy recovery a form of recycling.

5 Waste Management

5.1 *Mineral Waste Management*

Procedures for management of mineral waste at RCM are summarized in the appendix called "Overview of Acid Rock Drainage Operational and Post-Closure Water Management Strategies at Resolution Copper Mining for the Protection of Groundwater and Surface Water."

5.2 *Hazardous Waste Management*

Generators of hazardous waste must complete a hazardous waste determination based on process knowledge and/or sampling and analysis. Generators shipping waste for disposal off-site must obtain a RCRA Identification Number; must utilize transporters and transfer storage and disposal (TSD) facilities with RCRA Identification Numbers; and must comply with the Department of Transportation (DOT) requirements.

5.2.1 Labeling Requirements

Properly mark hazardous waste containers with the following:

1. Words to best describe the contents,
2. The words "Hazardous Waste", if applicable,
3. Mark the container with the start date of accumulation (for satellite accumulation areas mark the container with the date it became filled).
4. Appropriate DOT labels before transporting off-site for disposal,

5.2.2 Container Requirements

Appropriate containers should be used to accumulate wastes as well as to transport wastes. In most cases, containers in which new hazardous materials were shipped should be re-used to transport the same materials after they become wastes. However, for some wastes, purchase of containers may be necessary for compliance, if appropriate containers are not otherwise available. Use of containers must be approved by the Environmental Manager or designee prior to placing wastes in the proposed container.

5.2.2.1 Instructions for all Containers

1. Ensure containers are in good condition.
2. Drums and containers available for shipment must be in good condition and comply with DOT regulations.
3. Containers must be compatible with the waste contents and securely closed.
4. Old markings and labels on containers must be removed or painted over to avoid confusion about the contents.
5. Ensure the lid (and bung if present) is closed and secure.

Drums/containers not approved for transport may contain any <u>one</u> of the following conditions:

1. Interior of the drum is badly rusted.

2. Badly bulged head or bottom.
3. Stripped bung threads.
4. Broken or missing flange.
5. Pipe flange or gate valve welded or rusted in bung.
6. Any hole in the drum.
7. Top or bottom chimes with sharp dents.
8. Any significant dents on drum, especially on the rolling hoops.
6. Container is not compatible with the waste that is stored in it.

5.2.3 Storage Requirements

5.2.3.1 Central Accumulation Area

There are two designated Central Accumulation Areas for current activities. The Central Accumulation Area for West Plant activities is located within Building #203. Then Central Accumulation Area for East Plant activities is located adjacent to the SRP substation. Refer to **Figures** for the Central Accumulation Areas site locations. The locations of these facilities may change during operations.

5.2.3.2 Instructions for Hazardous Waste Containers

1. Once a drum has been filled (55 gallons max for each waste stream) in a satellite accumulation area, transfer the drum to the “90-day” (LQG) Central Accumulation Area. See Figures 2 and 3, for location of the Central Accumulation Area.
2. Hazardous waste is disposed of within 90 days once moved from the satellite accumulation areas to the Central Accumulation Area for Large Quantity Generators (LQGs). If amounts of hazardous waste generated exceeds 1,000 kg (2,200 lbs.) in any calendar month, LQG requirements apply. RCM operates as a LQG.
3. Hazardous waste is disposed of within 180 days once moved from the satellite accumulation areas to the Central Accumulation Area for Small Quantity Generators (SQGs). If the amount of hazardous waste generated exceeds 100 kg (220 lbs.) but is less than 1,000 kg (2,200 lbs.) in any calendar month, SQG requirements apply.
4. Refer to the Arizona Department of Environmental Quality (ADEQ) Inspection Checklist for waste compliance issues.
5. Complete a weekly checklist of the Central Accumulation Areas (**Appendix B**) (40 CFR 65.174).
6. File the completed checklist and retain for three (3) years.

5.2.3.3 Inspection Procedures

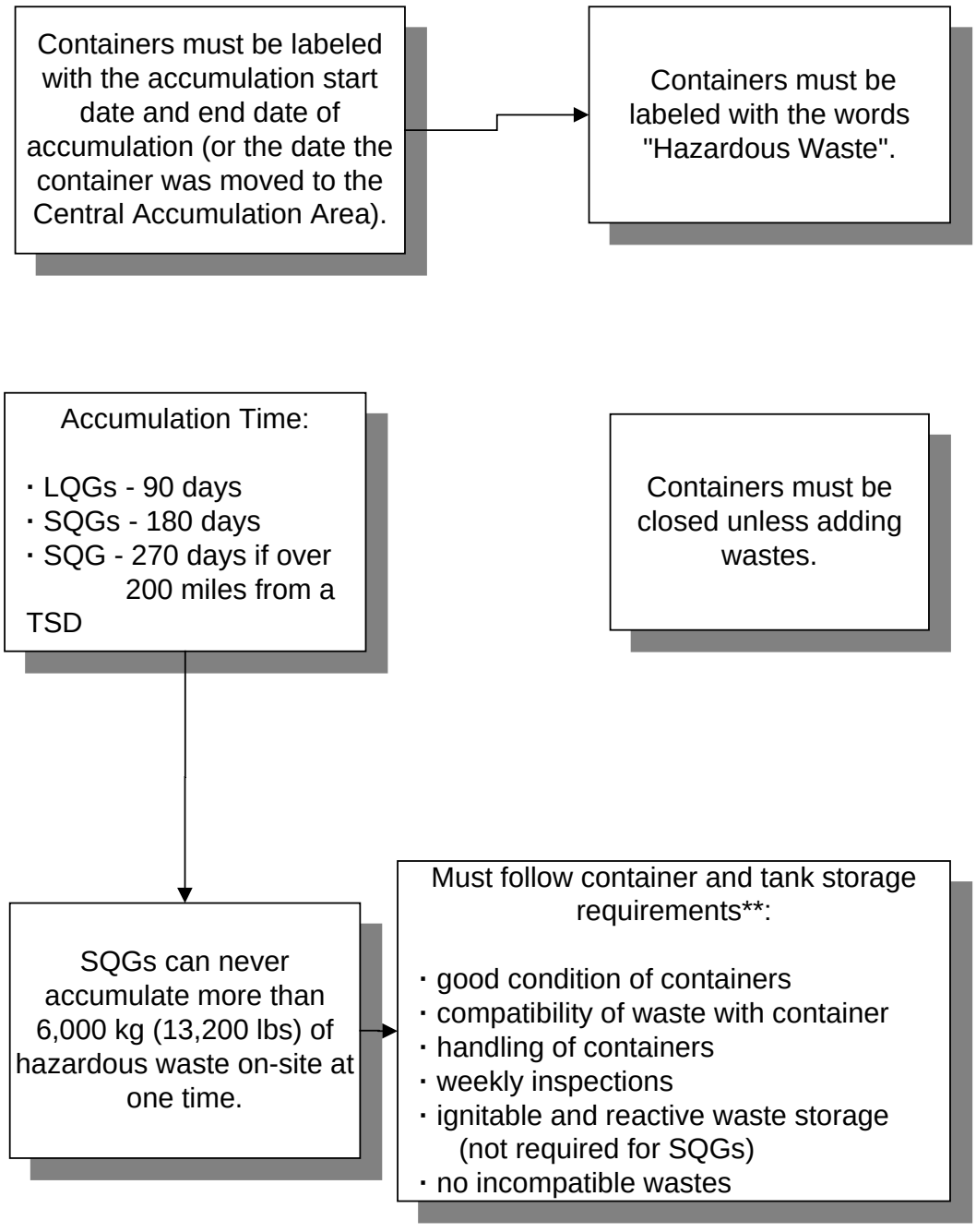
When performing inspections regarding hazardous waste, ensure the following:

1. The waste is packaged in accordance with DOT regulations (49 CFR 172.101; 40 CFR 262.30).

2. A container is made of, or lined with, a material that is compatible with the hazardous waste to be stored. This will prevent the waste from reacting with or corroding the container (40 CFR 265.172).
3. The containers are marked with hazardous waste labels, or equivalent, to identify the contents in accordance with DOT regulations (49 CFR 172.101; 49 CFR 172.301; 49 CFR 172.400, 40 CFR 262.34(a)(3)).
4. The containers are in good shape, and if not, the contents are transferred to a container in good condition (40 CFR 265.171).
5. The containers are closed (40 CFR 265.173(a)).
6. The waste storage areas are inspected weekly (refer to **Appendix B Forms**) and the inspection records are maintained on-site (40 CFR 265.174; A.A.C. R18-8-262.L) for a period of three (3) years. The inspection log must include the following information: inspection date, inspector's name and signature, and remarks or corrections. The completed inspection logs are filed in the Environmental Department.

Central Accumulation Area Flowchart

The following flowchart displays general requirements for the Central Accumulation Areas.



* 40 CFR 262.34
** 40 CFR 265 Subparts I and J

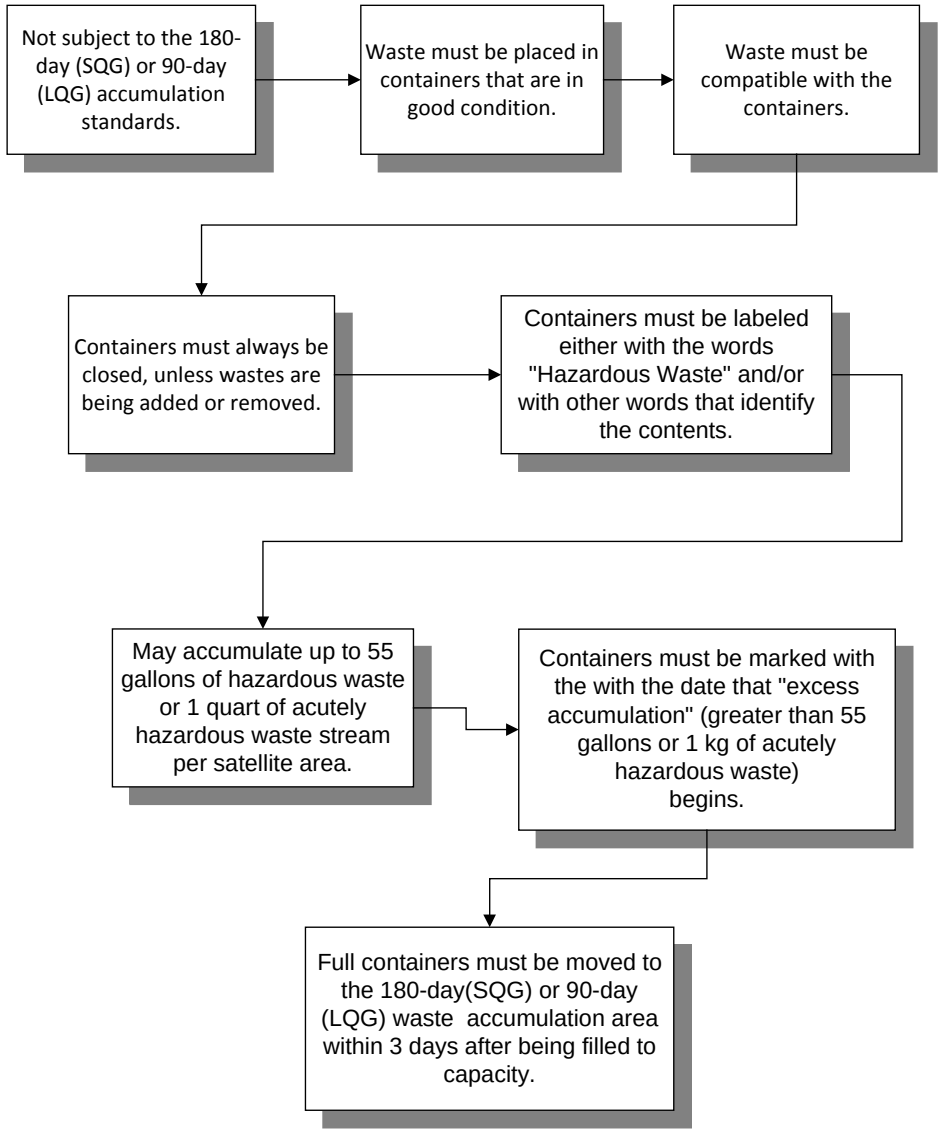
5.2.3.4 Satellite Accumulation Areas

At present, RCM has three (4) established satellite accumulation areas. One of the satellite accumulation areas is located in the E&M shop at the East Plant Site, one (1) satellite accumulation area is located at the Core Processing Facility and the last satellite accumulation area is located within Building 203. Refer to ADEQ's Inspection Checklist for an example of an inspection guidance checklist for hazardous waste compliance. During operations, additional satellite accumulation areas will be in place in per and managed the requirements listed below. **Instructions for Satellite Accumulation Area**

1. Ensure that no more than 55 gallons of any one hazardous waste stream or one quart of acutely hazardous waste is accumulated in this area (40 CFR 262.34(c)(1)).
2. Ensure that the Satellite Accumulation Areas are at or near the point of generation where the waste initially accumulates (40 CFR 262.4(c)(1)).
3. Ensure that the Satellite Accumulation Area is under the control of the operator of the process which generates the waste (40 CFR 262.34(c)(1)).
4. Transfer full drums to the 90-day Central Accumulation Area (refer to **Figures**) **within 72 hours** of becoming full.
5. The containers are marked with a hazardous waste label, or equivalent to identify the contents.
6. The containers are in good shape, and if not, transfer the contents to a container in good condition.
7. The containers are closed unless adding or removing contents.

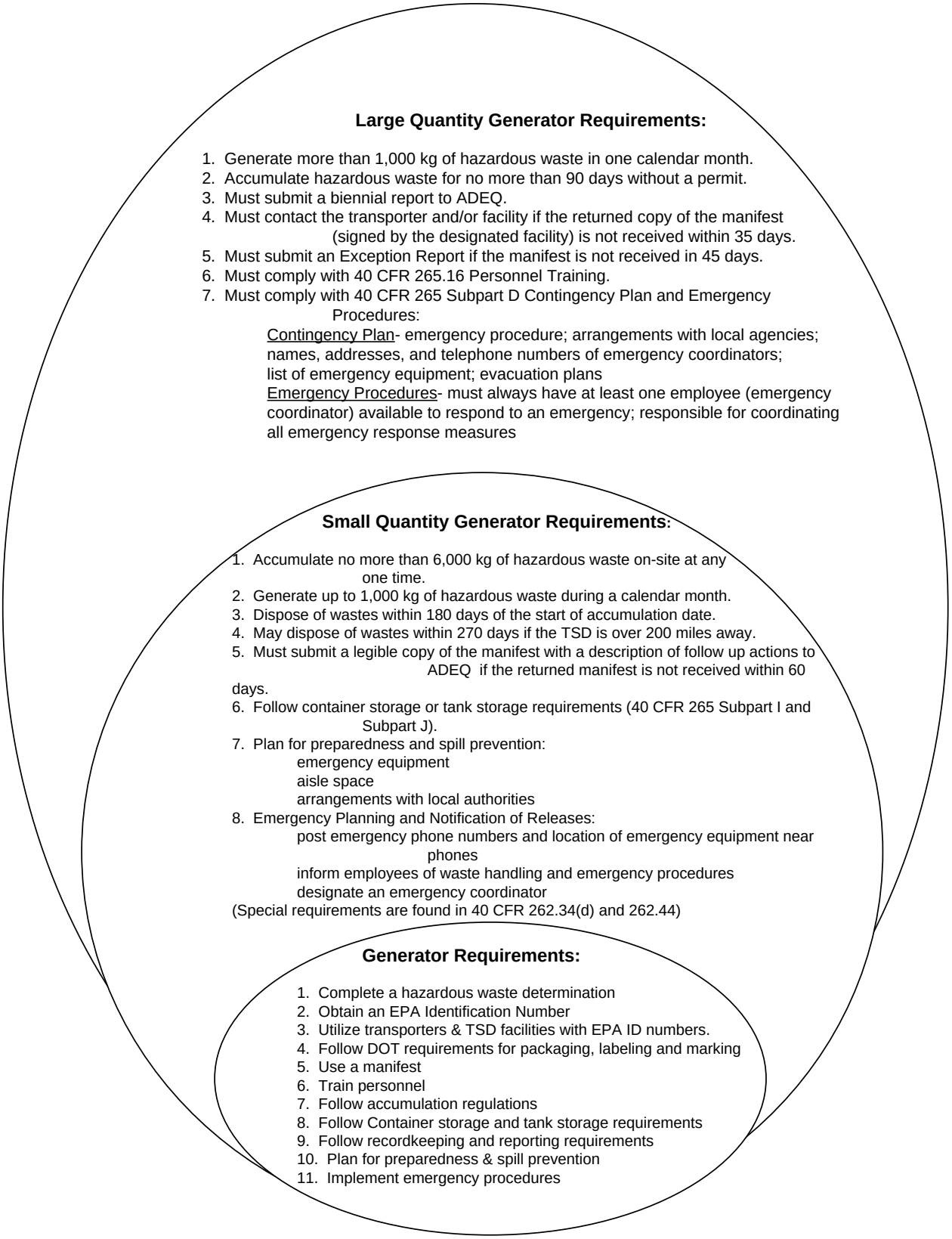
5.2.4 Satellite Accumulation Requirements Flowchart

The following flowchart displays regulatory requirements for satellite accumulation areas.



SATELLITE ACCUMULATION REQUIREMENTS**

**40 CFR 262.34(c)



GENERATOR REQUIREMENTS

5.3 *Universal Waste Management*

5.3.1 Requirements for a Small Quantity Handler of Universal Waste (SQHUW)

1. Small Quantity Handlers of Universal Wastes (SQHUW) may accumulate 5,000 kg (11,000 lbs.) of universal waste (all universal waste categories combined) for up to one (1) year.
2. SQHUW are not subject to notification and tracking requirements.
3. Employees that handle or manage universal wastes must be trained on the proper handling and emergency procedures appropriate to the type(s) of universal waste handled at the facility.

5.3.2 Requirements for a Large Quantity Handler of Universal Waste (LQHUW)

1. Large Quantity Handlers of Universal Wastes (LQHUW) are classified as facilities that accumulate over 5,000 kg (11,000 lbs.) of all types of universal wastes and are subject to notification and tracking requirements.
2. Provide notification of the LQHUW status on the EPA Form 8700-12 and submit the completed form to the ADEQ.
3. Provide the tracking requirement by calculating and logging the number of pounds of all types of universal wastes stored in the calendar year.
4. Provide training to inform employees that handle or manage universal wastes of the proper handling and emergency procedures appropriate to the type(s) of universal waste handled at the facility (40 CFR 273.36).

5.3.3 Universal Waste Recycling Procedures

1. Recycle all Universal Wastes each year to comply with the Universal Waste Regulations accumulation timeframe of one (1) year (40 CFR 273.15(a)).
2. Collect mercury lamp containers at the Universal Waste Storage Area and log the number of lamps onto the inspection sheet for recycling recordkeeping (refer to **Appendix B, Form #1-A**) Refer to **Figures** for the Universal Waste Storage Area location.
3. Contact the recycling vendor for used mercury lamps and mercury containing devices.
4. Collect battery drums at the Universal Waste Storage Area. Weigh the drums to estimate the cost for recycling and determine universal waste handler status.
5. Contact battery recycling vendors for services.

5.4 *Special Waste Management*

5.4.1 Procedures for Special Waste Application, Identification Number and Manifest

1. Apply for an Arizona Special Waste Identification Number for generators as described by A.A.C. R18-8-302-A. Appendix A. ADEQ will issue the identification number to the generator within 30 days.
2. RCM's Special Waste Identification Number is 302437.
3. Prior to off-site consignment of special waste, RCRA/DOT certified RCM personnel will perform the following actions:
   a. Complete and sign the "Generator" section of a special waste manifest.
   b. Obtain the handwritten signature of the special waste shipper on the special waste manifest.
   c. Retain the generator's copy of the special waste manifest.
   d. Give the special waste manifest and the remaining attached copies to the special waste shipper, or forward it to the receiving facility.
4. A federal manifest, shipping paper or shipping record may be used in lieu of the Arizona special waste manifest form given the documents include all the required information. Within fourteen (14) days after shipment is accepted by a special waste shipper, submit one (1) legible copy of each manifest to ADEQ.
5. If RCM does not receive a completed returned manifest copy from the receiving facility, contact the shipper and receiving facility operator to determine the status of the special waste.
6. Submit an exception report within 45 days of the date the waste was accepted by the initial special waste shipper.
7. Retain a legible copy of each signed special waste manifest for at least three (3) years from the date of acceptance of a shipment of special waste for off-site consignment.
8. Analyze for the following parameters for PCS if disposing in a Subtitle D landfill:
   a. Diesel fuel, unused motor oil, transformer fluids, etc. (excluding used oils).
      (1) PAHs – EPA SW-846 Method 8310.
      (2) Benzene, Toluene, Ethyl Benzene and Total Xylenes – EPA SW 846 Method 8020, Aromatic Volatile Organic Compounds.
      (3) PCBs – EPA SW-846 Method 8080 (may use generator knowledge to eliminate this analysis).
   b. Unknown sources of petroleum contamination, used oil, etc.
      (1) PAHs – EPA SW-846 Method 8310.
      (2) RCRA TCLP Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) – EPA SW-846 Method 8240/8270.
      (3) RCRA TCLP Volatiles and Semi Volatiles – EPA SW-846 Method 8240/8270.

(4) Total Benzene, Toluene, Ethyl Benzene and Total Xylenes – EPA SW-846 Method 8021.

(5) PCPs – SW-846 Method 8080 (may use generator knowledge to eliminate this analysis).

c. Gasoline (unleaded), jet fuel and kerosene.

(1) PAHs – EPA SW-846 Method 8310.

(2) Benzene, Toluene, Ethyl Benzene and Total Xylenes – EPA SW-846 Method 8021.

(3) Paint filter test EPA SW-846 Method 9095.

9. Submit a “Declaration of Environmental Use Restriction” (DEUR) when remediation is performed to a level less protective than residential standards that has been completed and RCM agrees to restrict the property to non-residential use. A DEUR is a written document, signed by the real property owner and the Arizona Department of Environmental Quality (ADEQ), and recorded with the county recorder on the chain of title for a particular parcel of real property.
10. Prepare and submit annual waste report (including special waste) to the ADEQ by March 1 of each year.

6 Disposal Coordination

6.1 *Hazardous and Non-Hazardous Waste Disposal Procedures*

1. Select and contact the disposal vendor for the appropriate waste streams.
2. Establish a waste profile for each hazardous and non-hazardous waste stream with the selected disposal vendor. (Refer to **Appendix A, Section 15** for general acceptance criteria for non-hazardous wastes from a Subtitle D landfill facility.)
   a. Sample and obtain a baseline analysis for each waste stream or, if possible, use information obtained from the Safety Data Sheet (SDS).
   b. The vendor will assist in the completion of the profile by obtaining information from SDSs, analysis results, generator knowledge, etc.
   c. Review the profile for accuracy.
   d. Retain a copy of the profile for documentation with the copy of the hazardous waste manifest.
   e. Waste recycling/disposal companies require re-certification of waste profiles each year, but may accept “generator knowledge” of certain waste streams if processes, procedures, and products do not change.
3. Retain a copy of the profile.
4. Schedule a time and date for the collection, transportation, and disposal of the hazardous and non-hazardous wastes in agreement with the vendor. Provide information, such as the quantity of waste, the number of containers, the sizes of the containers, the exact collection site, the point of contact, and any other relevant information to the vendor to avoid delays.
5. Dispose of the wastes within 90 days of the start date of accumulation for Large Quantity Generators (LQGs) or 180 days of the start date of accumulation for Small Quantity Generators (SQGs).

   Note: For containers that are located in satellite accumulation areas, the start date of accumulation is the date that a waste is moved from a satellite accumulation area to the central accumulation area. This typically happens when a waste stream has reached the 55 gallon maximum (or 1kg of acutely hazardous waste) in a satellite accumulation area.
6. The vendor will provide the necessary shipping documents, such as the hazardous waste manifest and the land disposal restrictions forms.
7. Complete the hazardous waste manifest (EPA Form 8700-22) in accordance with 40 CFR 262.23:
   a. Instructions to complete the hazardous waste manifest are contained in 40 CFR 262, Appendix to Part 262.
   b. RCM information to be inserted on the manifest including the Generator U.S. RCRA ID No., Generator Name, Mailing Address, and Phone number as follows:

Line Item 1 AZD001886654

Line Item 3 Resolution Copper Mining – Superior Operations
PO Box 1944
Superior, AZ 85173

Line Item 4 (520) 689-3254

c. RCM personnel authorized to sign the manifests must be trained in 49 CFR Transportation of Hazardous Materials.

8. Complete the Land Disposal Restriction (LDR) form in accordance with 40 CFR 268 and retain for five (5) years.

6.2 *Transportation of Hazardous Materials*

6.2.1 Introduction

The Arizona Department of Transportation (ADOT) administers the Hazardous Materials Transportation Act (HMTA). The regulations for the transportation of hazardous materials are located in 49 CFR.

6.2.2 Determination of a Hazardous Substance

A hazardous substance is a material, including its mixtures and solutions that:

1. Is listed in **Appendix A** to 49 CFR 172.101;
2. Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in **Appendix A** to 49 CFR 172.101; and
3. Is in a mixture or solution at a concentration by weight of the contaminate which equals or exceeds the concentration corresponding to the RQ of the contaminated material (will require total metals analysis to determine metals concentration in the waste material).

Substance	Reportable Quantity of Impacted Material (RQ) (pounds)	Concentration by Weight of Contaminant (percent)
Ag	1,000	2
As	1	0.002
Be	10	0.02
Cd	10	0.02
Cr	5,000	10
Cu	5,000	10
Hg	1	0.002
H_2SO_4	1,000	2
Ni	100	0.0
Pb	10	0.02
Sb	5,000	10
Se	100	0.0
Ti	1,000	2
Az	1,000	2

For example, a mixture containing a listed substance whose RQ is 5,000 lbs. is regulated in transportation only when the concentration of the listed substance is 10 percent or greater **and** at least 5,000 lbs. of the listed substance is present in one package.

6.2.3 Transportation

RCM contracts with various Department of Transportation (DOT) approved firms to transport various materials and waste; confirm approved vendors through SAP.

6.2.4 Shipping Papers

1. All shipping papers must be signed by authorized, DOT trained Resolution Copper Mining employees or contractors.
2. Copies of all shipping papers will be forwarded to the Environmental Department for documentation and recordkeeping for at least three (3) years.
3. The Environmental Department will retain documents for a minimum of three (3) years.

6.2.5 Procedures for Hazardous Waste Manifests

1. All hazardous waste manifests must be reviewed for accuracy and signed by authorized, RCM personnel certified in 49 CFR Transportation of Hazardous Materials.
2. Copies of all hazardous waste manifests must be forwarded to the Environmental Department for documentation and recordkeeping for at least three (3) years.
3. Hazardous waste manifests (EPA Form 8700-22) must be completed in accordance with 40 CFR 262.23.
4. If a manifest for a shipment of hazardous waste is improperly completed, ADEQ may return it and require the generator to properly complete and resubmit the manifest with a fee of twenty dollars ($20).
5. Instructions to complete the hazardous waste manifest are contained in the 40 CFR 262, Appendix to Part 262.
6. Information to be inserted on the manifest for the Generator – The U. S. RCRA ID No., Generator Name and Mailing Address, and Phone number for RCM is as follows:

   Line Item 1 AZD001886654

   Line Item 3 Resolution Copper Mining – Superior Operations
   PO Box 1944
   Superior, AZ 85173

   Line Item 4 (520) 689-3383
7. Generators must retain one copy of each signed manifest received from the designated facility which received the waste for three (3) years. This signed copy must be retained for at least three (3) years from the date the waste was accepted by the initial transporter.

8. Within 45 days following the end of a month when hazardous waste was shipped off-site under a manifest, the generator must send a copy of the returned manifest to the ADEQ. Send a copy of the manifest to the address below:

   Arizona Department of Environmental Quality
   Hazardous Waste, Facilities Assistance Unit (FAU)
   1110 West Washington
   Phoenix, AZ 85007

   Note: Manifests used to document shipments of special waste need to be submitted to ADEQ within 14 days
9. Upon discovering a significant discrepancy, the owner or operator (of the TSD facility) must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations).
10. Significant discrepancies are listed below:
    (1) For bulk waste, variations greater than 10 percent (10%) in weight, and
    (2) For batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload.
11. Submit a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue to ADEQ. On the copy of the manifest, mark through the incorrect information, insert the correct information, and initial the change. Ensure the words “Corrected Copy” are noted on the manifest to provide clarification for the ADEQ submittal and the facility records.

6.2.5.1 Authorized Personnel and Requirements to Sign Manifests

RCM or contractors authorized to sign manifests have been trained and certified in 49 CFR Transportation of Hazardous Materials.

6.2.6 Land Disposal Restrictions (LDR)

1. General LDR and waste information:
   a. For wastes subject to land disposal restriction, a land disposal notification must accompany the waste shipment to the treatment and disposal facility.
   b. The LDR treatment standards are given in the table in 40 CFR 268-40. This table lists waste code, waste description, regulated constituents, and treatment standards for wastewater and non-wastewater. The table includes several categories for certain waste codes. For instance, there are three categories of D001 waste.
   c. Types of Waste
      (1) *Listed Wastes*. The regulations set standards for specified constituents. There is no need to consult the universal treatment standards for listed wastes.
      (2) *Listed Wastes which also exhibit a hazardous characteristic*. If the listed waste treatment standard addressed the characteristic, then the listed

standard is sufficient. However, if the treatment standard for the listed waste code does not address the characteristic, both the listed and characteristic standards apply.

(3) *Characteristic Wastes*.

- ***D001***. The treatment standards for ignitable wastes are divided into three categories. High-TOC (Total Organic Carbon) D001 wastes that are treated in Clean Water Act (CWA) systems may be treated by deactivation (removing the ignitable characteristics). Dilution may be used to achieve deactivation. All other D001 wastes must be treated by combustion, recovery of organics or deactivation, (removing the ignitable characteristic). Dilution may be used to achieve deactivation. All other D001 wastes must be treated by combustion, recovery of organic, or deactivation - dilution is prohibited. In addition, these wastes must be treated for applicable underlying hazardous constituents.
- ***D002***. The D002 corrosive wastes are divided into two categories, corrosives managed in CWA or Class 1 Safe Drinking Water Acts (SDWA) systems, and all other D002 wastes. Corrosives managed in CWA wastewater treatment systems or in SDWA Class 1 injection wells may be diluted to meet the treatment standards. All other D002 wastes must be deactivated and treated for underlying hazardous constituents.
- ***D004-D011***. These wastes are characteristically hazardous for heavy metals. Most must be treated to remove the toxicity characteristic. High concentration mercury wastes must be treated by a specific method.

6.2.6.1 Procedures for Land Disposal Restrictions (LDR)

1. Determine the waste code (i.e. D001, F006).
2. Assess the presence of underlying hazardous constituents (UHCs) (as required).
3. Determine the matrix (Wastewater/Non-wastewater).
4. Research and determine treatment standards in 40 CFR 268.40.
5. Determine if the waste meets LDR treatment standards.
6. Determine if UHCs meet treatment standards in CFR 268.48 (as required).
7. Prepare appropriate LDR Notification Form.
8. Ship the Waste with the manifest and LDR Form.
9. File copies of the manifest and LDR forms.
10. Maintain records for five (5) years.

6.2.7 DOT Eight Step Procedure for Preparation of Hazardous Materials Shipment

Procedure	Reference (49 CFR)
1. Determine proper shipping name, hazard, class/division, ID number and packaging group	172.101(2), (3), (4), and (5)
2. Is this material regulated by 49 CFR? a. As a hazardous material? b. As a hazardous substance? c. Marine pollutant? d. By highway mode? e. As a poison inhalation hazard?	172.101(1) and (2) Appendix A to 172.101 Appendix B to 172.101 172.101, Column (1) 172.101, Column (7)
3. Determine proper packaging a. Determine if an exception is authorized for the particular hazardous materials. b. If no exception is authorized, determine the specific packaging requirements. c. Determine the maximum net quantity of the hazardous material that may be shipped in one package by passenger-carrying and/or cargo-only aircraft as appropriate. d. Ensure that completed package meets general packaging requirements. e. Determine special provisions.	 172.101(8A) and reference to sections indicated 172.101(8B) or (8C) and reference to section listed 172.101(9A) and (9B) 173.24, 173.24a, and 173.24b 172.101(7)
4. Mark the package	Subpart D of Part 172 commencing at 172.300
5. Label the package: a. With appropriate table label(s)unless excepted b. With appropriate additions or multiple labeling requirements	 172.101(6) 172.402, 404, and 406
6. Prepare shipping papers with shipper's certification and signature	172.200, 201, 202, 203, 204
7. Provide emergency response information	Subpart G of 172 commencing at 172.600
8. Provide place carding as appropriate	Subpart F of 172 commencing at Section 172.500

7 Recordkeeping and Reporting

7.1 *Introduction*

Generators of hazardous waste must obtain a RCRA identification number (formerly known as U.S. EPA ID) number that is site-specific before transporting wastes off-site for disposal. The Generator ID number must be included on all hazardous waste manifests and land disposal restriction forms.

7.1.1 Calculate Quantities

1. Calculate and insert the quantities of hazardous waste, non-hazardous wastes disposed of/recycled, and quantities of recycled universal wastes in each respective spreadsheet (**Appendix B, Form #1-A, #1-E, and #2**) and file.

7.2 *Hazardous Waste*

7.2.1 RCRA Identification Number for Superior Operations

1. RCM's waste generator identification number is AZD001886654.
2. Refer to **EPA Notification Form 8700-12** to update notification information.

7.2.2 Annual Registration of Hazardous Waste Generators

1. All hazardous waste generators must register annually with the Arizona Department of Environmental Quality (ADEQ).
2. The application for registration shall be accompanied by a registration fee based on the following:
   a. Small Quantity Generators (SQGs) – one hundred dollars ($100)
   b. Large Quantify Generators (LQGs) – three hundred dollars ($300)

7.2.3 Hazardous Waste Fees

1. Generators of hazardous waste that is shipped off-site are required to pay ten dollars ($10) for each ton of waste generated on a quarterly basis to ADEQ.
2. Generators who comply with the pollution prevention planning requirements (submit a written Pollution Prevention Plan) are required to pay five dollars ($5) for each ton of waste generated to ADEQ

7.2.4 Hazardous Waste Recordkeeping

1. The Environmental Department completes a weekly inspection sheet (**Appendix B, Forms #1-A and #1-E**) for the Central Accumulation Area and maintains the completed forms on-site for three (3) years.
2. When wastes are shipped off-site for disposal, retain the completed generator's copy of the hazardous waste manifest and a copy of the waste profile for documentation for at least three (3) years.

3. Within 45 days following the end of a month when hazardous waste was shipped off-site under a manifest send a copy of the returned manifest to the Arizona Department of Environmental Quality (ADEQ).

   Arizona Department of Environmental Quality
   Hazardous Waste, Facilities Assistance Unit (FAU)
   1110 West Washington
   Phoenix, AZ 85007

4. Retain one (1) copy of each signed manifest received from the designated facility which received the waste for three (3) years. This signed copy must be retained for at least three (3) years from the date the waste was accepted by the initial transporter.
5. Calculate and include the quantity of generated or accumulated regulated waste for determining generator and associated waste generation fees. Refer to **Section 7 Recordkeeping and Reporting and Acronyms, Definitions, and Regulations** – Conditionally Exempt Small Quantity Generator, Small Quantity Generator, Large Quantity Generator for guidance and tracking information.
6. If hazardous waste is shipped off-site for disposal, and RCM does not receive the returned copy of the manifest (with the disposal facility's signature – Line Item 20 on the manifest) within the allotted time frame (45 days for LQGs and 60 days for SQGs) of the date waste was accepted by the initial transporter, RCM shall do both of the following:
   a. Contact the transporter or the designated facility to determine the status of the hazardous waste.
   b. Submit an **exception report** that includes the following:
      (1) a legible copy of the manifest of which confirmation of delivery is in question.
      (2) a letter explaining the returned copy was never received. An exemption report for LQGs requires a cover letter signed by the generator explaining the efforts taken to locate the waste and results of those efforts.
7. File the returned manifest, profiles, and analysis and retain for three (3) years. Records of any test results, waste analyses, or other determinations made in accordance with 40 CFR 262.11 must be retained for at least three (3) years from the date that the waste was last sent to off-site treatment, storage, or disposal. The periods of retention are extended automatically during the course of any unresolved enforcement action regarding the regulated activity.
8. Retain land disposal restrictions for five (5) years.
9. Calculate and insert the quantities of hazardous waste and non-hazardous wastes disposed of/recycled in the respective spreadsheet (**Appendix B**) and file.

7.2.5 Waste Analysis Record Requirements

1. Records of any test results, waste analyses, or other determinations made in accordance with 262.11 must be retained for at least three (3) years from the date that the waste was last sent to off-site treatment, storage, or disposal.

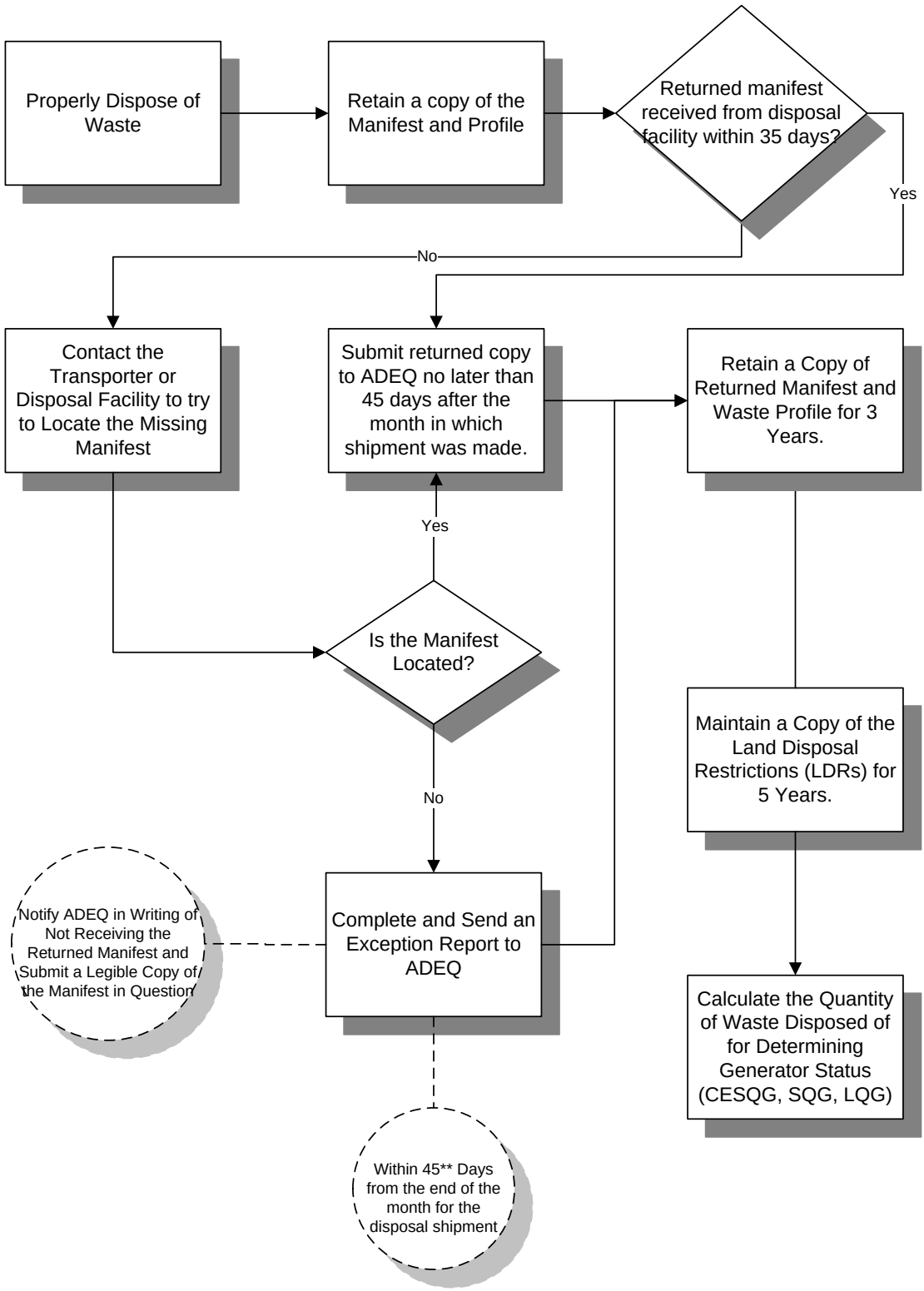
2. Refer to Environmental Files.
3. The periods of retention are extended automatically during the course of any unresolved enforcement action regarding the regulated activity (40 CFR 262.40(d)).

7.2.6 Hazardous Waste Reporting

1. Use only the hazardous waste quantities generated for determining the generator status of the facility:
   a. Large Quantity Generator (LQG) is a facility which generates over 1,000 kg (2,200 lbs.) of hazardous waste in one (1) calendar month.
   b. Small Quantity Generator (SQG) is a facility which generates over 1000 kg (220 lbs.) and up to 1,000 kg (2,200 lbs) of hazardous waste in one (1) calendar month and accumulated at any one time up to 6,000 kg (13,300 lbs.).
   c. Conditionally Exempt Small Quantity Generator (CESQG) is a facility which generates under 1000 kg (220 lbs.) in one (1) calendar month and accumulates at any time on-site up to 1,000 kg (2,200 lbs.) of hazardous waste.
2. Large Quantity Generators (LQGs) must submit, by March 1 each year, the Facility Annual Report (FAR) to ADEQ. This report shall describe generator activities during the previous calendar year and a description of the efforts undertaken to reduce the volume and toxicity of waste generated.
3. Refer to the requirements for each status of hazardous waste generators listed on the Generator Flowchart on the following page.

7.2.7 Exception Reporting

If hazardous waste is shipped off-site for disposal, and RCM does not receive the returned copy of the manifest (with the disposal facility's signature – Line Item 20 on the manifest) within 45 days following the end of the month of shipment, a legible copy of the manifest must be submitted to ADEQ with a note stating the returned manifest was never received.



MANIFEST EXCEPTION REPORTING AND GENERAL RECORDKEEPING PROCEDURES

** 45 days for LQGs
60 days for SQGs

7.3 *Universal Waste*

7.3.1 Universal Waste Recordkeeping

1. Calculate and insert the quantity of Universal Waste recycled. Include all quantities of mercury lamps, mercury thermostats, and spent batteries recycled.
2. File completed forms in the Environmental Department.
3. LQHUW are classified as facilities which accumulate over 5,000 kg (11,000 lbs.) of all types of universal wastes and are subject to notification and tracking requirements.
4. SQHUW may accumulate 5,000 kg (11,000 lbs.) of universal waste (all universal waste categories combined) up to one (1) year.
5. Do not count the universal waste quantities in the hazardous waste generated amounts for determining RCRA generator status.

7.3.2 Universal Waste Reporting

1. LQHUW must notify ADEQ of the LQH status and are subject to tracking requirements. Notification of the LQHUW status is submitted on the Hazardous Waste Generator Notification Form (8700-12) to the Arizona Department of Environmental Quality (ADEQ).
2. SQHUW may accumulate up to 5,000 kg (11,000 lbs.) of universal wastes and are not subject to notification and tracking requirements.

7.4 *Special Waste*

7.4.1 Special Waste Reporting

1. Prepare and submit the Special Waste annual report to ADEQ by March 1 of each year to include the following information for generators:
    a. The volume or weight of each type of special waste treated, stored, or disposed of **on-site** for the preceding year.
    b. The volume or weight of each type of special waste treated, stored, or disposed of **off-site** for the preceding year.
    c. For each type of special waste disposed, a description of the methods and practices used to minimize the amount of toxicity of the waste before disposal or reuse that constitutes disposal.
    d. The volume or weight of waste received pursuant to Section 49-863, subsection G.

7.4.2 PCB Annual Report

1. Refer to **Appendix A, Section 17 Oil-Filled Electrical Devices/PCB Ballasts/ Transformers**.

2. The Electrical Supervisor shall develop and maintain all annual records and the written annual document log of the disposition of PCBs and PCB Items.
3. The written annual document log must be prepared for each facility by July 1 covering the previous calendar year (January through December).
4. The annual document log shall be maintained for three (3) years after the facility ceased using or storing PBCs and PCB Items. Annual records (manifests and certificates of disposal) shall be maintained for the same period.
5. The written annual records shall include the following.
    a. All signed manifests generated by the facility during the calendar year.
    b. All Certificates of Disposal that have been received by the facility during the calendar year.
6. The written annual document log shall include the requirements listed in 40 CFR 761.180(a)(2)).

8 Preparedness and Prevention

1. Hazardous material and waste storage facilities must be equipped with the following:
   a. An internal communications or alarm system capable of providing immediate emergency instruction (voice of signal) to facility personnel;
   b. A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;
   c. Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment; and
   d. Water at adequate volume and pressure to supply water hose streams or foam producing equipment, automatic sprinklers or water spray systems.
2. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation at the time of emergency.
3. All personnel involved in the areas where hazardous waste is being “poured, mixed, spread, or otherwise handled” must have immediate access to an internal alarm or emergency communication device. Use of the “Buddy System” (two person team) meets this requirement.
4. Hazardous material and waste storage facilities must maintain required aisle space to allow unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment.
5. Hazardous material and waste storage facilities must arrange for emergency services with appropriate agencies (such as police, fire departments, emergency response teams, and local hospitals) to become familiar with the layout of the site, the materials handled, entrances to roads inside the facility, and evacuation routes. The facility should document into the operating record any incidence of State or local authorities declining to enter into such arrangements.

8.1 *Training*

8.1.1 Introduction

Personnel responsible for handling hazardous wastes must receive specialized training in hazardous waste management within six (6) months after the date of their employment or assignment to a facility and must take part in an annual review of the initial training. As a facility that utilizes hazardous materials and generates hazardous waste, RCM is required to provide training in accordance with OSHA HazWoper regulations, DOT HazMat regulations and RCRA regulations.

8.1.2 Content of Hazardous Materials and Waste Training

RCM is dedicated to provide on-going comprehensive training for required personnel. In addition, all personnel exposed to hazardous materials and wastes as a function of their work detail will take part in periodic spill prevention and response training programs. These programs will address, but are not limited to, the following:

1. Procedures for identifying, handling, packaging, labeling, accumulation, storing, and transporting hazardous wastes, and preparing manifests and other forms.
2. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment.
3. Procedures for personal protection in handling of hazardous wastes and in responding to spills, fires or explosions.
4. Health effects of exposure to oil and hazardous substances.
5. Spill classification according to Levels 1, 2, and 3 response and RQ allowances.
6. Applicable First Aid procedures to be used following exposure.
7. Personal Protective Equipment (PPE) requirements and procedures for using equipment.
8. Evacuation procedures.
9. Combustibility of materials and hazards associated with controlled releases, including flash back potential along vapor trails.
10. Applicable firefighting and fire-control procedures for dealing with special hazards associated with combustible materials.
11. Reactivity potential and hazards associated with mixed material spills, including water reactivity.
12. Use and maintenance of spill response and control procedures.
13. Initial response and notification procedures.
14. Location of posted site-specific spill response plans.
15. Immediate spill response actions and protocols, including:
    - The location and operation of pump controls and valves used to stop or control releases;
    - The location and use of fire extinguishers, considering the composition of materials released; and
    - The use of absorbents and neutralizing agents, given the composition of released materials.
16. Hazardous material storage protocols, standard good housekeeping practices, and safe handling measures, required for the prevention of substance releases.
17. Understanding of probable flow-path routes in the event of an uncontrolled release. Particular emphasis will be placed on off-base discharge potentials.

RCM has implemented programs that ensure that HazMat employees and local fire departments have familiarity with the general provisions of the hazardous material regulations, are able to recognize and identify hazardous materials on site, and have knowledge of specific requirements of the hazardous material regulations applicable to functions performed by the employee.

8.1.3 Site Specific Training

RCM provides a site-specific training program, designed to provide familiarity with identifying hazards and emergency response procedures RCM personnel, contractors and visitors as well as local fire department personnel per emergency services agreements. This training is conducted as a yearly refresher for personnel and contractors.

8.1.4 Task Training

Task training addresses requirements and methods to properly handle hazardous materials and hazardous wastes. This training includes measures to protect the individual from the hazards associated with the hazardous materials/wastes they utilize in the workplace. Methods and procedures for avoiding accidents are also presented.

8.1.5 First Responder Awareness Level

This training is for individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. The Awareness Level consists of recognizing the emergency situation, securing the scene, identifying the substance, and notifying appropriate personnel. Members of RCM environmental team require the initial 40 hour HazWoper and annual refresher training. The first responders shall have competency in the following areas:

1. Understanding what hazardous substances are and the risks associated with them in an incident.
2. Understanding the potential outcomes associated with an emergency where hazardous substances are present.
3. Ability to recognize the presence of hazardous substances in an emergency and to identify the hazardous substance, if possible.
4. Understanding the first responder's role in the emergency response plan including site security and control and the U.S. DOT Emergency Response Guidebook.
5. Ability to recognize the need for additional resources, and to make appropriate notifications to the communication center.

8.1.6 First Responder/Operations Level

First Responder personnel are individuals who initially respond to releases, or potential releases, of hazardous substances for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a **defensive** fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. The Operations Level personnel

recognize the emergency, secure the scene, identify the hazardous substance, notify appropriate personnel and contain the release (using absorbents, pads, berms, etc.) from a safe distance. RCM provides an annual 8-hour HazWoper First Responder Operations Level course.

Operational Level personnel shall possess the following information:

1. Knowledge of basic hazard and risk assessment techniques.
2. Knowledge of how to select and use proper personal protective equipment (PPE) provided to the first responder and operational level personnel.
3. Understanding of basic hazardous materials terms.
4. Knowledge of how to perform basic control, containment and/or confinement operations within the capabilities of the resources and PPE available within their unit.
5. Knowledge of how to implement basic decontamination procedures.
6. Understanding of the relevant standard operating procedures and termination procedures.

8.1.7 Mine Safety and Health Administration (MSHA)

RCM is considered an underground mining facility and is regulated under the Mine Safety and Health Administration (MSHA). All RCM personnel and contractors as well as emergency responders from local fire departments performing work onsite are required to obtain the initial MSHA training. Those individuals who have already obtained initial MSHA training must complete an 8-hour refresher annually to keep their MSHA certifications current.

8.1.8 Occupational Safety and Health Administration (OSHA)

Some areas of RCM operations are regulated under the Occupational Safety and Health Act (OSHA) (e.g. Core Building). RCM requires the Operations Level personnel to receive the initial 40-Hour OSHA HazWoper training, the 8-Hour OSHA annual refresher training and to have had sufficient experience to objectively demonstrate competency in the preceding areas in addition to those in the awareness level.

8.2 *Transportation Training*

1. Each hazmat employee will be tested by appropriate means on the training subjects covered in 49 CFR 172.704.
2. Training requirements for **hazmat employees** shall include the following:
   a. General Awareness/familiarization training
   b. Function-specific training
   c. Safety Training
3. OSHA or EPA training may be used to satisfy the training requirements listed above to avoid unnecessary duplication of training.
4. Initial and recurring training.

a. Initial training – A new hazmat employee or an employee who changes job functions may perform hazmat functions prior to the completion of training provided:
   (1) The employee is under the direct supervision of a properly trained and knowledgeable hazmat employee; **and**
   (2) The training is completed within 90 days after the employment of a change in job function.
b. Recurrent training – A hazmat employee shall receive the training required at least **once every three years**.
c. Relevant training – Relevant training received from a previous employer or source may be used to satisfy the training requirements provided a current record of training is obtained from hazmat employee's previous employer.
d. Compliance – RCM, as the hazmat employer, is responsible for compliance with the transportation requirements regardless of whether the required training has been completed.

5. Transportation training may be provided onsite or off site.
6. Recordkeeping - RCM will create and retain a record of current training inclusive of the preceding three (3) years, for as long as the employee is employed and for 90 days thereafter. The individual employee retains the original training certificate(s), while the Health & Safety Department and/or Environmental Department retain a copy of the training certificate(s) for documentation.

8.2.1 Training Records

Each generator of hazardous waste is required to keep records of hazardous waste management training for their personnel. Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three (3) years from the date the employee last worked at the facility.

Training records must include:

1. Name of employee;
2. Job Title;
3. Written job description (including duties related to hazardous waste handling); and
4. Records (*i.e.*, copies of certificates) or completed training. Retain a copy of the written training agenda with the attendance roster(s) and documentation for implementing the emergency response drill to fires, explosions, or spills.

8.3 *Vendors*

Materials/waste to be purchased/recycled/disposed and the current, associated vendors can be located in SAP

9 Additional Environmental Management Plans & Documents

9.1 *Emergency Response Plan (ERP)*

The ERP is a document maintained and controlled by RCML Environmental Department. The plan provides guidance during environmental emergencies and incidents. These can include spills, dam breaches, reporting requirements, etc. A copy of the ERP can be located on the portal, and should be used as a reference in all environmental incidents.

9.2 *Hazardous Materials and Contaminated Site Map*

RCML maintains an EP and WP map and register to show locations of all open and closed contaminated sites, along with hazardous materials storage locations. A copy of this register can be located on the portal.

9.3 *Refrigeration Management Plant*

The underground cooling system requires the use of hazardous chemicals. A list of chemicals and their SDS can be found in Maxcom as well as in the Refrigeration Management Plan. Also listed in the Refrigeration Management plan is disposal and spill cleanup procedures, inspection/ maintenance schedules and responsibilities, emergency response procedures, and responsible parties. The refrigeration plan is managed by the Operations Team. A copy of this plan can be located on the portal.

9.4 *Wildlife Handling and Avoidance Plan/ Aviation Protection Plan*

RCML has current and historic facilities that have the potential to pose a threat to local wildlife. A Wildlife Handling and Avoidance Plan and an Aviation Protection Plan has been developed to help guide RCM personnel on how to handle wildlife spotted on site. Reporting requirements are outlined in these plans. RCM environmental tracks all wildlife sightings and will report to the necessary agencies if any sick, injured, or deceased wildlife is spotted on site.

10 Additional Environmental Procedures

10.1 *Concrete Washout and Equipment Washbay Areas*

Concrete washouts and washbays are subject to an APP permit. Each washout or washbay needs to be approved through environmental and has items for which it must comply. The compliance table is listed below. All washbays and washout areas are documented on the site Hazardous Materials Map.

Item	Requirement
1	Vegetation at the soil base is cleared & grubbed.
	Base compacted to uniform density not less than 95%.
	Berms compacted to a uniform density not less than 95%
2	Located at least 50 feet from any storm drain inlet
	Located at least 50 feet from open drainage facility or water course
	Located at least 50 feet from any water supply well
3	Designed and operated to maintain adequate freeboard to prevent overflow or discharge of wastewater
4	Wastewater from any wash pad is routed to the impoundment
5	Has an annual average daily flow of wastewater is less than 3,000 gallons per day

10.2 *Pinal County Dust Control*

RCML maintains an air permit through Pinal County Air Quality Control District. Any earthmoving activities have the potential to be regulated by Pinal County under this permit. Dust is the major concern under this activity. Different earthmoving activities include:

- land stripping,
- earthmoving,
- blasting,
- trenching,
- road construction,
- grading,
- landscaping,
- stockpiling/storing/loading excavated materials,
- any other activity associated with land development which results in a disturbed surface area or dust generation operations, equal to or greater than .1 acres.

Any earth moving activities must be reviewed to stay in compliance with the RCML air permit.

10.3 *Radiation Gauges*

During construction activities it may be necessary to do ground compaction testing. The equipment to run this test often times has radioactive material. RCM requires all radioactive gauges to undergo annual testing and inspections. Copies of these records must be given to RCM HSE department before equipment is brought on site. It is also required that copies of training records of the equipment technicians be given to RCM before any work is commenced. Contractors using radiation gauges must have emergency response procedures and provide copies to RCM personnel.

10.4 *RCML Activities Environmental Checklist*

Any activity undertaken at RCM or on behalf of RCM has the potential to create new conditions for which a permit revision or application may need to occur. A checklist has been created that highlights common changes that could occur. This checklist should be reviewed with all new contractors or before the commencement of any new project at RCM or on behalf of RCM. This checklist can be located on the portal under Environmental Documents. A copy can be scene below.

Environmental Activities Checklist			
Activity	**Description**	**Y/N**	**Project Manager comments**
Will there be any digging, removing, or relocating soil/dirt/land?	*Some soil disturbance activities require an addition to our existing Stormwater permits and will require additional storm water BMPs (i.e. berms, waddles, etc.).*		
Will soil or fill material need to be brought on site?	*Certain soils and fill materials have to be approved.*		
Will there be any construction or demolition?	*Certain construction or demolition may require dust, noise, and vibration monitoring and may also require us to notify the surrounding community.*		
Will there be material that needs to be disposed of during construction/demolition?	*Certain construction and demolition waste may be disposed of in RCM's on site landfill and tracked. Other materials may need to be disposed of off site.*		
Will soil or dirt need to be sifted using a mechanical separator?	*This requires a special air permit from Pinal County.*		
Will a concrete washout or washbay area be needed or created?	*Permitting is required for the installation of a washbay or concrete washout area.*		
Will diesel equipment (i.e. stormwater pumps, emergency generators, etc.) be brought on or removed from site?	*Certain activities will require a change to RCM's air permit.*		
Will tanks, equipment, drums storing any hydrocarbons be brought on or removed from site?	*Anything over 50 gallons will require a change to RCM's Spill Prevention Control and Countermeasures Plan/Map and will need secondary containment.*		
Will chemicals be needed for this project?	*All chemicals must be pre-approved before brought on site. Chemical storage areas and containers need to be reviewed.*		
Will any waste be created during this project?	*Waste profiles will need to be created and proper waste storage procedures addressed.*		
Will there be a change to or an installation of a new water line or potable water system?	*This will require Drinking Water Permit approval and specific procedures.*		
Will there be new sewage lines or septic systems installed	*New Aquifer Protection Permits may be needed.*		

Environmental Activities Checklist			
Activity	**Description**	**Y/N**	**Project Manager comments**
during this project?			
Will water lines be installed, removed, or changed?	*Updates to line drawings and flow meters may be needed for site water balance.*		
Will a new drill pad need to be constructed?	*An NOI may need to be filed and an addition to or change to the current SWPPP may be needed.*		
Is there a well being installed or closed?	*An NOI or NOT will be need to be submitted.*		
Will any ground water be discharged from a hydro well?	*A permit may be required.*		

10.5 *Well Abandonment and Installation*

All wells must be registered with Arizona's Department of Water Resources (ADWR). Before the installation of any well, an authorization to drill must be received. To receive authorization a Notice of Intent (NOI) must be completed by RCML and submitted to ADWR. The NOI must include the following information:

- your name, address and telephone number
- county assessor's parcel identification information
- the location of the proposed well by legal description
- a description of the proposed well to include an explanation of how you intend to use the water from the well
- the name, address, and license number of the well drilling firm

Before the abandonment of any well, a Notice of Intention to Abandon a Well (NOIA) must be filed with ADWR. After RCML receives the well abandonment card from ADWR, the abandonment of the well by a licensed well drilling company may commence.

11 Record of Reviews and Revisions

Revision #	Description	Author	Approver	Approved Date	Effective Date
0	EMMP	Westland Resources		2007	
1	EMMP Update	Resolution Copper		2010	
2	EMMP Update	ARCADIS		2011	
3	EMMP Update	Resolution Copper	C. McKeon	6/2012	
4	EMMP Update	Resolution Copper	V. Peacey	9/2014	

12 Additional Information Sources

Arizona Department of Environmental Quality (ADEQ)
http://www.adeq.state.az.us/

Arizona Division of Emergency Management
http://www.dem.azdema.gov/

U.S. Environmental Protection Agency (EPA)
http://www.epa.gov/

U.S. EPA – RCRA Online
http://www.epa.gov/rcraonline

U.S. EPA – Contaminated Site Clean-Up Information (CLU-IN)
http://www.clu-in.com/

U.S. EPA – Office of Air and Radiation
http://www.epa.gov/oar/

U.S. EPA – Office of Ground Water and Drinking Water
http://www.epa.gov/safewater/

U.S. EPA –Wastes
http://www.epa.gov/epawaste/index.htm

Department of Energy, Office of Health, Safety and Security – Environmental Policies
http://www.hss.energy.gov/nuclearsafety/env/policy/

Department of Energy, Office of Health, Safety and Security - Environmental Reports
http://www.hss.energy.gov/nuclearsafety/env/reports/

Department of Energy, Office of Science
http://www.er.doe.gov/

Department of Energy – Office of Environmental Management
http://www.em.doe.gov/Pages/EMHome.aspx

Department of Health – Agency for Toxic Substances and Disease Registry
http://www.atsdr.cdc.gov/

Department of Housing and Urban Development (HUD) – Office of Lead Hazard Control
http://www.hud.gov/offices/lead/